Energy Tidbits

Biden's Commitment Now Also Includes "Carefully Managing the Transition from Fossil Fuels to Clean Energy"

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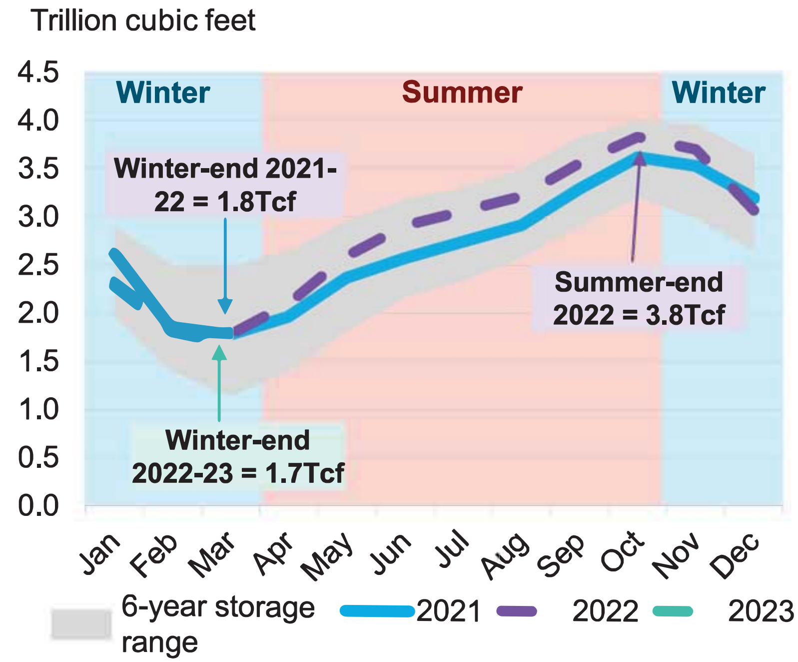
Executive summary

In life, there are three constants: death, taxes and inflation. But we count a fourth constant: U.S. gas production growth inflating storage levels. In fact, mild winters are in the process of becoming a fifth constant. After feigning tightness for much of 2021, mild weather and strong production have pushed storage levels above five-year average levels. Even frigid January weather and freeze-offs were not enough to reverse this trend. At least a sense of normalcy has returned.

- January is set to deliver frosty weather with 33 heating degree-days (HDD) more than normal. Yet the cold is not enough to make up for a near-record warm December. Last month finished 149 HDD short of normal, reducing heating demand to 34.5 billion cubic feet a day (Bcf/d), some 6Bcf/d below the five-year average. Thus, despite the current chill, heating demand has contributed to a loosening of balances since our last report.
- We have increased our production forecast by 219Bcf for the period from January 2022 to March 2023. Dry gas production continues to outperform expectations, with December 2021 reaching a monthly average of 97Bcf/d, the highest level in Bloomberg's Production Index (GSPRODUS <GO>). This adds to the loosening seen over the past month.
- Weather variability between now and the end of winter adds 1,001Bcf of storage uncertainty. There is a 45% chance that balances end below the five-year average, but the probability of a drop below the lower range of 1,141Bcf is close to zero.
- Last year saw 29 million metric tons of agreements/renegotiations for U.S. liquefied natural gas (LNG). This marked a significant increase from the 1 million tons seen in 2020. The 2021 total included three contracts with start dates in 2021/2022, which represent 3.9 million tons of future commitments.

1,778Bcf	Expected winter-end 2021-22 storage level
3,821Bcf	Expected summer-end 2022 storage level
1,685Bcf	Expected winter-end 2022-23 storage level

Natural gas inventory forecast



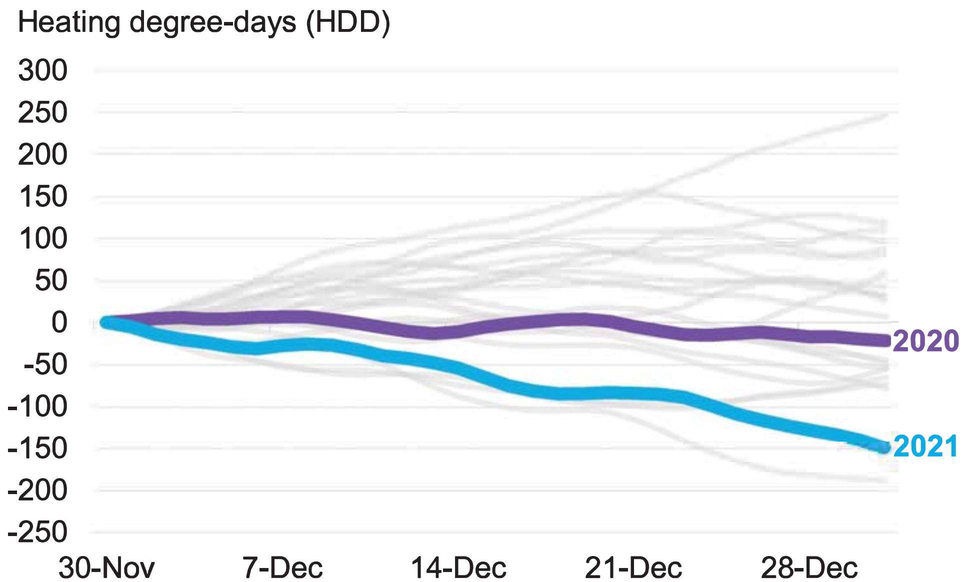
Source: BloombergNEF

Monthly injection forecasts

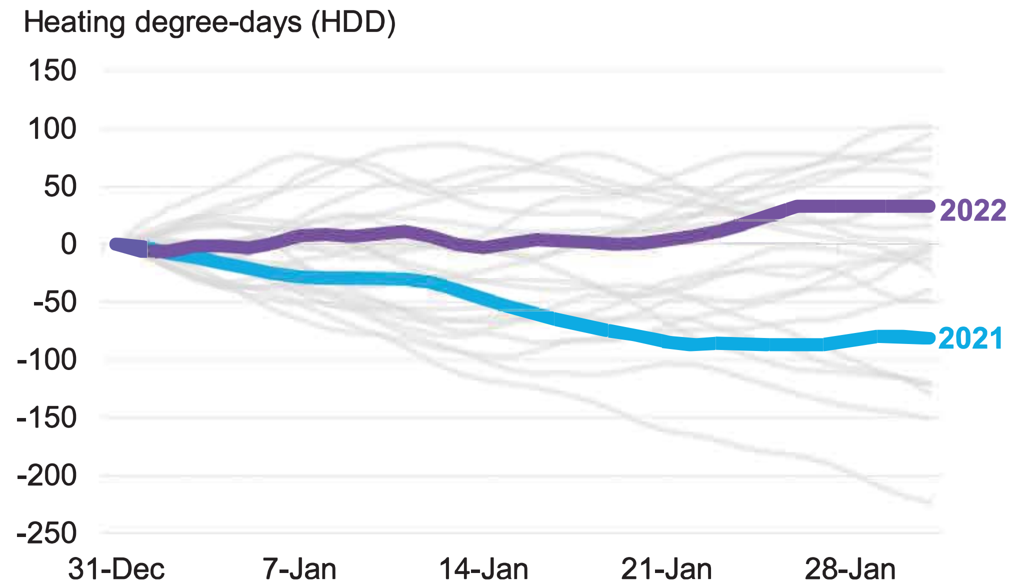
January brings back the cold

Explore the data:
Weighted degree-day forecasts

Cumulative departure from 10-year weather normal for December 2021



Cumulative departure from 10-year weather normal for January 2022



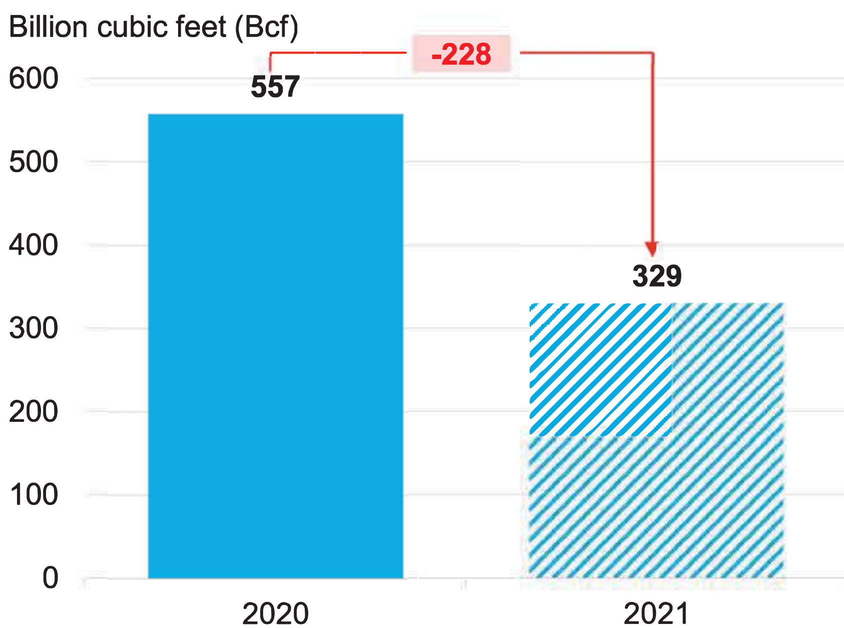
Source: BloombergNEF, WSI. Note: Weather forecast as of January 12, 15-day forecast ends on January 27.

- December 2021 (CEHGM Z21 Index <GO>) finished a shocking 149HDD below normal. This makes it the second warmest December in 20 years, beaten only by December 2015, which saw a 188HDD shortfall. By contrast, December 2020 was just 22HDD below normal weather.
- January 2022 (CEHGM F22 Index <GO>) is on track to finish 33HDD above normal, making it the coldest January since 2014, which was 102HDD above normal. This is a real break from pattern, with four of the previous five Januarys finishing warmer than normal – 2018 was the exception, but only by 1HDD. Within the broader context, however, January 2022 is nothing impressive. It is just the seventh coldest January in the last 20 years.

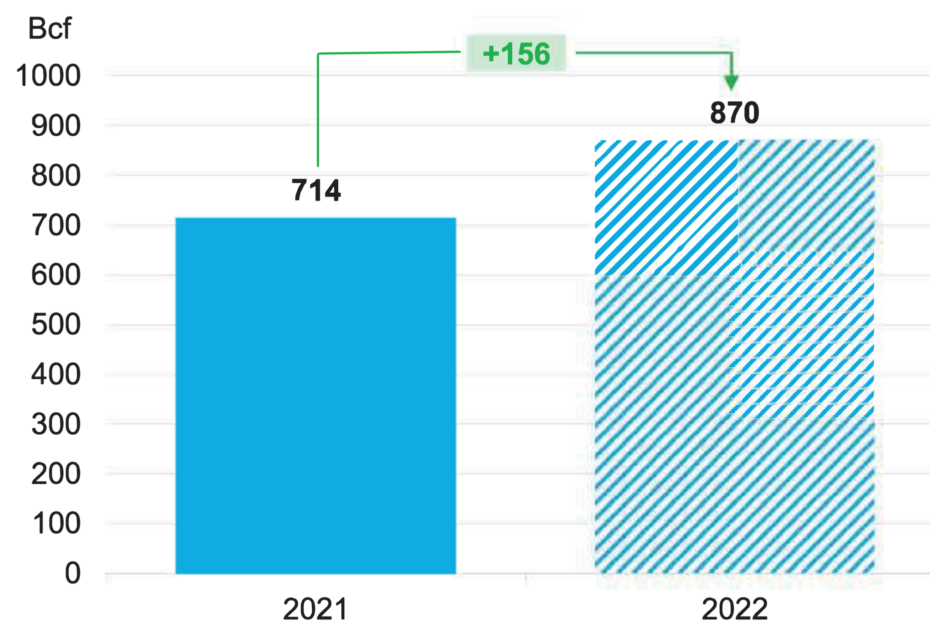
Monthly injection forecasts

Strong residential and commercial demand leads to higher withdrawals

Withdrawals in December 2020 and 2021



Withdrawals in January 2021 and 2022



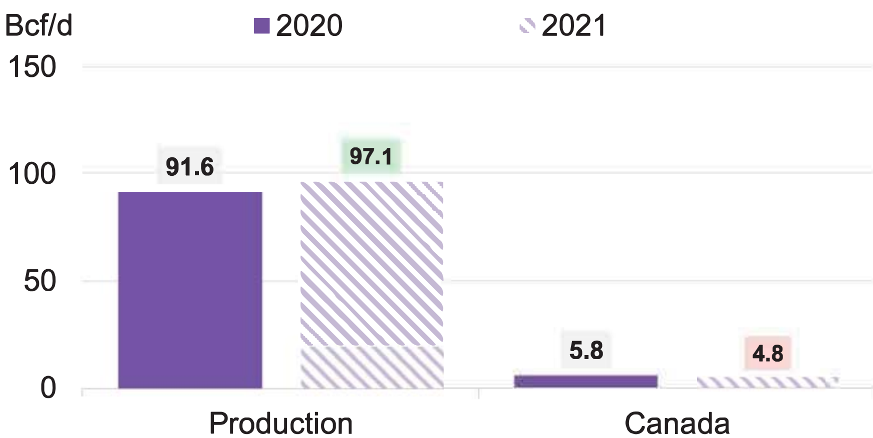
Source: BloombergNEF. Note: Based on forecasts as of January 12, 2022.

- Storage withdrawals in December 2021 were 228Bcf lower than for the same month a year earlier. Supply was 4.5Bcf/d higher than in 2020. Meanwhile, demand came in an impressive 2.8Bcf/d below the previous year. The decline in demand has been driven by a massive year-on-year drop of 5.8Bcf/d in residential and commercial (rescom) consumption. Notably, LNG continued showing growth with a 1.1Bcf/d year-on-year increase.
- January 2022 will see withdrawals rise by 156Bcf compared to a year earlier. An 8.6Bcf/d increase in demand, driven by a 3.3Bcf/d rise in rescom demand, leads to larger storage withdrawals.

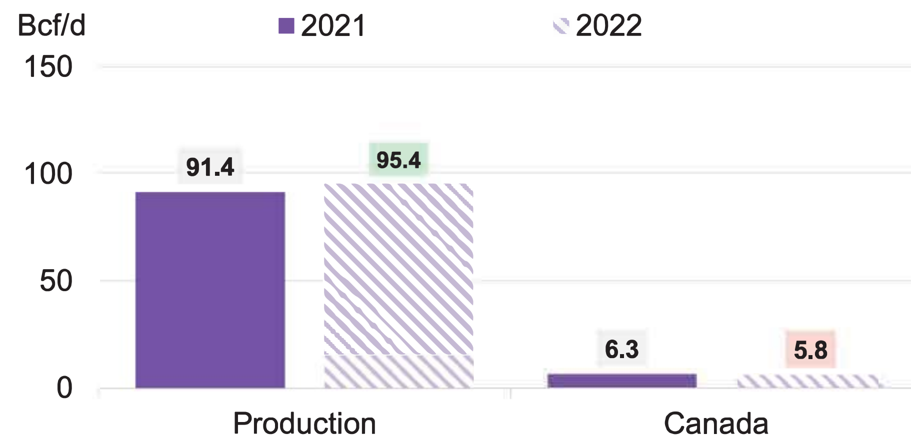
Monthly injection forecasts

Supply and demand by component for December and January

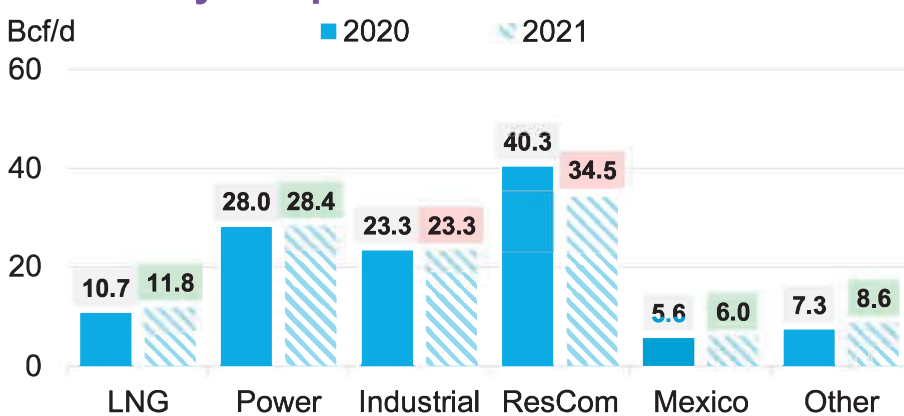
Supply by component for December 2021



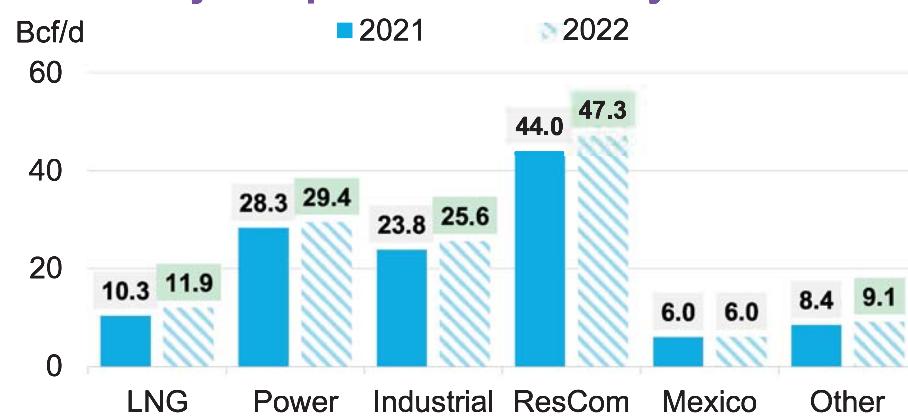
Supply by component for January 2022



Demand by component for December 2021



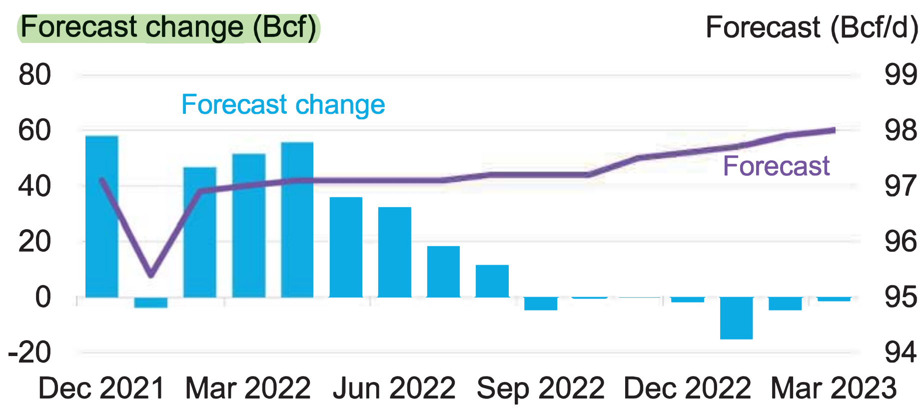
Demand by component for January 2022



Source: BloombergNEF Note: ResCom refers to residential and commercial. Other includes pipe losses, plant fuel, and balancing item.

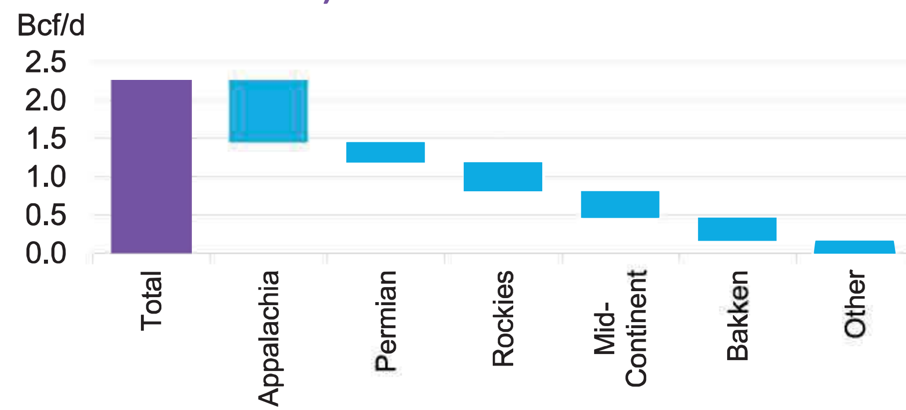
Gas production continues upward trajectory

Gas production forecast update



Source: BloombergNEF

Month-on-month average production loss (Dec. 2021 – Jan. 2022)

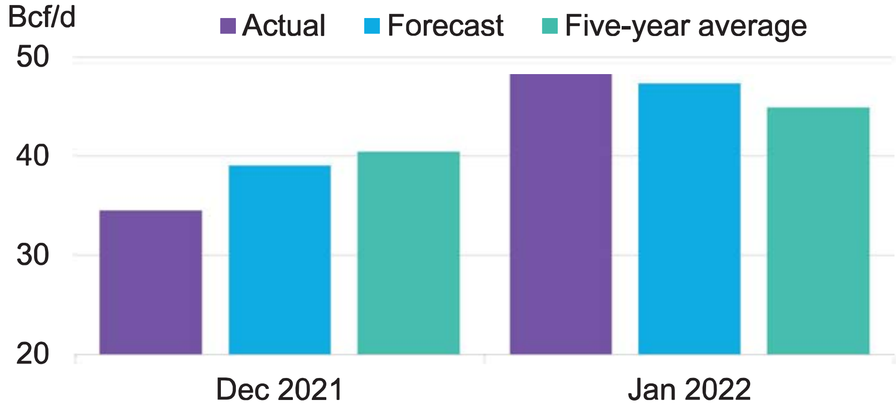


Source: BloombergNEF. As of January 13, 2022

- BNEF's latest Lower 48 gas production view adds 219Bcf from January 2022 to March 2023 over the most recent publication. Production growth accelerates over the first half of the year following a strong December 2021 performance. December reached an average production of 97Bcf/d, the highest level since the start of Bloomberg's Lower 48 Dry Gas Production Index (GSPRODUS <GO>).
- January production will drop 1.7Bcf/d compared to the previous month as cold weather drives freeze-offs. However, production should recover by the end of January and return to 97Bcf/d in February. Steady growth from there will push dry gas supply to 98Bcf/d by March 2023.
- Average monthly production in January 2022 had fallen by 2.3Bcf/d relative to December 2021, as of Jan. 13, 2022. Gas supply from the Permian, Rockies, Mid-Continent and Bakken basins is down by an aggregate 1.3Bcf/d due to freezing temperatures. Appalachia shows the widest loss with a 0.8Bcf/d decline. Continued cold weather throughout the Northeast has the potential to cause further disruptions throughout the month. See more on regional gas supply and demand in BNEF's North American Regional Gas Flow Model (DATA NAGF <GO>)

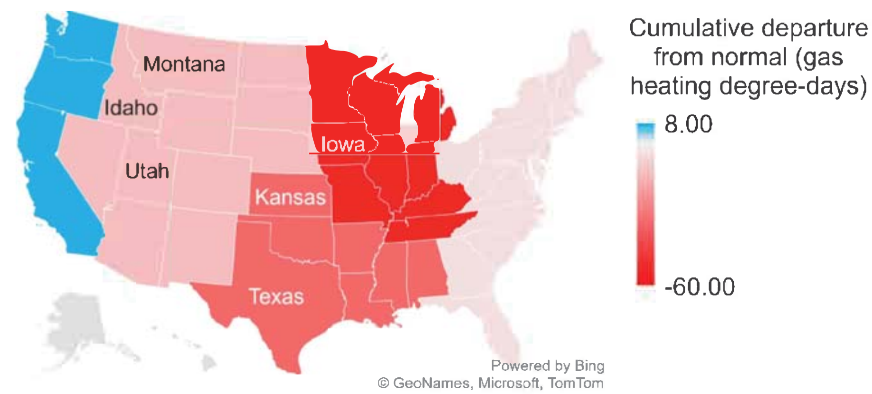
Warm December significantly weakened rescom consumption

December/January rescom demand



Source: BloombergNEF. Note: January actuals up to Jan. 11, 2022, 'Forecast' for December is BNEF's estimate from the previous gas monthly report.

Departure from normal weather, Dec. 2021



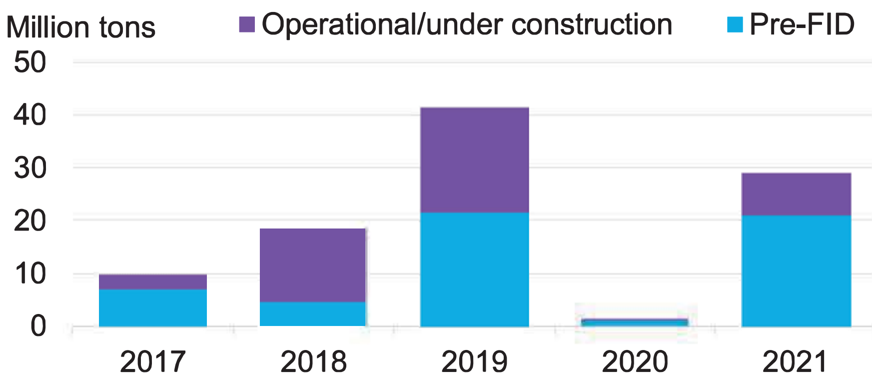
Source: BloombergNEF, WSI

- Last year saw the second warmest December in 20 years and rescom consumption averaged just 34.5Bcf/d. This is 4.5Bcf/d below BNEF's forecast of 39Bcf/d, and 5.9Bcf/d below the five-year average of 40.4Bcf/d. The month reached an impressive 149HDD below normal, some 51HDD below BNEF's estimate from the previous gas monthly report.
- In a turn of events, January 2022 has brought frigid weather and a rebound in rescom consumption. BNEF estimates heating demand will be 47.3Bcf/d, a significant 12.8Bcf/d above December's consumption. The forecast is 0.9Bcf/d lower than the monthly average of 48.2Bcf/d up to Jan. 11, and 2.5Bcf/d higher than the five-year average of 44.8Bcf/d.
- However, the increase in demand is not enough to offset the loosening impact of December's warmth. December demand was 183Bcf under the the five-year average, while January was 76Bcf above it. This nets to 107Bcf below expectations.
- Weather across the continental U.S. in December 2021 saw below normal HDD, except for the Pacific coast. The Midwest was particularly warm, ending 52HDD beneath normal weather.

Supply and demand tracking

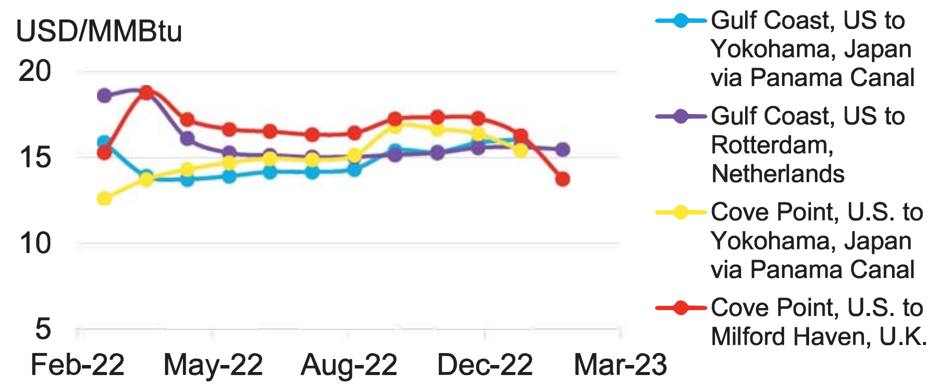
LNG supply agreements make a return in 2021

U.S. LNG contracted volumes by year



Source: BloombergNEF

LNG forward profit margins



Source: BloombergNEF. LNG Netback Calculator

- Last year saw a significant level of U.S. LNG contracts signed after a lackluster 2020. Some 29 million tons of agreements/renegotiations were signed in 2021, far above the 1 million tons signed in 2020. The 16 agreements signed were split evenly between pre-final investment decision (FID) and operational/under construction projects. However, FID saw larger volumes, accounting for 21 million tons of the annual total.
- Only three of the agreements signed last year have a start date in 2021/2022 and represent 3.9 million tons in volume. These were Cheniere's contracts with Engie (1.2 million tons), Sinochem (1.7 million tons) and ENN Energy (0.9 million tons). Contracted volumes for 2023 include six contracts with 6.1 million tons of commitments. See BNEF's Global LNG Contract Database for more on contracted LNG volumes.
- Front month LNG forward margins have fallen since December, with exports to the Netherlands and U.K. commanding a premium over Asia. A growing number of U.S. LNG exports are headed to Europe as Russian gas deliveries fail to show.
- Venture Global has maintained momentum at its Calcasieu pass LNG facility with the commissioning of Block 2 (which includes trains 3 and 4). BNEF estimates first feedgas from Block 9, the two final trains, in October 2022.

Gas production boosts balances

U.S. L48 gas market supply-and-demand balance sheet

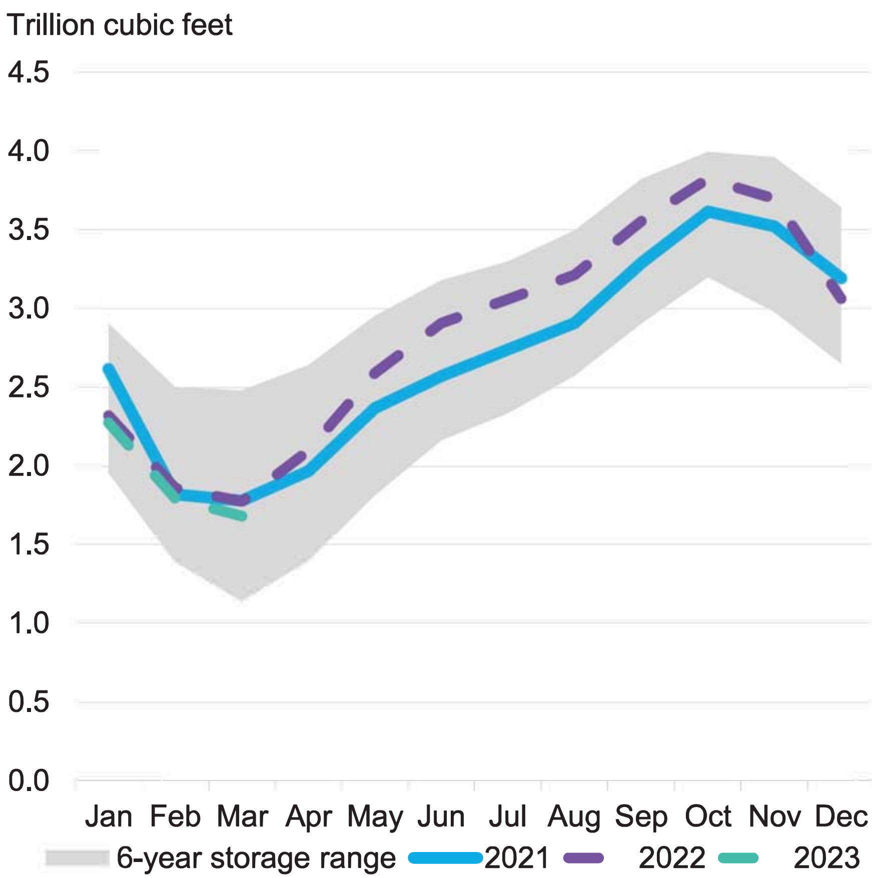
Bcf/d	Nov 21	Dec 21	Jan 22	Feb 22	Mar 22	Apr 22	May 22	Jun 22	Jul 22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23
Dry production	95.9	97.1	95.4	96.9	97.0	97.1	97.1	97.1	97.1	97.2	97.2	97.2	97.5	97.6	97.7	97.9	98.0
Net imports from Canada	5.3	4.8	5.8	6.2	5.5	5.3	5.5	5.6	5.7	5.6	5.2	5.5	5.3	5.8	6.5	6.2	5.6
Total supply	**101.2**	**101.9**	**101.2**	**103.1**	**102.5**	**102.4**	**102.6**	**102.7**	**102.8**	**102.8**	**102.4**	**102.7**	**102.8**	**103.4**	**104.2**	**104.1**	**103.6**
Power consumption	28.8	28.4	29.4	26.0	24.6	23.5	26.9	34.6	40.3	40.3	34.7	29.3	27.2	28.9	28.3	24.8	24.3
Industrial consumption	22.4	23.3	25.6	23.6	22.6	22.0	21.6	21.8	22.1	21.9	21.6	22.5	23.8	25.1	24.9	24.3	23.0
Rescom consumption	29.4	34.5	47.3	42.6	31.1	20.3	12.2	8.7	7.9	7.8	8.9	15.8	28.1	40.8	46.9	42.6	31.1
Plant fuel	5.2	5.3	5.4	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.6	5.6	5.6
Pipe losses	3.1	3.1	3.7	3.6	3.0	2.5	2.2	2.3	2.5	2.5	2.3	2.3	2.8	3.2	3.8	3.6	3.0
Exports to Mexico	5.9	6.0	6.0	6.3	6.7	6.8	6.8	7.1	7.0	6.9	6.8	6.8	6.5	6.5	6.6	6.7	6.9
LNG exports	11.0	11.8	11.9	11.9	11.6	11.1	11.5	12.2	12.8	12.9	11.3	11.9	13.0	13.7	13.6	13.7	13.3
Total demand	**105.8**	**112.3**	**129.3**	**119.6**	**105.2**	**91.7**	**86.7**	**92.2**	**98.0**	**97.8**	**91.1**	**94.1**	**107.0**	**123.7**	**129.6**	**121.3**	**107.1**
Balancing item	**-1.6**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Average daily storage change last year	-1.1	-18.0	-23.0	-28.3	-1.3	6.2	12.9	6.8	5.5	5.4	12.7	10.5	-3.1	-10.6	-28.1	-16.5	-2.6
Average daily storage change	-3.1	-10.6	-28.1	-16.5	-2.6	10.7	15.9	10.5	4.9	5.0	11.4	8.6	-4.2	-20.4	-25.4	-17.2	-3.6
Total monthly storage change (Bcf)	-92	-329	-870	-462	-82	322	493	315	151	154	341	268	-127	-631	-786	-481	-111
Storage level (Bcf)	**3,522**	**3,192**	**2,322**	**1,860**	**1,778**	**2,100**	**2,593**	**2,908**	**3,059**	**3,213**	**3,553**	**3,821**	**3,694**	**3,063**	**2,277**	**1,796**	**1,685**

Source: BloombergNEF. Note: Based on forward curve as of January 11, 2022. Green indicates tightness, the market is either withdrawing more or injecting less than for the same month a year prior.

Balance: U.S. gas storage levels to end winter 2022-23 at 1,685Bcf

Read previous monthly
U.S. Gas Monthly:
Straight to Spring

Natural gas inventory forecast, 2021-23



Source: BloombergNEF

BNEF's inventory forecast has loosened from last month. Weak rescom demand in December and rising production led to low storage withdrawals. Rescom demand has since recovered, but the current January cold is not enough to tighten balances.

Winter 2021-22: BNEF's **1,778Bcf** end-of-winter inventory view is **234Bcf** higher than last month's forecast. The difference is driven mainly by mild weather throughout the season.

Summer 2022: The summer-end estimate rises to **3,821Bcf,** some **399Bcf** above our previous estimate. The increase is driven by growing lower-48 production.

Winter 2022-23: Next winter ends at **1,685Bcf**, which is **442Bcf** higher than last month's report. During this period, lower-48 production slows down but rising winter gas prices result in lower power burns.

Year-on-year changes in major fundamental sectors

Sector	Winter 2021-22 (Bcf/d)	Summer 2022 (Bcf/d)	Winter 2022-23 (Bcf/d)
L48 Production	6.5	3.8	1.5
Power burns	0.6	-0.2	-0.7
Rescom	-0.1	0.5	1.1
Industrial	1.5	1.1	0.7
LNG	1.7	1.6	1.8

https://www.theglobeandmail.com/business/article-canada-has-the-natural-gas-but-cant-get-lng-to-europe/

Canada has the natural gas, but can’t get LNG to Europe

BRENT JANG
VANCOUVER
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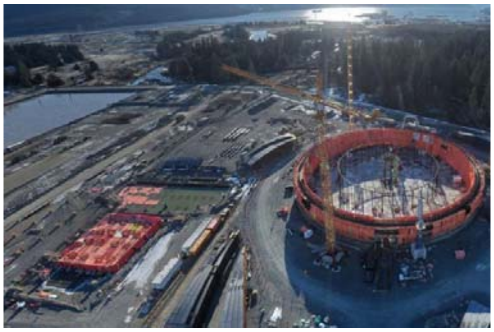


LNG Canada's export terminal, including what will be a massive storage tank for liquefied natural gas, under construction in Kitimat, B.C., in January, 2021.HANDOUT

Canada has ample reserves of natural gas but the country finds itself on the sidelines as a global coalition plans to boost shipments of the fuel in liquid form to Europe in case Russia halts its exports.

With Russian troops positioned for a potential invasion of Ukraine, European natural gas prices have surged this week on concerns over declining storage levels in Europe.

Russia has supplied nearly 40 per cent of Europe’s natural-gas requirements in recent years, mostly through pipelines and only a relatively small amount is shipped as liquefied natural gas.

The United States shipped a record amount of LNG to Europe in December, and the Biden administration has been holding talks with major producers such as Qatar and Australia about intervening to send more LNG to Europe in a bid to alleviate fears of running out of the fuel.

Only one Canadian export project, Shell PLC

RDS-B-N +0.35%increase
-led LNG Canada, is under construction. That $18-billion terminal in Kitimat, B.C., would ship LNG to Asia and won’t open until 2025 at the earliest.

“Canada can’t help that global coalition,” Dan Tsubouchi, chief market strategist at SAF Group, said in an interview from Calgary on Wednesday. “There’s nothing in Canada that can be done that could help them in 2022 or 2023 or 2024.”

Ambitious long-term plans to ship LNG to Europe from Nova Scotia, Quebec and New Brunswick have been either outright cancelled or suspended indefinitely.

Of the 24 Canadian LNG proposals tracked by federal authorities five years ago, there were three in Nova Scotia, two in Quebec and one in New Brunswick. The rest were in British Columbia, with all of those focused on exporting natural gas in liquid form to Asia.

Pieridae Energy Ltd.’s

PEA-T -6.67%decrease
Goldboro LNG venture in Nova Scotia is among the projects that appeared promising five years ago. “The last one on the East Coast to have any hope was Goldboro, and they basically haven’t been able to make a go of it,” Mr. Tsubouchi said.

Natural-gas pipeline proposals in the U.S. Northeast and Canada’s East Coast never got off the drawing board while dreams of a new cross-Canada route never materialized either.

Only four proposals for LNG export sites remain active in British Columbia: Woodfibre LNG, Cedar LNG, Ksi Lisims LNG and expansion plans by a terminal called Tilbury LNG, which is currently focused on production for domestic use and storage.

Tight supplies of natural gas in Europe last October already had raised the prospect of energy shortages. Adding in the rising tensions between Russia and Ukraine, industry experts are warning of a full-blown energy crisis this winter, especially if there is a prolonged cold snap in Europe.

There also would be limitations to how much the United States, Australia, Qatar and other countries could contribute because natural gas for export would first need to be supercooled into liquid form and loaded onto Europe-bound LNG tankers.

The role of natural gas as a transition fuel has been increasingly questioned over the past three years, including at last fall's United Nations climate conference in Glasgow, Scotland. But weeks after that conference ended, the European Union said this month that natural gas could be considered as a sustainable investment, under certain conditions.

In 2022, natural gas remains an important fuel for Europe, given the bumpy efforts to shift to a greener economy, Mr. Tsubouchi said. "The challenge for Europe is they need gas today," he said. "The reality check is setting in. Natural gas will probably be a transition fuel, but grudgingly."

Industry experts forecast that LNG will continue to play a crucial role globally for the next 10 years, though the uncertainty over supplies in Europe could disrupt shipments in Asia in the short term.

Gavin Thompson, vice-chairman of energy for Wood Mackenzie's Asia Pacific unit, said Asia is already facing challenges meeting demand. "Despite ongoing pandemic restrictions, sky-high spot prices and rising competition from renewables, the region's gas consumption will grow at almost 3 per cent a year over the next decade," Mr. Thompson said in a research note.

"As Asian demand has climbed, new long-term LNG contracting rebounded to its highest level in five years in 2021, with Asian buyers accounting for 85 per cent of global contracting."

The Institute for Energy Economics and Financial Analysis (IEEFA) said there are still chances for policies by governments to spur the development of non-fossil-fuel options, including in markets such as India.

"High and volatile LNG prices are an opportunity for India's gas-dependent industries and the city gas distribution network to switch to cleaner, non-fossil-fuel alternatives like biogas and biomethane," the IEEFA said.

https://www.argusmedia.com/en/news/2296402-malaysias-petronas-halts-more-marchapril-lng-cargoes?backToResults=true

Malaysia's Petronas halts more March-April LNG cargoes

Published date: 28 January 2022
Share:

Malaysia's state-owned Petronas has again delayed the installation of an interim mercury removal unit (MRU) at the Pegaga gas field offshore Sarawak supplying the 30mn t/yr Bintulu LNG plant, resulting in additional cancellations to cargo deliveries in March and April.

Petronas this week informed some term buyers from Bintulu that it has delayed the installation of the MRU from late February, without specifying the new installation date.

"Petronas told us this week that they are short in April," a term offtaker said. Petronas did not immediately respond to Argus' request for comment.

The number of cargoes that have been cancelled as a result of the delay is unclear. But it has prompted at least three term offtakers to enter the spot market to seek replacement cargoes.

Japanese refiner Eneos has been seeking what is likely its first spot requirement since early this week on a bilateral basis. It is looking to buy a cargo for delivery in March or April to two terminals, the 4.3mn t/yr Mizushima and the 1mn t/yr Hachinohe.

Market participants suggest that Eneos is seeking the cargo to make up for a cancelled delivery from Bintulu, with Petronas having likely exercised the downward quantity tolerance clause in its contract. Eneos has a term supply agreement to receive 380,000 t/yr of LNG from Bintulu from 2015-25 on a des basis.

Fellow Japanese importer Jera purchased a total of around six cargoes, mostly for deliveries in February and March, in the past week alone, in addition to requesting for term cargo advancements to February. Cancellation of Jera's Bintulu deliveries was likely among the reasons for its spot appetite, market participants said. Jera has a supply agreement to receive 400,000 t/yr of LNG from Bintulu from 2011-31 on a des basis.

Sustained cold weather in Japan, partial shutdowns at its coal-fired plants and high power prices had also drawn down Jera's LNG inventories and led to the firm's requirements for the fuel.

Japanese upstream firm Japex on 21 January closed its tender to buy an 11-17 March delivery to its 700,000 t/yr Soma LNG terminal, likely paying a mid- to high $23/mn Btu to BP for the cargo. It was Japex's first tender to buy since August last year and was likely also to make up for a lost cargo from Bintulu. Japex's term contract to receive 480,000 t/yr of LNG from Bintulu beginning 2002 will expire in March this year.

Term buyers from Bintulu LNG include Japan's Tokyo Gas, Osaka Gas, Toho Gas, Jera, Tohoku Electric, Japex, Saibu Gas, Shizuoka Gas, Hiroshima Gas and Eneos along with China's state-controlled CNOOC, Taiwan's CPC and South Korea's Kogas.

Rising mercury

Petronas has postponed the installation of the interim MRU numerous times since November. The MRU is meant to remove mercury from the field after high levels of the substance were detected in early September last year.

High mercury content at gas fields may poison catalysts in downstream process units and damage downstream equipment through corrosion, potentially resulting in equipment failure, unscheduled outages or even fires.

Petronas had told some offtakers that it would install the MRU on 21 December, after stormy weather in Malaysia had pushed the installation and commissioning of the facility back from 16 December.

This was after the expected installation date was shifted forward from mid-January in late November. It had brought forward the installation date to the end of December or January from the original March timeline in mid-November.

Spot prices sustain premiums

Asian spot LNG prices remain at a substantial premium to oil-linked term prices, despite having come off from their highs in late December.

The ANEA price, the Argus assessment for spot LNG deliveries to northeast Asia, was assessed at $27.100/mn Btu for first-half March and $26.620/mn Btu for second-half March on 26 January. These were more than double the oil-linked term contract prices for March deliveries indexed to Brent crude based on a three-month crude average (301) contract, which were equivalent to around $10.77/mn Btu for a 13.5pc slope and $11.57/mn Btu for a 14.5pc slope on 26 January.

The ANEA price for first-half April at $25.820/mn Btu on 26 January was also more than double the $11.05/mn Btu and $11.87/mn Btu oil-linked price for an April delivery based on a 13.5pc and 14.5pc slope respectively. Different Bintulu contracts have different slopes, but the average is around 13.5pc while the highest is around a high 14pc, according to a term offtaker.

Petronas last issued a tender to sell a spot cargo this month. It was looking to sell a cargo that will load from its 1.5mn t/yr Petronas Floating Dua project in mid-February and be delivered to northeast Asia across 22-23 February. It sold the cargo at $23.80-23.89/mn Btu to a trading firm when the tender closed on 12 January.

By Joey Chua

Highlights for the month

- The consumption of petroleum products during April-December 2021 with a volume of 148.32 MMT reported a growth of 4.93% compared to the volume of 141.355 MMT during the same period of the previous year. Except SKO & petcoke all other petroleum products reported a growth in consumption during April-December 2021 compared to the same period of the previous year. The consumption of petroleum products during December 2021 recorded a growth of 0.4% compared to the same period of the previous year.
- Indigenous crude oil and condensate production during December 2021 was lower by 1.8 % than that of December 2020 as compared to a de-growth of 2.2 % during November 2021. OIL registered a growth of 5.4 % and ONGC registered a de-growth of 2.8 % during December 2021 as compared to December 2020. PSC registered de-growth of 1.9 % during December 2021 as compared to December 2020. De-growth of 2.6 % was registered in the total crude oil and condensate production during April- December 2021 over the corresponding period of the previous year.
- Total Consumption of Natural Gas (including internal consumption) for the month of December 2021 was 5429 MMSCM which was 6.4% higher than the corresponding month of the previous year. The cumulative consumption of 49504 MMSCM for the current year till November 2021 was higher by 8.5% compared with the corresponding period of the previous year.
- Crude oil processed during December 2021 was 21.5 MMT, which was 2.2 % higher than December 2020 as compared to a growth of 3.4 % during November 2021. Growth of 10.5 % was registered in the total crude oil processing during April-December 2021 over the corresponding period of the previous year.
- Production of petroleum products saw a growth of 5.9 % during December 2021 over December 2020 as compared to a growth of 4.3 % during November 2021. Growth of 9.4 % was registered in the total POL production during April- December 2021 over the corresponding period of the previous year.
- Ethanol Blending with Petrol during December 2021, the first month of the Ethanol Supply Year(ESY) 2021-22, achieved 8.17% as compared to 8.1% during the ESY December 2020- November 2021

- Gross production of natural gas for the month of December 2021 was 2897 MMSCM which was higher by 19.5% compared with the corresponding month of the previous year. The cumulative gross production of natural gas of 25674 MMSCM for the current financial year till December, 2021 was higher by 21.5% compared with the corresponding period of the previous year.
- LNG import for the month of December, 2021(P) was 2614 MMSCM which was 4.9 % lower than the corresponding month of the previous year. The cumulative import of 24468 MMSCM for the current year till December, 2021 was lower by 2.8% compared with the corresponding period of the previous year.
- Crude oil imports decreased by 4.7% during December 2021 and increased by 9.1% during April-December 2021 respectively as compared to the corresponding period of the previous year.
- POL products imports decreased by 11.4% during December 2021 and 8.5% during April-December 2021 respectively as compared to the corresponding period of the previous year. Decrease in POL products imports during April-December 2021 was due to decrease in imports of petcoke, high speed diesel (HSD), motor sprit (MS), naphtha and superior kerosene oil (SKO).
- Exports of POL products increased by 24.4% during December 2021 and 9% during April-December 2021 respectively as compared to the corresponding period of the previous year. Increase in POL products exports during April-December 2021 (P) was due to increase in exports of all products except LOBS/Lubes oil, Bitumen and petcoke/CBFS.
- The price of Brent Crude averaged $74.10/bbl during December 2021 as against $81.44/bbl during November 2021 and $49.86/bbl during December 2020. The Indian basket crude price averaged $73.30/bbl during December 2021 as against $80.64/bbl during November 2021 and $49.84 /bbl during December 2020.

2. Crude oil, LNG and petroleum products at a glance

	Details	Unit/ Base	2019-20	2020-21 (P)	December		April-December	
					2020-21 (P)	2021-22 (P)	2020-21 (P)	2021-22 (P)
1	Crude oil production in India#	MMT	32.2	30.5	2.6	2.5	23.0	22.4
2	Consumption of petroleum products*	MMT	214.1	194.3	18.4	18.4	141.4	148.3
3	Production of petroleum products	MMT	262.9	233.5	21.5	22.8	170.1	186.0
4	Gross natural gas production	MMSCM	31,184	28,672	2,425	2,897	21,129	25,674
5	Natural gas consumption	MMSCM	64,144	60,815	5,102	5,429	45,633	49,504
6	Imports & exports:							
	Crude oil imports	MMT	227.0	196.5	20.5	19.5	143.4	156.4
		$ Billion	101.4	62.2	7.1	10.7	39.6	82.4
	Petroleum products (POL) imports*	MMT	43.8	43.2	4.0	3.5	32.8	30.0
		$ Billion	17.7	14.8	1.7	2.0	9.6	17.3
	Gross petroleum imports (Crude + POL)	MMT	270.7	239.7	24.5	23.1	176.2	186.4
		$ Billion	119.1	77.0	8.8	12.7	49.2	99.8
	Petroleum products (POL) export	MMT	65.7	56.8	4.7	5.8	42.1	45.9
		$ Billion	35.8	21.4	2.0	3.8	13.7	29.2
	LNG imports*	MMSCM	33,887	33,031	2,748	2,614	25,176	24,468
		$ Billion	9.5	7.9	0.7	0.9	5.4	8.7
7	Petroleum imports as percentage of India's gross imports (in value terms)	%	25.1	19.5	20.4	21.3	18.7	22.5
8	Petroleum exports as percentage of India's gross exports (in value terms)	%	11.4	7.3	7.3	10.0	6.8	9.7
9	Import dependency of crude (on consumption basis)	%	85.0	84.4	85.1	86.1	83.1	85.1

#Includes condensate; *Private direct imports are prorated for the period Nov-2021 to Dec-2021; RIL data prorated for Dec-2021

3. Indigenous crude oil production (Million Metric Tonnes)

Details	2019-20	2020-21	December			April-December		
			2020-21	2021-22 Target*	2021-22 (P)	2020-21	2021-22 Target*	2021-22 (P)
ONGC	19.2	19.1	1.6	1.7	1.6	14.4	15.3	13.9
Oil India Limited (OIL)	3.1	2.9	0.2	0.3	0.3	2.2	2.4	2.2
Private / Joint Ventures (JVs)	8.2	7.1	0.6	0.6	0.6	5.4	5.8	5.3
Total Crude Oil	**30.5**	**29.1**	**2.4**	**2.6**	**2.4**	**21.9**	**23.4**	**21.4**
ONGC condensate	1.4	1.1	0.09	0.0	0.1	0.9	0.0	0.7
PSC condensate	0.3	0.3	0.03	0.0	0.02	0.20	0.0	0.23
Total condensate	**1.6**	**1.4**	**0.12**	**0.0**	**0.1**	**1.1**	**0.0**	**0.9**
Total (Crude + Condensate) (MMT)	**32.2**	**30.5**	**2.6**	**2.6**	**2.5**	**23.0**	**23.4**	**22.4**
Total (Crude + Condensate) (Million Bbl/Day)	0.64	0.61	0.60	0.63	0.59	0.61	0.62	0.60

*Provisional targets inclusive of condensate.

4. Domestic oil & gas production vis-à-vis overseas production

Details	2019-20	2020-21	December		April-December	
			2020-21	2021-22 (P)	2020-21	2021-22 (P)
Total domestic production (MMTOE)	63.4	59.2	5.0	5.4	44.1	48.1
Overseas production (MMTOE)	24.5	21.9	1.9	1.9	16.5	16.5
Overseas production as percentage of domestic production	**38.7%**	**37.0%**	**37.5%**	**34.3%**	**37.4%**	**34.4%**

Source: ONGC Videsh, GAIL, OIL , IOCL, HPCL & BPRL

5. High Sulphur (HS) & Low Sulphur (LS) crude oil processing (MMT)

Details		2019-20	2020-21	December		April-December	
				2020-21	2021-22 (P)	2020-21	2021-22 (P)
1	High Sulphur crude	192.4	161.4	15.3	17.0	117.3	134.7
2	Low Sulphur crude	62.0	60.3	5.7	4.5	43.0	42.5
Total crude processed (MMT)		**254.4**	**221.8**	**21.0**	**21.5**	**160.4**	**177.2**
Total crude processed (Million Bbl/Day)		5.09	4.45	4.97	5.08	4.27	4.72
Percentage share of HS crude in total crude oil processing		**75.6%**	**72.8%**	**72.9%**	**79.2%**	**73.2%**	**76.0%**

6. Quantity and value of crude oil imports			
Year	**Quantity (MMT)**	**$ Million**	**Rs. Crore**
2019-20	227.0	1,01,376	7,17,001
2020-21	196.5	62,248	4,59,779

7. Self-sufficiency in petroleum products (Million Metric Tonnes)							
Particulars		**2019-20**	**2020-21**	**December**		**April-December**	
				2020-21	**2021-22 (P)**	**2020-21**	**2021-22 (P)**
1	Indigenous crude oil processing	29.3	28.0	2.5	2.4	21.1	20.4
2	Products from indigenous crude (93.3% of crude oil processed)	27.3	26.1	2.4	2.2	19.7	19.0
3	Products from fractionators (Including LPG and Gas)	4.8	4.2	0.4	0.3	4.2	3.1
4	Total production from indigenous crude & condensate **(2 + 3)**	32.1	30.3	2.7	2.6	23.9	22.1
5	Total domestic consumption	214.1	194.3	18.4	18.4	141.4	148.3
% Self-sufficiency (4 / 5)		**15.0%**	**15.6%**	**14.9%**	**13.9%**	**16.9%**	**14.9%**

8. Refineries: Installed capacity and crude oil processing (MMTPA / MMT)

Sl. no.	Refinery	Installed capacity (01.01.2022) MMTPA	Crude oil processing (MMT)							
			2019-20	2020-21	December			April-December		
					2020-21	2021-22 (Target)	2021-22 (P)	2020-21	2021-22 (Target)	2021-22 (P)
1	Barauni (1964)	6.0	6.5	5.5	0.6	0.6	0.6	3.8	4.5	3.9
2	Koyali (1965)	13.7	13.1	11.6	1.2	1.2	1.3	8.6	10.6	9.7
3	Haldia (1975)	8.0	6.5	6.8	0.7	0.6	0.3	4.7	6.0	5.6
4	Mathura (1982)	8.0	8.9	8.9	0.9	0.8	0.8	6.4	6.7	6.7
5	Panipat (1998)	15.0	15.0	13.2	1.4	1.3	1.3	9.6	11.9	11.2
6	Guwahati (1962)	1.0	0.9	0.8	0.08	0.1	0.1	0.59	0.6	0.5
7	Digboi (1901)	0.65	0.7	0.6	0.06	0.06	0.06	0.5	0.5	0.5
8	Bongaigaon(1979)	2.35	2.0	2.5	0.2	0.2	0.2	1.8	1.9	2.0
9	Paradip (2016)	15.0	15.8	12.5	1.0	1.3	1.3	8.8	9.9	9.3
	IOCL-TOTAL	**69.7**	**69.4**	**62.4**	**6.0**	**6.2**	**5.9**	**44.8**	**52.5**	**49.4**
10	Manali (1969)	10.5	10.2	8.2	0.8	0.9	0.8	5.6	7.3	6.1
11	CBR (1993)	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	CPCL-TOTAL	**11.5**	**10.2**	**8.2**	**0.8**	**0.9**	**0.8**	**5.6**	**7.3**	**6.1**
12	Mumbai (1955)	12.0	15.0	12.9	1.2	1.1	1.3	9.0	10.6	10.6
13	Kochi (1966)	15.5	16.5	13.3	1.3	1.4	1.4	8.9	12.0	11.0
14	Bina (2011)	7.8	7.9	6.2	0.6	0.6	0.7	4.3	5.3	5.4
	BPCL-TOTAL	**35.3**	**39.4**	**32.4**	**3.2**	**3.0**	**3.3**	**22.2**	**27.9**	**27.1**
15	Numaligarh (1999)	3.0	2.4	2.7	0.3	0.2	0.1	2.0	2.1	1.9

Sl. no.	Refinery	Installed capacity (1.01.2022) (MMTPA)	Crude oil processing (MMT)							
			2019-20	2020-21	December			Apr-December		
					2020-21	2021-22 (Target)	2021-22 (P)	2020-21	2021-22 (Target)	2021-22 (P)
16	Tatipaka (2001)	0.066	0.087	0.081	0.007	0.006	0.007	0.059	0.047	0.055
17	MRPL-Mangalore (1996)	15.0	14.0	11.5	1.3	1.4	1.4	7.4	10.9	10.5
	ONGC-TOTAL	**15.1**	**14.0**	**11.6**	**1.3**	**1.4**	**1.4**	**7.5**	**10.9**	**10.6**
18	Mumbai (1954)	7.5	8.1	7.4	0.6	0.7	0.7	5.4	5.0	3.2
19	Visakh (1957)	8.3	9.1	9.1	0.7	0.8	0.8	6.6	6.9	6.0
20	HMEL-Bathinda (2012)	11.3	12.2	10.1	1.0	0.9	1.1	8.2	8.3	9.8
	HPCL- TOTAL	**27.1**	**29.4**	**26.5**	**2.3**	**2.5**	**2.6**	**20.3**	**20.2**	**19.1**
21	RIL-Jamnagar (DTA) (1999)	33.0	33.0	34.1	3.0	3.0	3.0	25.7	25.7	25.9
22	RIL-Jamnagar (SEZ) (2008)	35.2	35.9	26.8	2.7	2.7	2.5	19.9	19.9	21.9
23	NEL-Vadinar (2006)	20.0	20.6	17.1	1.5	1.5	1.7	12.5	12.5	15.2
All India (MMT)		**249.9**	**254.4**	**221.8**	**21.0**	**21.6**	**21.5**	**160.4**	**179.0**	**177.2**
All India (Million Bbl/Day)		**5.02**	**5.09**	**4.45**	**4.97**		**5.08**	**4.27**		**4.72**

Note: Provisional Targets; Some sub-totals/ totals may not add up due to rounding off at individual levels.

9. Major crude oil and product pipeline network (as on 01.01.2022)

Details		ONGC	OIL	Cairn	HMEL	IOCL	BPCL	HPCL	Others*	Total
Crude Oil	Length (KM)	1,283	1,193	688	1,017	5,301	937			**10,419**
	Cap (MMTPA)	60.6	9.0	10.7	11.3	48.6	7.8			**147.9**
Products	Length (KM)		654			9,400	2,596	3,775	2,395	**18,820**
	Cap (MMTPA)		1.7			47.5	23.0	34.1	9.4	**115.7**

*Others include GAIL and Petronet India. HPCL and BPCL lubes pipeline included in products pipeline data

11. Production and consumption of petroleum products (Million Metric Tonnes)												
Products	**2019-20**		**2020-21**		**December 2020**		**December 2021 (P)**		**Apr-Dec 2020**		**Apr-Dec 2021 (P)**	
	Prod	**Cons**	**Prod**	**Cons**	**Prod**	**Cons**	**Prod**	**Cons**	**Prod**	**Cons**	**Prod**	**Cons**
LPG	12.8	26.3	12.1	27.6	1.1	2.5	1.1	2.5	9.3	20.5	9.0	20.9
MS	38.6	30.0	35.8	28.0	3.3	2.7	3.7	2.8	25.8	20.1	29.4	22.9
NAPHTHA	20.6	14.3	19.4	14.1	1.6	1.2	1.7	1.2	14.2	10.4	14.8	10.6
ATF	15.2	8.0	7.1	3.7	0.7	0.4	1.1	0.6	4.7	2.4	7.3	3.6
SKO	3.2	2.4	2.4	1.8	0.2	0.1	0.2	0.1	1.8	1.4	1.4	1.1
HSD	111.1	82.6	100.4	72.7	9.5	7.2	9.4	7.3	72.8	52.1	78.4	56.1
LDO	0.6	0.6	0.7	0.9	0.08	0.09	0.06	0.09	0.5	0.6	0.6	0.8
LUBES	0.9	3.8	1.1	4.1	0.1	0.4	0.1	0.4	0.7	2.9	0.8	3.3
FO/LSHS	9.3	6.3	7.4	5.6	0.6	0.5	0.7	0.5	5.3	4.1	6.4	4.6
BITUMEN	4.9	6.7	4.9	7.5	0.6	0.9	0.4	0.7	3.1	4.8	3.1	5.1
PET COKE	14.6	21.7	12.0	15.6	1.1	1.2	1.4	1.1	8.8	12.5	10.7	9.8
OTHERS	31.0	11.4	30.2	12.8	2.6	1.0	2.9	1.2	23.1	9.5	24.1	9.5
ALL INDIA	**262.9**	**214.1**	**233.5**	**194.3**	**21.5**	**18.4**	**22.8**	**18.4**	**170.1**	**141.4**	**186.0**	**148.3**
Growth (%)	**0.2%**	**0.4%**	**-11.2%**	**-9.3%**	**-2.8%**	**-3.1%**	**5.9%**	**0.4%**	**-13.0%**	**-12.4%**	**9.4%**	**4.9%**

Note: Prod - Production; Cons - Consumption

15. LPG consumption (Thousand Metric Tonne)

LPG category	2019-20	2020-21	December			April-December		
			2020-21	2021-22 (P)	Gr (%)	2020-21	2021-22 (P)	Gr (%)
1. PSU Sales :								
LPG-Packed Domestic	23,076.0	25,128.1	2,253.4	2,235.3	-0.8	18,929.7	18,839.5	-0.5
LPG-Packed Non-Domestic	2,614.4	1,886.0	218.5	196.6	-10.0	1,253.9	1,624.1	29.5
LPG-Bulk	263.5	361.9	33.9	26.4	-22.1	243.2	270.6	11.3
Auto LPG	171.9	118.4	13.1	11.1	-15.3	80.8	91.2	12.9
Sub-Total (PSU Sales)	26,125.7	27,494.3	**2,518.9**	**2,469.3**	**-2.0**	**20,507.6**	**20,825.4**	**1.5**
2. Direct Private Imports*	204.0	64.2	4.4	6.6	50.2	42.3	57.2	35.2
Total (1+2)	26,329.8	27,558.4	**2,523.3**	**2,475.9**	**-1.9**	**20,549.9**	**20,882.6**	**1.6**

*Nov -Dec 2021 DGCIS data are prorated

16. LPG marketing at a glance

Particulars (As on 1st of April)	Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	1.01.22 (P)
LPG Active Domestic Customers	(Lakh)						1486	1663	1988	2243	2654	2787	2895	3053
	Growth							11.9%	19.6%	12.8%	18.3%	5.0%	3.9%	6.2%
LPG Coverage (Estimated)	(Percent)						56.2	61.9	72.8	80.9	94.3	97.5	99.8	-
	Growth							10.1%	17.6%	11.1%	16.5%	3.4%	2.3%	-
PMUY Beneficiaries	(Lakh)								200	356	719	802	800.4	896.4
	Growth									77.7%	101.9%	11.5%	-0.2%	11.8%
LPG Distributors	(No.)	9686	10541	11489	12610	13896	15930	17916	18786	20146	23737	24670	25083	25192
	Growth	3.4%	8.8%	9.0%	9.8%	10.2%	14.6%	12.5%	4.9%	7.2%	17.8%	3.9%	1.7%	1.1%
Auto LPG Dispensing Stations	(No.)	536	604	652	667	678	681	676	675	672	661	657	651	634
	Growth	19.9%	12.7%	7.9%	2.3%	1.6%	0.4%	-0.7%	-0.1%	-0.4%	-1.6%	-0.6%	-0.9%	-3.5%
Bottling Plants	(No.)	182	183	184	185	187	187	188	189	190	192	196	200	202
	Growth	0.0%	0.5%	0.5%	0.5%	1.1%	0.0%	0.5%	0.5%	0.5%	1.1%	2.1%	2.0%	1.5%

Source: PSU OMCs (IOCL,BPCL and HPCL)

1.Growth rates as on 01.01.2022 are w.r.t. figs as on 01.01.2021. Growth rates as on 1 April of any year are w.r.t. figs as on 1 April of previous year.

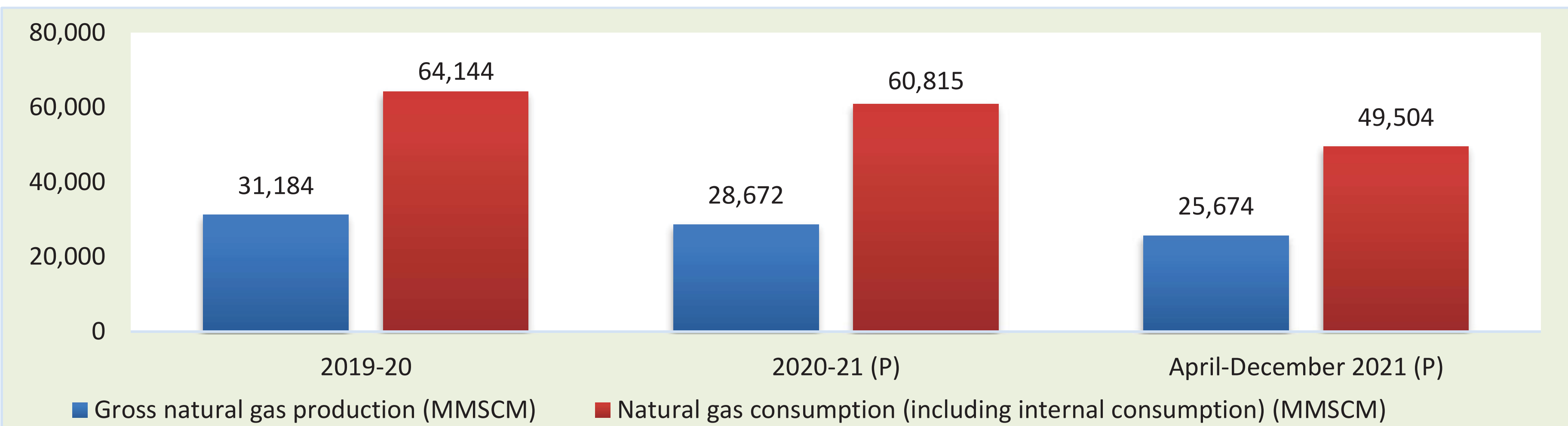
2. The methodology used for estimating LPG coverage by PSU OMC's is under review.

18. Natural gas at a glance

(MMSCM)

Details	2019-20	2020-21 (P)	December 2020-21 (P)	December 2021-22 (Target)	December 2021-22 (P)	April-December 2020-21 (P)	April-December 2021-22 (Target)	April-December 2021-22 (P)
(a) Gross production	31,184	28,672	2,425	3,405	2,897	21,129	28,137	25,674
- ONGC	23,746	21,872	1,858	2,009	1,757	16,544	17,489	15,542
- Oil India Limited (OIL)	2,668	2,480	202	251	240	1,870	2,223	2,190
- Private / Joint Ventures (JVs)	4,770	4,321	366	1,145	899	2,715	8,425	7,942
(b) Net production (excluding flare gas and loss)	30,257	27,784	2,355		2,814	20,458		25,036
(c) LNG import#	33,887	33,031	2,748		2,614	25,176		24,468
(d) Total consumption including internal consumption (b+c)	64,144	60,815	5,102		5,429	45,633		49,504
(e) Total consumption **(in BCM)**	64.1	60.8	5.1		5.4	45.6		49.5
(f) Import dependency based on consumption (%), {c/d*100}	52.8	54.3	53.9		48.2	55.2		49.4

#Jul 2020-Dec 2021 DGCIS data prorated



19. Coal Bed Methane (CBM) gas development in India

Prognosticated CBM resources		91.8	TCF
Established CBM resources		10.4	TCF
CBM Resources (33 Blocks)		62.8	TCF
Total available coal bearing areas (India)		32760	Sq. KM
Total available coal bearing areas with MoPNG/DGH		21659	Sq. KM
Area awarded		16613	Sq. KM
Blocks awarded (ST CBM Block awarded twice in CBM Round II and Round IV)		32	Nos.
Exploration initiated (Area considered if any boreholes were drilled in the awarded block)		10669.55	Sq. KM
Production of CBM gas	April-December 2021 (P)	517.75	MMSCM
Production of CBM gas	December 2021 (P)	58.13	MMSCM

20. Common Carrier Natural Gas pipeline network as on 30.09.2021

Nature of pipeline		GAIL	GSPL	PIL	IOCL	AGCL	RGPL	GGL	DFPCL	ONGC	GIGL	GITL	Others*	Total
Operational	Length	8,918	2,700	1,459	143	107	304	73	42	24				**13,770**
	Capacity	171.5	43.0	85.0	20.0	2.4	3.5	5.1	0.7	6.0				**337.3**
Partially commissioned#	Length	4,543			166						441	365		**5,515**
	Capacity				-						-	-		-
Total operational length		**13,461**	**2,700**	**1,459**	**309**	**107**	**304**	**73**	**42**	**24**	**441**	**365**	**0**	**19,285**
Under construction	Length	5,973	100		1,265						1,891	1,446	3,550	**14,225**
	Capacity	23.2	3.0		-						3.0	-	153.5	-
Total length		**19,434**	**2,800**	**1,459**	**1,574**	**107**	**304**	**73**	**42**	**24**	**2,332**	**1,811**	**3,550**	**33,510**

Source: PNGRB; Length in KMs ; Authorized Capacity in MMSCMD; *Others-APGDC, HEPL, IGGL, IMC, Consortium of H-Energy

21. Existing LNG terminals

Location	Promoters	Capacity as on 01.01.2022	% Capacity utilisation (Apr-Dec 2021)
Dahej	Petronet LNG Ltd (PLL)	17.5 MMTPA	90.2
Hazira	Shell Energy India Pvt. Ltd.	5.2 MMTPA	63.2
Dabhol	Konkan LNG Limited	*5 MMTPA	63.3
Kochi	Petronet LNG Ltd (PLL)	5 MMTPA	21.9
Ennore	Indian Oil LNG Pvt Ltd	5 MMTPA	14.0
Mundra	GSPC LNG Limited	5 MMTPA	20.2
Total Capacity		**42.7 MMTPA**	

* To increase to 5 MMTPA with breakwater. Only HP stream of capacity of 2.9 MMTPA is commissioned

22. Status of PNG connections and CNG stations across India (Nos.), as on 31.12.2021(P)				
State/UT (State/UTs are clubbed based on the GAs authorised by PNGRB)	**CNG Stations**	**PNG connections**		
		Domestic	**Commercial**	**Industrial**
Andhra Pradesh	102	221,475	330	23
Andhra Pradesh, Karnataka & Tamil Nadu	2	0	0	1
Assam	1	39,093	1,244	413
Bihar	22	41,450	16	1
Chandigarh (UT), Haryana, Punjab & Himachal Pradesh	21	21,768	63	13
Dadra & Nagar Haveli (UT)	7	7,491	48	46
Daman & Diu (UT)	4	4,886	32	33
Daman and Diu & Gujarat	12	190	1	0
Goa	9	9,638	7	18
Gujarat	855	2,564,936	20,769	5,645
Haryana	201	215,442	633	1,140
Haryana & Himachal Pradesh	8	0	0	0
Haryana & Punjab	11	0	0	0
Himachal Pradesh	2	1,510	0	0
Jharkhand	36	61,457	0	0
Karnataka	101	308,698	466	234
Kerala	42	16,816	15	12
Kerala & Puducherry	2	0	0	0
Madhya Pradesh	122	116,050	203	319
Madhya Pradesh and Rajasthan	17	0	0	0
Madhya Pradesh and Uttar Pradesh	8	0	0	0
Maharashtra	497	2,182,391	4,593	474
Maharashtra & Gujarat	43	75,321	0	0
National Capital Territory of Delhi (UT)	438	1,145,552	2,919	1,649
Odisha	25	42,616	0	0
Puducherry & Tamil Nadu	3	0	0	0
Punjab	121	17,767	148	93
Rajasthan	120	86,342	20	203
Tamil Nadu	68	0	0	0
Telangana	108	154,424	42	64
Tripura	18	51,809	501	62
Uttar Pradesh	518	1,044,411	1,699	2,036
Uttar Pradesh & Rajasthan	31	18,860	2	341
Uttar Pradesh and Uttrakhand	10	800	0	0
Uttrakhand	17	54,714	39	56
West Bengal	26	0	0	0
Total	**3,628**	**8,505,907**	**33,790**	**12,876**

Source: PNGRB

Note: 1. All the GAs where PNG connections/CNG Stations have been established is considered as Operational, 2. Under normal conditions. Operation of any particular GA commences within around one year of authorization. 3. State/UTs wherever clubbed are based on the GAs authorised by PNGRB.

23. Domestic natural gas price and gas price ceiling (GCV basis)

Period	Domestic Natural Gas price in US$/MMBTU	Gas price ceiling in US$/MMBTU
November 2014 - March 2015	5.05	-
April 2015 - September 2015	4.66	-
October 2015 - March 2016	3.82	-
April 2016 - September 2016	3.06	6.61
October 2016 - March 2017	2.5	5.3
April 2017 - September 2017	2.48	5.56
October 2017 - March 2018	2.89	6.3
April 2018 - September 2018	3.06	6.78
October 2018 - March 2019	3.36	7.67
April 2019 - September 2019	3.69	9.32
October 2019 - March 2020	3.23	8.43
April 2020 - September 2020	2.39	5.61
October 2020 - March 2021	1.79	4.06
April 2021 - September 2021	1.79	3.62
October 2021 - March 2022	2.9	6.13

24. CNG/PNG prices

City	CNG (Rs/Kg)	PNG (Rs/SCM)	Source
Delhi	54.02	35.61	IGL website
Mumbai	66.00	39.50	MGL website

Asian LNG Buyers Abruptly Change and Lock in Long Term Supply – Validates Supply Gap, Provides Support For Brownfield LNG FIDs

Posted 11am on July 14, 2021

The last 7 days has shown there is a sea change as Asian LNG buyers have made an abrupt change in their LNG contracting and are moving to lock in long term LNG supply. This is the complete opposite of what they were doing pre-Covid when they were trying to renegotiate Qatar LNG long term deals lower and moving away from long term deals to spot/short term sales. Why? We think they did the same math we did in our April 28 blog "*Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?*" and saw a much bigger and sooner LNG supply gap driven by the delay of 5 bcf/d of Mozambique LNG that was built into most, if not all LNG supply forecasts. Asian LNG buyers are committing real dollars to long term LNG deals, which we believe is the best validation for the LNG supply gap. Another validation, Shell, Total and others are aggressively competing to invest long term capital to partner in Qatar Petroleum's massive 4.3 bcf/d LNG expansion despite plans to reduce fossil fuels production in the 2020s. And even more importantly to LNG suppliers, the return to long term LNG contracts provides the financing capacity to commit to brownfield LNG FIDs. The abrupt change by Asian LNG buyers to long term contracts is a game changer for LNG markets and sets the stage for brownfield LNG FIDs likely as soon as before year end 2021. It has to be brownfield LNG FIDs if the gap is coming bigger and sooner. And we return to our April 28 blog point, if brownfield LNG is needed, what about Shell looking at 1.8 bcf/d brownfield LNG Canada Phase 2? LNG Canada Phase 1 at 1.8 bcf/d capacity is already a material positive for Cdn natural gas producers. A FID on LNG Canada Phase 2 would be huge, meaning 3.6 bcf/d of Cdn natural gas will be tied to Asian LNG markets and not competing in the US against Henry Hub. And with a much shorter distance to Asian LNG markets. This is why we focus on global LNG markets for our views on the future value of Canadian natural gas.

<u>Sea change in Asian LNG buyers is also the best validation of the LNG supply gap and big to LNG supply FIDs.</u> Has the data changed or have the market participants changed in how they react to the data? We can't recall exactly who said that on CNBC on July 12, it's a question we always ask ourselves. In the LNG case, the data has changed with Mozambique LNG delays and that has directly resulted in market participants changing and entering into long term contracts. We can't stress enough how important it is to see Asian LNG buyers move to long term LNG deals. (i) Validates the sooner and bigger LNG supply gap. We believe LNG markets should look at the last two weeks of new long term deals for Asian LNG buyers as being the validation of the LNG supply gap that clearly emerged post Total declaring force majeure on its 1.7 bcf/d Mozambique LNG Phase 1 that was under construction and on track for first LNG delivery in 2024. Since then, markets have started to realize the Mozambique delays are much more than 1.7 bcf/d. They have seen major LNG suppliers change their outlook to a more bullish LNG outlook and, most importantly, are now seeing Asian LNG buyers changing from trying to renegotiate long term LNG deals lower to entering into long term LNG deals to have security of supply. Asian LNG buyers are cozying up to Qatar in a prelude to the next wave of Asian buyer long term deals. What better validation is there than companies/countries putting their money where their mouth is. (ii) Provides financial commitment to help push LNG suppliers to FID. We believe these Asian LNG buyers are doing much more than validating a LNG supply gap to markets. The big LNG suppliers can move to FID based on adding more LNG supply to their portfolio, but having more long term deals provides the financial anchor/visibility to long term capital commitment from the buyers. Long term contracts will only help LNG suppliers get to FID.

<u>It was always clear that the Mozambique LNG supply delay was 5.0 bcf/d, not just 1.7 bcf/d from Total Phase 1.</u> LNG markets didn't really react to Total's April 26 declaration of force majeure on its 1.7 bcf/d Mozambique LNG Phase 1. This was an under construction project that was on time to deliver first LNG in 2024. It was in all LNG supply forecasts. There was no timeline given but, on the Apr 29 Q1 call, Total said that it expected any restart decision would be least a year away. If so, we believe that puts any actual construction at least 18 months away. There will be work to do just to get back to where they were when they were forced to stop development work on Phase 1. Surprisingly, markets didn't look the broader implications, which is why we posted our 7-pg Apr 28 blog "*Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?*" [LINK] We highlighted that Mozambique LNG delays were actually 5 bcf/d, not 1.7 bcf/d. And this 5 bcf/d of Mozambique LNG supply was built into most, if not all, LNG supply forecasts. The delay in Total Phase 1 would lead to a commensurate delay in its Mozambique LNG Phase 2 of 1.3 bcf/d. Total Phase 2 was to add 1.3 bcf/d. There was no firm in service date, but it was expected to

follow closely behind Phase 1 to maintain services. That would have put it originally in the 2026/2027 period. But if Phase 1 is pushed back at least 2 years, so will the follow on Phase 2, so more likely, it will be at least 2028/2029. The assumption for most, if not all, LNG forecasts was that Phase 2 would follow Phase 1. Exxon Rozuma Phase 1 of 2.0 bcf/d continues to be pushed back in timeline especially following Total Phase 1. Exxon's Mozambique Rozuma Phase 1 LNG will add 2.0 bcf/d and, pre-Covid, was originally expected to be in service in 2025. The project was being delayed and Total's force majeure has added to the delays. Rozuma onshore LNG facilities are right by Total. On June 20, we tweeted [LINK] on the Reuters report "*Exclusive: Galp says it won't invest in Rovuma until Mozambique ensures security*" [LINK]. Galp is one of Exxon's partners in Rozuma. Reuters reported that Galp said they won't invest in Exxon's Rozuma LNG project until the government ensures security, that this may take a while, they won't be considering the project until after Total has reliably resumed work on its Phase 1, which likely puts any Rozuma decision until at least end of 2022 at the earliest. Galp has taken any Rozuma Phase 1 capex out of their new capex plans thru 2025 and will have to take out projects in their capex plan if Rozuma does come back to work. This puts Rozuma more likely 2028 at the earliest as opposed to before the original expectations of before 2025. Pre-pandemic, Exxon's March 6, 2019 Investor Day noted their operated Mozambique Rovuma LNG Phase 1 was to be 2 trains each with 1.0 bcf/d capacity for total initial capacity of 2.0 bf/d with FID expected in 2019 and first LNG deliveries sometime before 2025. LNG forecasts had been assuming Exxon Rozuma would be onstream around 2025. The 2019 FID expectation was later pushed to be expected just before the March 2020 investor day. But the pandemic hit, and on March 21, 2020, we tweeted [LINK] on the Reuters story "*Exclusive: Coronavirus, gas slump put brakes on Exxon's giant Mozambique LNG plan*" [LINK] that noted Exxon was expected to delay the Rovuma FID. There was no timeline, but now, any FID is not expected until late 2022 at the earliest, that would push first LNG likely to at least 2028. What this means is that the Mozambique LNG delays are not 1.7 bcf/d but 5.0 bcf/d of projects that were in all, if not most, LNG supply forecasts. There is much more in our 7-pg blog. But Mozambique is what is driving a much bigger and sooner LNG supply gap starting ~2025 and stronger outlook for LNG prices

<u>One of the reasons why it went under the radar is that major LNG suppliers played stupid on the Mozambique impact.</u> It makes it harder for markets to see a big deal when the major LNG suppliers weren't making a big deal of Mozambique or playing stupid in the case of Cheniere in their May 4 Q1 call. In our May 9, 2021 Energy Tidbits memo, we said we had to chuckle when we saw Cheniere's response in the Q&A to its Q1 call on May 4 that they only know what we know from reading the Total releases on Mozambique and its impact on LNG markets. It's why we tweeted [LINK] "*Hmm! $LNG says only know what we read on #LNG market impact from $TOT $XOM MZ LNG delays*. *Surely #TohokuElectric & other offtake buyers are reaching out to #Cheniere. MZ LNG delays is a game changer to LNG in 2020s, see SAF Group blog. Thx @olympe_mattei @TheTerminal #NatGas".* How could they not be talking to LNG buyers for Total and /or Exxon Mozambique LNG projects. In the Q1 Q&A, mgmt was asked about Mozambique and didn't know any more than what you or I have read. Surely, they were speaking to Asian LNG buyers who had planned to get LNG supply from Total Mozambique or Exxon Rozuma Mozambique or both. Mgmt is asked "*wanted to just kind of touch on the color use talking about for these supply curve. And are you able to kind of provide any thoughts on the Mozambique and a deferral with the project of that size on 13 and TPA being deferred by we see you have you noticed any impact to the market has is there any impact for stage 3 with that capacity? Thanks*." Mgmt replies "*No. Look, I only know about the Mozambique delay with what I read as well as what you read that from total and an Exxon. And it's a sad situation and I hope everybody is safe and healthy that were there to experience that unrest but no I don't think it's, again it's a different business paradigm than what we offer. So, we offer a full value product, the customer doesn't have to invest in equity, customer doesn't have to worry about the E&P side of the business because, we've been able to both the by at our peak almost 7 Dee's a day of US NAT gas from almost a 100 different producers on 26 different pipelines and deliver it to our to facilities. So we take care of a lot of what the customer needs".*

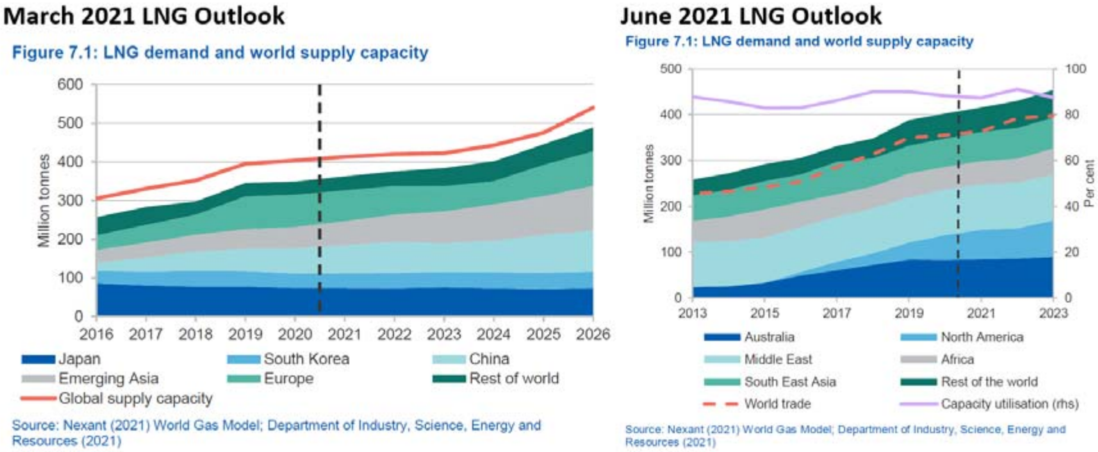
<u>There are other LNG supply delays/interruptions beyond Mozambique.</u> There have been a number of other smaller LNG delay or existing supply interruptions that add to Asian LNG buyers feeling less secure about the reliability of mid to long term LNG supply. Here are just a few examples. (i) Total Papua LNG 0.74 bcf/d. On June 8, we tweeted [LINK] *"Timing update Papua #LNG project. $OSH June 8 update "2022 FEED, 2023 FID targeting 2027 first gas". $TOT May 5 update didn't forecast 1st gas date. Papua is 2 trains w/ total capacity 0.74 bcf/d."* We followed the tweet saying [LINK] *"Bigger #LNG supply gap being created >2025. Papua #LNG originally expected FID in 2020 so 1st LNG is 2 years delayed.*

Common theme - new LNG supply is being delayed ie. [Total] Mozambique. Don't forget need capacity>demand due to normal maintenance, etc. Positive for LNG." (ii) Chevron's Gorgon. A big LNG story in H2/20 was the emergence of weld quality issues in the propane heat exchangers at Train 2, which required additional downtime for repair. Train 2 was shut on May 23 with an original restart of July 11, but the repairs to the weld quality issues meant it didn't restart until late Nov. The same issue was found in Train 1 but repairs were completed. However extended downtime for the trains led to lower LNG volumes. Gorgon produced ~2.3 bcf/d in 2019 but was down to 2.0 bcf/d in 2020. (iii) Equinor's Melkoeya 0.63 bcf/d shut down for 18 months due to a fire. A massive fire led to the Sept 28, 2020 shutdown of the 0.63 bcf/d Melkoeya LNG facility in Norway. On April 26, Equinor released "*Revised start-up date for Hammerfest LNG*" [LINK] with regard to the 0.63 bcf/d Melkoeya LNG facility. The original restart date was Oct 1, 2021 (ie. a 12 month shut down), but Equinor said "*Due to the comprehensive scope of work and Covid-19 restrictions, the revised estimated start-up date is set to 31 March 2022"*. When we read the release, it seemed like Equinor was almost setting the stage for another potential delay in the restart date. Equinor had two qualifiers to this March 31, 2022 restart date. Equinor said "*there is still some uncertainty related to the scope of the work*" and "*Operational measures to handle the Covid-19 situation have affected the follow-up progress after the fire. The project for planning and carrying out repairs of the Hammerfest LNG plant must always comply with applicable guidelines for handling the infection situation in society. The project has already introduced several measures that allow us to have fewer workers on site at the same time than previously expected. There is still uncertainty related to how the Covid-19 development will impact the project progress."*

Cheniere stopped the game playing the game on June 30. Our July 4, 2021 Energy Tidbits memo noted that it looks like Cheniere has stopped playing stupid with respect to the strengthening LNG market in 2021. We can't believe they thought they were fooling anyone, especially their competitors. Bu that week, they came out talking about how commercial discussions have picked up in 2021 and it's boosted their hope for a Texas (Corpus Christi) LNG expansion. On Wednesday, Platts reported "*Pickup in commercial talks boosts Cheniere's hopes on mid-scale LNG project*" [LINK] Platts wrote "*Cheniere Energy expects to make a "substantial dent" by the end of 2022 in building sufficient buyer support for a proposed mid-scale expansion at the site of its Texas liquefaction facility, Chief Commercial Officer Anatol Feygin said June 30 in an interview." " As a result, he said, " The commercial engagement, I think it is very fair to say, has really picked up steam, and we are quite optimistic over the coming 12-18 months to make a substantial dent in that Stage 3 commercialization."* Platts also reported that Cheniere noted this has been a tightening market all year (ie would have been known by the May 4 Q1 call). Platts wrote "*We obviously find ourselves at the beginning of this year and throughout in a very tight market where prices today into Asia and into Europe are at levels that we frankly haven't seen in a decade-plus," Feygin said. "We've surpassed the economics that the industry saw post the Fukushima tragedy in March 2011, and that's happened in the shoulder period."* It's a public stance as to a more bullish LNG outlook

But we still see major LNG suppliers like Australia hinting but not outright saying that LNG supply gap is coming sooner. We have to believe Australia will be unveiling a sooner LNG supply gap in their September forecast. On June 28, we tweeted [LINK] on Australia's Resources and Energy Quarterly released on Monday [LINK] because there was a major change to their LNG outlook versus their March forecast. We tweeted "*#LNGSupplyGap. AU June fcast now sees #LNG mkt tighten post 2023 vs Mar fcast excess supply thru 2026. Why? $TOT Mozambique delays. See below SAF Apr 28 blog. Means brownfield LNG FID needed ie. like #LNGCanada Phase 2. #OOTT #NatGas".* Australia no longer sees supply exceeding demand thru 2026. In their March forecast, Australia said "*Nonetheless, given the large scale expansion of global LNG capacity in recent years, demand is expected to remain short of total supply throughout the projection period."* Note this is thru 2026 ie. a LNG supply surplus thru 2026. But on June 28, Australia changed that LNG outlook and now says the LNG market may tighten beyond 2023. Interestingly, the June forecast only goes to 2023 and not to 2026 as in March. Hmmm! On Monday, they said "*Given the large scale expansion of global LNG capacity in recent years, import demand is expected to remain short of export capacity throughout the outlook period. Beyond 2023, the global LNG market may tighten, due to the April 2021 decision to indefinitely suspend the Mozambique LNG project, in response to rising security issues. This project has an annual nameplate capacity of 13 million tonnes, and was previously expected to start exporting LNG in 2024*." 13 million tonnes is 1.7 bcf/d so they are only referring to Total Mozambique LNG Phase 1. So no surprise the change is Mozambique LNG driven but we have to believe the reason why they cut their forecast off this time at 2023 is that they are looking at trying to figure out what to forecast beyond 2023 in addition to Total Phase 1. And, importantly, we believe they will be changing their LNG forecast for more than Mozambique ie. India demand that we highlight later in the blog. They didn't say anything else specific on Mozambique but, surely they have to also be delaying the follow on Total Phase 2 of 1.3 bcf/d and Exxon Rozuma Phase 1 of 2.0 bcf/d.

Australia's LNG Outlook: March 2021 vs June 2021 Forecasts

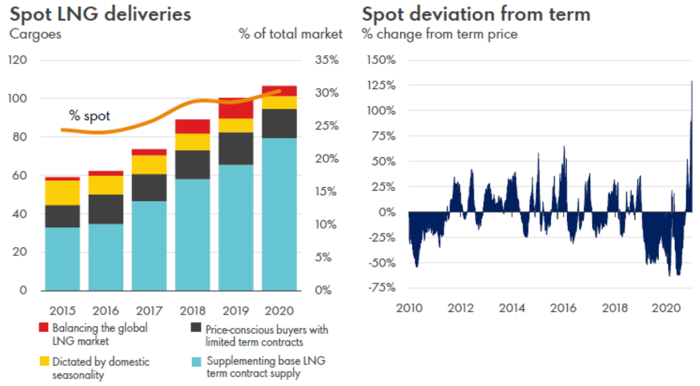


Source: Australia Resources and Energy Quarterly

Clearly Asian LNG buyers did the math, saw the new LNG supply gap and were working the phones in March/April/May trying to lock up long term supply. We wrote extensively on the Total Mozambique LNG situation before the April 26 force majeure as it was obvious that delays were coming to a project counted on for first LNG in 2024. Total had shut down Phase 1 development in December for 3 months due to the violence and security risks. It restarted development on Wed March 24, violence/attacks immediately resumed for 3 consecutive days, and then Total suspended development on Sat March 27. That's why no one should have been surprised by the April 26 force majeure. Asian LNG buyers were also seeing this and could easily do the same math we were doing and saw a bigger and sooner LNG supply gap. They were clearly working the phones with a new priority to lock up long term LNG supply. Major long term deals don't happen overnight, so it makes sense that we started to see these new Asian long term LNG deals start at the end of June.

A big pivot from trying to renegotiate down long term LNG deals or being happy to let long term contracts expire and replace with spot/short term LNG deals. This is a major pivot or abrupt turn on the Asian LNG buyers contracting strategy for the 2020s. There is the natural reduction of long term contracts as contracts reach their term. But with the weakness in LNG prices in 2019 and 2020, Asian LNG buyers weren't trying to extend long term contracts, rather, the push was to try to renegotiate down its long term LNG deals. The reason was clear, as spot prices for LNG were way less than long term contract prices. And this led to their LNG contracting strategy – move to increase the proportion of spot LNG deliveries out of total LNG deliveries. Shell's LNG Outlook 2021 was on Feb 25, 2021 and included the below graphs. The spot LNG price derivation from long term prices in 2019 and 2020 made sense for Asian LNG buyers to try to change their contract mix. Yesterday, Maeil Business News Korea reported on the new Qatar/Kogas long term LNG deal with its report "*Korea may face LNG supply cliff or pay hefty price after long-term supplies run out*" [LINK], which highlighted this very concept – Korea wasn't worried about trying to extend expiring long term LNG contracts. Maeil wrote "*Seoul in 2019 secured a long-term LNG supply contract with the U.S. for annual 15.8 million tons over a 15-year period. But even with the latest two LNG supply contracts, the Korean government needs extra 6 million tons or more of LNG supplies to keep up the current power pipeline. By 2024, Korea's long-term supply contracts for 9 million tons of LNG will expire - 4.92 million tons on contract with Qatar and 4.06 million tons from Oman, according to a government official who asked to be unnamed.*"

Spot LNG deliveries and Spot deviation from term price



Source: Shell LNG Outlook 2021 on Feb 25, 2021

Asian LNG buyers moving to long term LNG deals provide financing capacity for brownfield LNG FIDs. We believe this abrupt change and return to long term LNG deals is even more important to LNG suppliers who want to FID new projects. The big LNG players like Shell can FID new LNG supply without new long term contracts as they can build into their supply options to fill their portfolio of LNG contracts. But that doesn't mean the big players don't want long term LNG supply deals, as having long term LNG contracts provide better financing capacity for any LNG supplier. It takes big capex for LNG supply and long term deals make the financing easier.

Four Asian buyer long term LNG deals in the last week. It was pretty hard to miss a busy week for reports of new Asian LNG buyer long term LNG deals. There were two deals from Qatar Petroleum, one from Petronas and one from BP. The timing fits, it's about 3 months after Total Mozambique LNG problems became crystal clear. And as noted later, there are indicators that more Asian buyer LNG deals are coming.

Petronas/CNOOC is 10 yr supply deal for 0.3 bcf/d. On July 7, we tweeted [LINK] on the confirmation of a big positive to Cdn natural gas with the Petronas announcement [LINK] of a new 10 year LNG supply deal for 0.3 bcf/d with China's CNOOC. The deal also has special significance to Canada. (i) Petronas said "*This long-term supply agreement also includes supply from LNG Canada when the facility commences its operations by middle of the decade*". This is a reminder of the big positive to Cdn natural gas in the next 3 to 4 years – the start up of LNG Canada Phase 1 is ~1.8 bcf/d capacity. This is natural gas that will no longer be moving south to the US or east to eastern Canada, instead it will be going to Asia. This will provide a benefit for all Western Canada natural gas. (ii) First ever AECO linked LNG deal. It's a pretty significant event for a long term Asia LNG deal to now have an AECO link. Petronas wrote "*The deal is for 2.2 million tonnes per annum (MTPA) for a 10-year period, indexed to a combination of the Brent and Alberta Energy Company (AECO) indices. The term deal between PETRONAS and CNOOC is valued at approximately USD 7 billion over ten years.*" 2.2 MTPA is 0.3 bcf/d. (iii) Reminds of LNG Canada's competitive advantage for low greenhouse gas emissions. Petronas said "*Once ready for operations, the LNG Canada project paves the way for PETRONAS to supply low greenhouse gas (GHG) emission LNG to the key demand markets in Asia.*"

Qatar Petroleum/CPC (Taiwan) is 15 yr supply deal for 0.16 bcf/d. Pre Covid, Qatar was getting pressured to renegotiate lower its long term LNG contract prices. Now, it's signing a 15 year deal. On July 9, they entered in a new small long term LNG sales deal [LINK], a 15-yr LNG Sale and Purchase Agreement with CPC Corporation in Taiwan to supply it ~0.60 bcf/d of LNG. LNG deliveries are set to begin in January 2022. H.E. Minister for Energy Affairs & CEO of Qatar Petroleum Al-Kaabi said *"We are pleased to enter into this long term LNG SPA, which is another milestone in our relationship with CPC, which dates back to almost three decades. We look forward to commencing deliveries under this SPA and to continuing our supplies as a trusted and reliable global LNG provider."* The pricing was reported to be vs a basket of crudes.

BP/Guangzhou Gas, a 12-yr supply deal for 0.13 bcf/d. On July 9, there was a small long term LNG supply deal with BP and Guangzhou Gas (China). Argus reported [LINK] BP had signed a 12 year LNG supply deal with Guangzhou Gas (GG), a Chinese city's gas distributor, which starts in 2022. The contract prices are to be linked to an index of international crude prices. Although GG typically gets its LNG from the spot market, it used a tender in late April for ~0.13 bcf/d starting in 2022. BP's announcement looks to be for most of the tender, so it's a small deal. But it fit into the trend this week of seeing long term LNG supply deals to Asia. This was intended to secure deliveries to the firm's Xiaohudao import terminal which will become operational in August 2022.

Qatar/Korea Gas is a 20-yr deal to supply 0.25 bcf/d. On Monday, Reuters reported [LINK] "*South Korea's energy ministry said on Monday it had signed a 20-year liquefied natural gas (LNG) supply agreement with Qatar for the next 20 years starting in 2025. South Korea's state-run Korea Gas Corp (036460.KS) will buy 2 million tonnes of LNG annually from Qatar Petroleum".* There was no disclosure of pricing.

More Asian buyer long term LNG deals (ie. India) will be coming. There are going to be more Asian buyer long term LNG deals coming soon. Our July 11, 2021 Energy Tidbits highlighted how India's new petroleum minister Hardeep Singh Puri (appointed July 8) hit the ground running with what looks to be a priority to set the stage for more India long term LNG deals with Qatar. On July 10, we retweeted [LINK] "*New India Petroleum Minister hits ground running. What else w/ Qatar but #LNG. Must be #Puri setting stage for long term LNG supply deal(s). Fits sea change of buyers seeing #LNGSupplyGap (see SAF Apr 28 blog http://safgroup.ca) & wanting to tie up LNG supply. #OOTT".* It's hard to see any other conclusion after seeing what we call a sea change in LNG buyer mentality with a number of long term LNG deals this week. Puri tweeted [LINK] "*Discussed ways of further strengthening mutual cooperation between our two countries in the hydrocarbon sector during a warm courtesy call with Qatar's Minister of State for Energy Affairs who is also the President & CEO of @qatarpetroleum HE Saad Sherida Al-Kaabi".* As noted above, we believe there is a sea change in LNG markets that was driven by the delay in 5 bcf/d of LNG supply from Mozambique (Total Phase 1 & Phase 2, and Exxon Rozuma Phase 1) that was counted on all LNG supply projections for the 2020s. Puri's tweet seems to be him setting the stage for India long term LNG supply deals with Qatar.

Supermajors are aggressively competing to commit 30+ year capital to Qatar's LNG expansion despite stated goal to reduce fossil fuels production. It's not just Asian LNG buyers who are now once again committing long term capital to securing LNG supply, it's also supermajors all bidding to be able to commit big capex to part of Qatar Petroleum's 4.3 bcf/d LNG expansion. Qatar Petroleum received a lot of headlines following the their June 23 announcement on its LNG expansion [LINK] on how they received bids for double the equity being offered. And there were multiple reports that these are on much tougher terms for Qatar's partners. Qatar Petroleum CEO Saad Sherida Al-Kaabi specifically noted that, among the bidders, were Shell, Total and Exxon. Shell and Total have two of the most ambitious plans to reduce fossil fuels production in the 2020's, yet are competing to allocate long term capital to increase fossil fuels production. And Shell and Total are also two of the global LNG supply leaders. It has to be because they are seeing a bigger and sooner LNG supply gap.

Remember Qatar's has a massive expansion but India alone needs 3x the Qatar expansion LNG capacity. In addition to the competition to be Qatar Petroleum's partners, we remind that, while this is a massive 4.3 bcf/d LNG expansion, India alone sees its LNG import growing by ~13 bcf/d to 2030. The Qatar announcement reminded they see a LNG supply gap and continued high LNG prices. We had a 3 part tweet. (i) First, we highlighted [LINK] "*1/3. #LNGSupplyGap coming. big support for @qatarpetroleum expansion to add 4.3 bcf/d LNG. but also say "there is a lack of investments that could cause a significant shortage in gas between 2025-2030" #NatGas #LNG".* This is after QPC accounts for their big LNG expansion. The QPC release said "*However, His Excellency Al-Kaabi voiced concern that during the global discussion on energy transition, there is a lack of investment in oil and gas projects, which could drive energy prices higher by stating that "while gas and LNG are important for the energy transition, there is a lack of investments that could cause a significant shortage in gas between 2025-2030, which in turn could cause a spike in the gas market."* (ii) Second, this is a big 4.3 bcf/d expansion, but India alone has 3x the increase in LNG import demand. We tweeted [LINK] "*2/3. Adding 4.3 bcf/d is big, but dwarfed by items like India. #Petronet gave 1st specific forecast for what it means if #NatGas is to be 15%*

of energy mix by 2030 - India will need to increase #LNG imports by ~13 bcf/d. See SAF Group June 20 Energy Tidbits memo." (iii) Third, Qatar's supply gap warning is driven by the lack of investments in LNG supply. We agree, but note that the lack of investment is in great part due to the delays in both projects under construction and in FIDs that were supposed to be done in 2019. We tweeted [LINK] "3*/3. #LNGSupplyGap is delay driven. $TOT Mozambique Phase 1 delay has chain effect, backs up 5 bcf/d. See SAF Group Apr 28 blog Multiple Brownfield LNG FIDs Now Needed To Fill New #LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2? #NatGas*."

Seems like many missed India's first specific LNG forecast to 2030. Our June 20, 2021 Energy Tidbits memo highlighted the first India forecast that we have seen to estimate the required growth in natural gas consumption and LNG imports if India is to meet its target for natural gas to be 15% of its energy mix by 2030. India will need to increase LNG imports by ~13 bcf/d or 3 times the size of the Qatar LNG expansion. Our June 6, 2021 Energy Tidbits noted the June 4 tweet from India's Energy Minister Dharmendra Pradhan [LINK] reinforcing the 15% goal "*We are rapidly deploying natural gas in our energy mix with the aim to increase the share of natural gas from the current 6% to 15% by 2030."* But last week, Petronet CEO AK Singh gave a specific forecast. Reuters report "*LNG's share of Indian gas demand to rise to 70% by 2030: Petronet CEO"* [LINK] included Petronet's forecast if India is to hit its target for natural gas to be 15% of energy mix by 2030. Singh forecasts India's natural gas consumption would increase from current 5.5 bcf/d to 22.6 bcf/d in 2030. And LNG shares would increase from 50% to 70% of natural gas consumption ie. an increase in LNG imports of ~13 bcf/d from just under 3 bcf/d to 15.8 bcf/d in 2030. Singh did not specifically note his assumption for India's natural gas production, but we can back into the assumption that India natural gas production grows from just under 3 bcf/d to 6.8 bcf/d. It was good to finally see India come out with a specific forecast for 2030 natural gas consumption and LNG imports if India is to get natural gas to 15% of its energy mix in 2030. Petronet's Singh forecasts India natural gas consumption to increase from 5.5 bcf/d to 22.6 bcf/d in 2030. This forecast is pretty close to our forecast in our Oct 23, 2019 blog "*Finally, Some Visibility That India Is Moving Towards Its Target For Natural Gas To Be 15% Of Its Energy Mix By 2030*". Here part of what we wrote in Oct 2019. "*It's taken a year longer than we expected, but we are finally getting visibility that India is taking significant steps towards India's goal to have natural gas be 15% of its energy mix by 2030. On Wednesday, we posted a SAF blog [LINK] "Finally, Some Visibility That India Is Moving Towards Its Target For Natural Gas To Be 15% Of Its Energy Mix By 2030".* Our 2019 blog estimate was for India natural gas demand to be 24.0 bcf/d in 2030 (vs Singh's 22.6 bcf/d) and for LNG import growth of +18.4 bcf/d to 2030 (vs Singh's +13 bcf/d). The difference in LNG would be due to our Oct 2019 forecast higher natural gas consumption by 1.4 bcf/d plus Singh forecasting India natural gas production +4 bcf/d to 2030. Note India production peaked at 4.6 bcf/d in 2010.

Bigger, nearer LNG supply gap + Asian buyers moving to long term LNG deals = LNG players forced to at least look at what brownfield LNG projects they could advance and move to FID. All we have seen since our April 28 blog is more validation of the bigger, nearer LNG supply gap. And now market participants (Asian LNG buyers) are reacting to the new data by locking up long term supply. Cheniere noted how the pickup in commercial engagement means they "*are quite optimistic over the coming 12-18 months to make a substantial dent in that Stage 3 commercialization."* Cheniere can't be the only LNG supplier having new commercial discussions. It's why we believe the Mozambique delays + Asian LNG buyers moving to long term deals will effectively force major LNG players to look to see if there are brownfield LNG projects they should look to advance. Prior to March/April, no one would think Shell or other major LNG players would be considering any new LNG FIDs in 2021. Covid forced all the big companies into capital reduction mode and debt reduction mode. But Brent oil is now solidly over $70, and LNG prices are over $13 this summer and the world's economic and oil and gas demand outlook are increasing with vaccinations. And we are starting to see companies move to increasing capex with the higher cash flows. The theme in Q3 reporting is going to be record or near record oil and gas cash flows, reduced debt levels and increasing returns to shareholders. And unless new mutations prevent vaccinations from returning the world to normal, we suspect that major LNG players, like other oil and gas companies, will be looking to increase capex as they approve 2022 budgets. The outlook for the future has changed dramatically in the last 8 months. The question facing major LNG players like Shell is should they look to FID new LNG brownfield projects in the face of an increasing LNG supply gap that is going to hit faster and harder and Asian LNG buyers prepared to do long term deals. We expect these decisions to be looked at before the end of 2021 for 2022 capex budget/releases. One wildcard that could force these decisions sooner is the already stressed out global supply chain. We have to believe that discussion there will be pressure for more Asian LNG buyer long term deals sooner than later.

For Canada, does the increasing LNG supply gap provide the opportunity to at least consider a LNG Canada Phase 2 FID over the next 6 months? Our view on Shell and other LNG players is unchanged since our April 28 blog. Shell is no different than any other major LNG supplier in always knowing the market and that the oil and gas outlook is much stronger than 9 months ago. Even 3 months post our April 28 blog, we haven't heard any significant talks on how major LNG players will be looking at FID for new brownfield LNG projects. We don't have any inside contacts at Shell or LNG Canada, but that is no different than when we looked at the LNG markets in September 2017 and saw the potential for Shell to FID LNG Canada in 2018. We posted a September 20, 2017 blog *"China's Plan To Increase Natural Gas To 10% Of Its Energy Mix Is A Global Game Changer Including For BC LNG*" [LINK]. Last time, it was a demand driven supply gap, this time, it's a supply driven supply gap. We have to believe any major LNG player, including Shell, will be at least looking at their brownfield LNG project list and seeing if they should look to advance FID later in 2021. Shell has LNG Canada Phase 2, which would add 2 additional trains or approx. 1.8 bcf/d. And an advantage to an FID would be that Shell would be able to commit to its existing contractors and fabricators for a continuous construction cycle following on LNG Canada Phase 1 ie. to help keep a lid on capital costs. We believe maintaining a continuous construction cycle is even more important given the stressed global supply chain. No one is talking about the need for these new brownfield LNG projects, but, unless some major change in views happen, we believe its inevitable that these brownfield LNG FID internal discussions will be happening in H2/21. Especially since the oil and gas price outlook is much stronger than it was in the fall and companies will be looking to increase capex in 2022 budgets.

A LNG Canada Phase 2 would be a big plus to Cdn natural gas. LNG Canada Phase 1 is a material natural gas development as its 1.8 bcf/d capacity represents approx. 20 to 25% of Cdn gas export volumes to the US. The EIA data shows US pipeline imports of Cdn natural gas as 6.83 bcf/d in 2020, 7.36 bcf/d in 2019, 7.70 bcf/d in 2018, 8.89 bcf/d in 2017, 7.97 bcf/d in 2016, 7.19 bcf/d in 2015 and 7.22 bcf/d in 2014. A LNG Canada Phase 2 FID would be a huge plus for Cdn natural gas. It would allow another ~1.8 bcf/d of Cdn natural gas to be priced against pricing points other than Henry Hub. And it would provide demand offset versus Trudeau if he moves to make electricity "emissions free" and not his prior "net zero emissions". Mozambique has been a game changer to LNG outlook creating a bigger and sooner LNG supply gap. And with a stronger tone to oil and natural gas prices in 2021, the LNG supply gap will at least provide the opportunity for Shell to consider FID for its brownfield LNG Canada Phase 2 and provide big support to Cdn natural gas for the back half of the 2020s. And perhaps if LNG Canada is exporting 3.6 bcf/d from two phases, it could help flip Cdn natural gas to a premium vs US natural gas especially if Biden is successful in reducing US domestic natural gas consumption for electricity. The next six months will be very interesting to watch for LNG markets and Cdn natural gas valuations. Imagine the future value of Cdn natural gas is there was visibility for 3.6 bcf/d of Western Canada natural gas to be exported to Asia.

European Union, Trade with Russia

Trade flows by SITC section 2020

Source Eurostat Comext - Statistical regime 4

	Imports				Exports			
	Value Mio €	% Total	% Extra-EU	% Growth	Value Mio €	% Total	% Extra-EU	% Growth
Total	95,037	100.0	5.6	-34.5	78,977	100.0	4.1	-10.0
0 Food and live animals	1,623	1.7	1.6	7.3	3,692	4.7	2.8	-3.0
1 Beverages and tobacco	97	0.1	1.1	-8.2	1,705	2.2	4.8	-5.9
2 Crude materials, inedible, except fuels	4,779	5.0	7.0	4.1	2,116	2.7	4.5	17.6
3 Mineral fuels, lubricants and related materials	60,118	63.3	27.1	-39.7	584	0.7	0.9	-7.9
4 Animal and vegetable oils, fats and waxes	177	0.2	1.6	11.2	157	0.2	2.4	-0.5
5 Chemicals and related prod, n.e.s.	4,129	4.3	1.8	-25.4	16,699	21.1	4.1	-15.7
6 Manufactured goods classified chiefly by material	12,575	13.2	6.6	-20.2	8,215	10.4	4.0	-13.0
7 Machinery and transport equipment	1,640	1.7	0.3	-30.2	34,952	44.3	4.6	-8.2
8 Miscellaneous manufactured articles	514	0.5	0.2	-5.2	9,784	12.4	4.3	-11.9
9 Commodities and transactions n.c.e.	1,136	1.2	3.2	-47.3	477	0.6	1.1	27.0
Other	8,247	8.7	n.a.	n.a.	597	0.8	n.a.	n.a.

Trade flows by SITC product grouping 2020

Source Eurostat Comext - Statistical regime 4

	Imports				Exports			
SITC Rev. 3 Product Groups	Value Mio €	% Total	% Extra-EU	% Growth	Value Mio €	% Total	% Extra-EU	% Growth
Total	95,037	100.0	5.6	-34.5	78,977	100.0	4.1	-10.0
Primary products	71,622	75.4	16.0	-36.2	8,613	10.9	2.8	0.1
- Agricultural products (Food (incl. Fish) & Raw Materials)	4,261	4.5	2.7	1.0	6,891	8.7	3.4	-3.1
- - Food	2,217	2.3	1.7	11.5	5,838	7.4	3.4	-2.9
- - - of which Fish	575	0.6	2.5	-9.2	54	0.1	0.9	26.2
- - - Other food products and live animals	1,642	1.7	1.5	21.2	5,785	7.3	3.4	-3.1
- - Raw materials	2,044	2.2	9.8	-8.4	1,053	1.3	3.7	-4.4
- Fuels and mining products	67,361	70.9	23.0	-37.7	1,722	2.2	1.6	15.3
- - Ores and other minerals	2,415	2.5	6.5	12.3	778	1.0	4.6	69.1
- - Fuels	60,118	63.3	27.1	-39.7	584	0.7	0.9	-7.9
- - - of which Petroleum and petroleum products	48,244	50.8	28.4	-40.1	554	0.7	1.0	-8.4
- - Non ferrous metals	4,828	5.1	14.5	-22.1	360	0.5	1.2	-10.0
Manufactures	14,026	14.8	1.1	-22.0	69,267	87.7	4.4	-11.2
- Iron and steel	4,005	4.2	14.8	-16.8	784	1.0	2.8	-42.6
- Chemicals	4,129	4.3	1.8	-25.4	16,699	21.1	4.1	-15.7
- - of which Pharmaceuticals	56	0.1	0.1	69.7	6,591	8.4	3.1	-26.6
- Other semi-manufactures	3,649	3.8	4.2	-21.6	6,391	8.1	5.1	-7.5
- Machinery and transport equipment	1,640	1.7	0.3	-30.2	34,952	44.3	4.6	-8.2
- - Office and telecommunication equipment	83	0.1	0.0	8.3	4,168	5.3	4.1	-1.9
- - - Electronic data processing and office equipment	20	0.0	0.0	57.3	1,957	2.5	6.1	-1.0
- - - Telecommunications equipment	45	0.1	0.0	16.0	1,553	2.0	3.7	-6.2
- - - Integrated circuits and electronic components	18	0.0	0.0	-29.0	658	0.8	2.4	6.6
- - Transport equipment	338	0.4	0.3	-56.9	9,443	12.0	3.3	-20.4
- - - of which Automotive products	93	0.1	0.1	-72.4	6,306	8.0	3.3	-24.3
- - Other machinery	1,220	1.3	0.5	-18.0	21,298	27.0	5.7	-2.6
- - - Power generating machinery	460	0.5	1.3	-28.4	1,822	2.3	4.2	-4.7
- - - Non electrical machinery	383	0.4	0.4	-5.7	14,330	18.1	6.4	-2.5
- - - Electrical machinery	377	0.4	0.4	-14.3	5,145	6.5	5.0	-2.3
- Textiles	93	0.1	0.2	-1.8	681	0.9	3.6	-11.6
- Clothing	22	0.0	0.0	-27.1	2,132	2.7	6.5	-16.6
- Other manufactures	486	0.5	0.3	-2.6	7,628	9.7	4.0	-10.6
- - of which Scientific and controlling instruments	156	0.2	0.3	-16.0	2,843	3.6	4.3	-4.0
Other products	1,142	1.2	3.2	-47.3	500	0.6	1.1	25.2
Other	8,247	8.7	n.a.	n.a.	597	0.8	n.a.	n.a.

% Growth: relative variation between current and previous period

% Total: Share in Total: Total defined as all products

% Extra-EU: imports/exports as % of all EU partners i.e. excluding trade between EU Member States

NEWS RELEASE

ENEOS

January 25, 2022

Optimization of Petroleum Product Manufacturing and Supply Network

ENEOS Corporation (President: Ota Katsuyuki; “ENEOS”) announces that it has made a decision to terminate the operation of the refinery, plant, and logistics functions at the Wakayama refinery (Refinery manager: Teshima Masayoshi) located in Arida City, Wakayama Prefecture. The termination is expected to take place in October 2023.

As one of the envisioned goals in the ENEOS Group Long-Term Vision to 2040, ENEOS aims to “Become one of the most prominent and internationally competitive energy and materials company groups in Asia”. To achieve the goal, ENEOS is striving to strengthen the competitiveness of the entire supply chain in petroleum refining and marketing as one of its base businesses, with safe operations and a stable supply of energy as the major premises.

The various circumstances in the environment surrounding the petroleum refining and marketing businesses—which include the rapid reduction in demand due to the recent spread of COVID-19 besides structural domestic demand decline for petroleum products and severe international competition mainly in Asia—were considered comprehensively. As a result, it was determined that there was a pressing need to optimize the manufacturing of refineries and plants as well as the supply network for petroleum products. ENEOS therefore decided to terminate all functions of the Wakayama refinery.

Until the termination of all functions of Wakayama Refinery in October 2023, the Refinery will continue to contribute to a stable supply of energy, putting a high priority on safe operations.

Overview of the Wakayama refinery

Location	:	1000 Hatsushima-cho Hama, Arida City, Wakayama Prefecture
Start-up of operation	:	1941
Refinery manager	:	Teshima Masayoshi
Number of employees	:	447 (as of January 1, 2022)
Site area	:	2.48 million square meters
Crude process capacity	:	127,500 barrels per day

ENEOS Corporation [E'-ne-ohs] ENEOS Group Japan's Premier Energy and Materials Corporate Group
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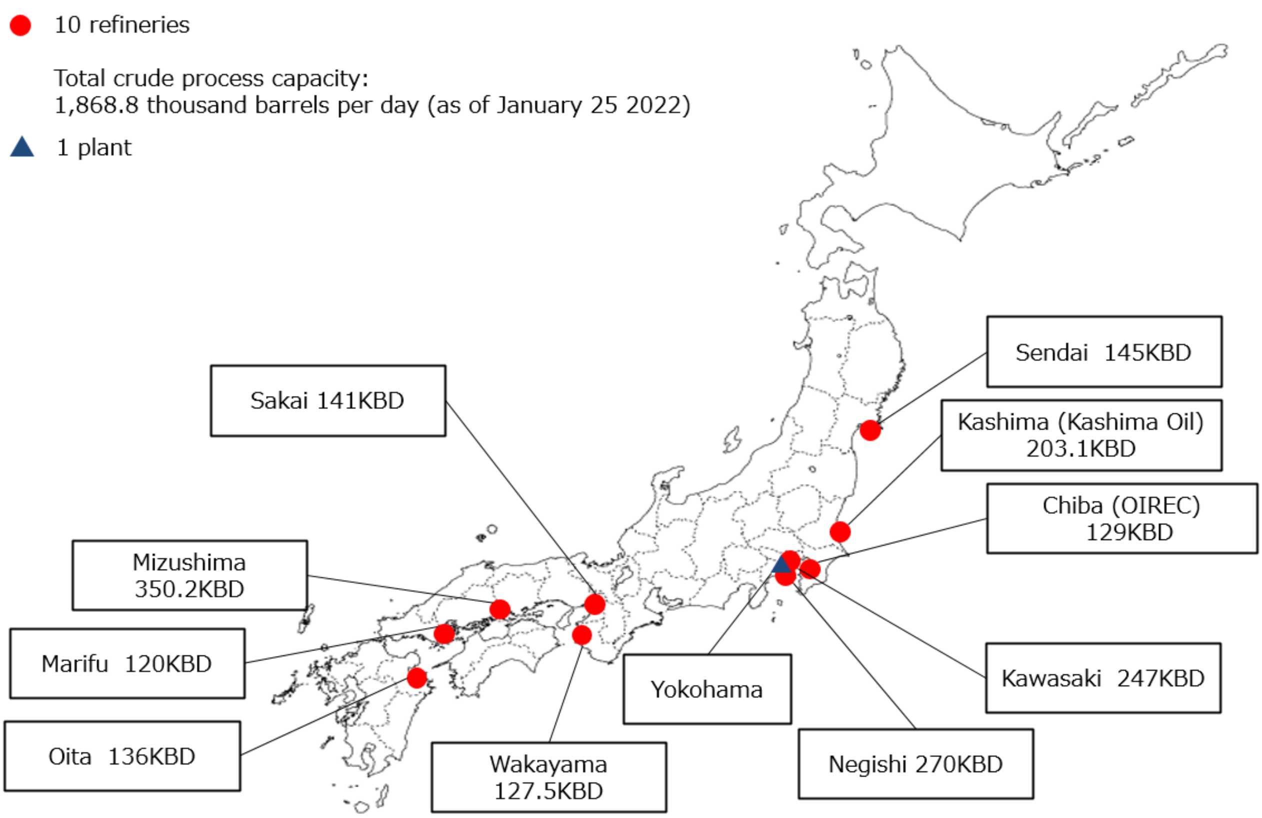
<u>ENEOS's refinery and plant network</u>



CORRECT: **Nigeria Plans to Cut Forcados Exports to 18-Month Low**
2022-01-28 08:34:14.340 GMT

By Bill Lehane
(Bloomberg) -- (Corrects barrels per day figure in second bullet.)
* Nigeria to lower Forcados crude loadings to 155k b/d in March, the lowest for any month since September 2020, according to a schedule seen by Bloomberg.
* Drops from 204k b/d for February
** March plan includes five shipments carrying 4.8m bbl, down from six cargoes totaling 5.7m bbl in February
* READ (Jan. 5): OPEC Output Boost Severely Limited as African Members Struggle
* Antan loadings at 31k b/d for March, first exports since December
* No shipments expected of Okwori crude for a third month in March
* See DATA LOAD for data library of crude loading schedules

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https://blinks.bloomberg.com/news/stories/R6EUMLT1UM0Y

Angola to Cut Oil Exports to 1.05M B/D in March: Final Plan
2022-01-26 11:31:44.948 GMT

By Bill Lehane
(Bloomberg) -- Angola plans to reduce oil exports in March to 1.05m b/d, the lowest level since November, according to a final loading schedule seen by Bloomberg.
* Drops from 1.1m b/d for February
* March plan includes 34 cargoes carrying a combined volume of 32.65m bbl
** NOTE: The final schedule removes a 1m-bbl cargo of Plutonio that was listed in the preliminary schedule of 35 shipments, released earlier this month

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Oil price outlook

Snapshot: January 24, 2022

Disclaimer: Please note that BNEF does not offer investment advice. Clients must decide for themselves whether current market prices fully reflect the issues discussed in this note.

Category	Indicator	Signal	Comment
Fundamentals	**Refinery margins**	↔	• Global refinery margins were mixed over the past week. Refinery margins in the U.S. Gulf Coast fell slightly due to weaker light distillate cracks. Refinery margins in Northwest Europe were flat, while margins in Singapore were supported by lower gas costs.
Fundamentals	**Crude stocks**	↑	• In the week ending January 14, land crude-oil storage levels in BloombergNEF's tracked regions (U.S., ARA, Japan) rose by 1.2% week-on-week to 522.9 million barrels (m bbl). The stockpile **deficit** against its five-year average (2015-19) **narrowed from 52.2m bbl to 50.8m bbl**. Including global floating crude stockpiles from the same week, total crude oil inventories decreased by 0.2% to 615.2m bbl, with the stockpile **deficit widening from 29.4m bbl to 35.2m bbl.**
Fundamentals	**Product stocks**	↔	• In the week ending January 14, ~~gasoline and light distillate stockpiles~~ in BNEF's tracked regions (U.S., ARA, Singapore, Japan and Fujairah) were up 2.0% week-on-week to 284.7m bbl, with the stockpile **deficit** against its three-year average (2017-19) **narrowing from 11.2m bbl to 10.2m bbl**. Gasoil and middle distillate stockpiles in BNEF's tracked regions rose by 0.4% to 162.1m bbl, with the stockpile **deficit** against its three-year average **widening from 32.5m bbl to 34.0m bbl**. • Total oil product stockpiles in tracked regions decreased by 0.3% to 934.3m bbl, with the stockpile **deficit** against its three-year seasonal average **widening from 55.7m bbl to 60.2m bbl**. All in all, crude and product stockpiles fell by 0.3% to 1,549.5m bbl, with the stockpile **deficit widening from 85.0m bbl to 95.3m bbl.**
Fundamentals	**Demand indicators**	↔	• Global jet fuel demand from commercial passenger flights fell by 102,400 barrels per day (or 2.3%) week-on-week, putting an end to seven consecutive weeks of increase. Jet fuel consumption by international passenger departures was down by 82,300 barrels per day (or 3.7%) week-on-week, while consumption by domestic passenger departures fell by 20,100 barrels per day (or 0.9%). • Global mobility indices were mixed over the past week. Apple's global driving activity index dropped by 1.0% in the week to January 21, weighed down by a plunge in the Asia Pacific ex-China (-2.0%) and the Middle East (-10%). Google's global mobility indices, however, rose slightly by 0.1% in the week to January 20, as growth in Europe (+2.9%) nullified decreases in the Americas (-0.8%) and Asia Pacific ex-China (-0.9%). Road congestion in China dropped by 3.6 percentage points to 98.1% of 2021 levels in the week to January 19, according to BNEF's calculation based on Baidu's data. • Daily average Covid-19 cases were up 9% to over 3.2 million in the week to January 22, a significant slowdown from the increases seen in previous weeks. Asia Pacific was up by 22% to over 498,000 daily cases, Europe was up 11% to over 1.3 million daily cases, and the Americas were up 2.8% to just under 1.2 million daily cases. All numbers shown are the daily averages to the week ending January 22. • Weather forecasts indicate that winter temperatures in key East Asian have become milder over recent weeks, while temperatures in European cities are showing mixed trends.
Financial	**Macro indicators**	↓	• The dollar index averaged at 95.6 over the past week and was 0.3% higher than the week before.
Financial	**Hedge fund positioning**	↑	• In the week to January 18, Managed Money net positioning in the oil complex grew by 32.6m bbl (or 4.5%) week-on-week to 761.4m bbl. Net positioning in European gasoil was the best performer, rising by 9.8% over the past week.
Financial	**Options chains and volatility**	↓	• There was a significant pick-up in open interest for short-term Brent and WTI puts, as well as a drop in open interests for Brent $90/bbl Mar-22 and Jun-22 calls. Brent and WTI 1M risk reversals fell week-on-week.
Outlook	**Weekly call**	↑	• BNEF is bullish on oil prices for the week ahead, with Brent Mar-22 trading at $87.06/bbl and WTI Mar-22 trading at $85.03/bbl at the time of writing. The high-frequency oil and product stockpile **deficit** against the three-year (2017-19) seasonal average has swelled to the highest level since the pandemic began, breaking the record set last week. Global growth in virus cases has also decelerated significantly.

Past outlooks

Disclaimer: Please note that BNEF does not offer investment advice. Clients must decide for themselves whether current market prices fully reflect the issues discussed in this note

Date of report	Refinery margins	Crude stocks	Product stocks	Demand indicators	Commitment of traders	Options chain and volatility	BNEF week ahead call	Brent/WTI price at time of writing ($/bbl)	Web Link
January 24	↔	↑	↔	↔	↑	↓	↑	Brent-Mar: 87.06 WTI-Mar: 85.03	
January 17	↑	↑	↔	↔	↑	↑	↔	Brent-Mar: 85.78 WTI-Mar: 83.22	
January 10	↑	↓	↔	↓	↑	↑	↔	Brent-Mar: 81.71 WTI-Feb: 78.82	
January 3	↔	↔	↑	↓	↔	↔	↑	Brent-Mar: 78.84 WTI-Feb: 76.14	
December 13	↑	↑	↔	↑	↓	↔	↑	Brent-Feb: 75.25 WTI-Jan: 71.62	
December 6	↑	↔	↔	↔	↓	↑	↔	Brent-Feb: 71.63 WTI-Jan: 68.05	
November 29	↓	↔	↑	↔	↓	↓	↔	Brent-Feb: 74.47 WTI-Jan: 71.14	
November 22	↓	↑	↔	↔	↓	↓	↓	Brent-Jan: 79.00 WTI-Jan: 76.06	
November 15	↓	↔	↓	↔	↔	↓	↓	Brent-Jan: 81.27 WTI-Jan: 78.97	
November 8	↓	↑	↔	↓	↓	↔	↓	Brent-Jan: 83.86 WTI-Dec: 82.47	
November 1	↓	↔	↓	↔	↓	↓	↔	Brent-Jan: 84.70 WTI-Dec: 84.45	
October 25	↓	↓	↔	↑	↔	↔	↔	Brent-Jan: 85.47 WTI-Dec: 84.61	
October 18	↑	↔	↔	↑	↔	↔	↑	Brent-Dec: 84.70 WTI-Dec: 81.88	

To view past reports on terminal, go to NI BNEFOIL, search for the report and click on the icon to the far right:

BloombergNEF

Crude stocks: Land

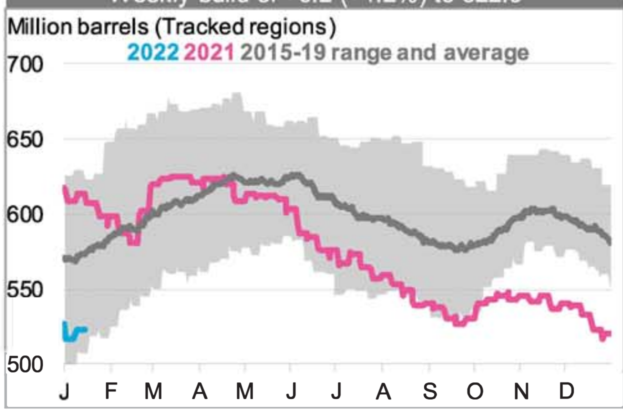
Note: We will continue to compare current inventory levels with the three-year (2017-19) seasonal average for the time being. Crude inventory data for Shandong teapots will excluded from January 10.

Neutral: Deficit narrowed from 52.2m bbl to 50.8m bbl against seasonal average

- Crude inventory rises when supply outstrips demand (meaning more physical oil is available than is needed). High or rising inventories are therefore a bearish factor for oil prices. Every year, storage levels fluctuate due to seasonal demand trends. The intra-year directional movement of stockpile levels is somewhat predictable, yet the magnitude of movement can differ significantly from expectations.
- A useful way to gauge if the intra-year storage levels differ from the norm is to measure the difference between the current and seasonal average inventory levels.

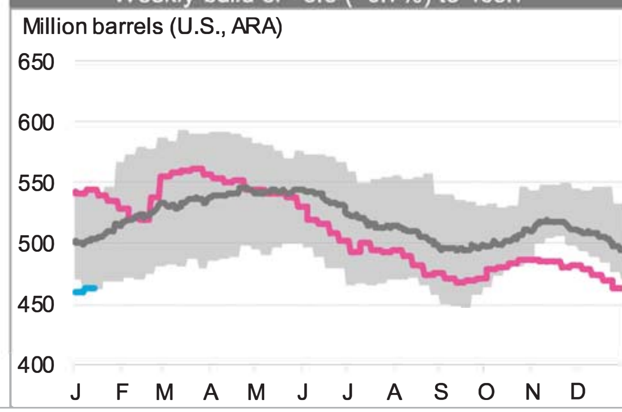
Land storage: Total

Weekly build of +6.2 (+1.2%) to 522.9



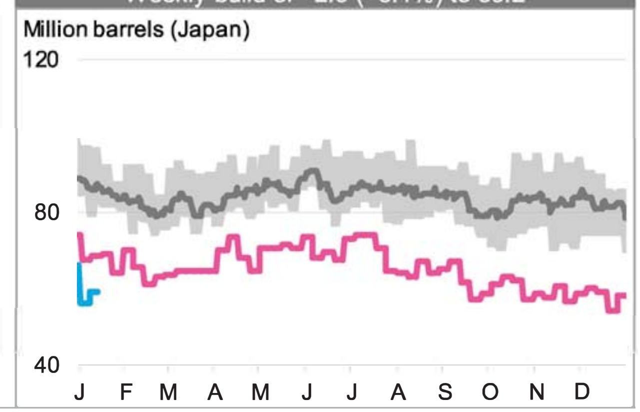
Land storage: West of Suez

Weekly build of +3.3 (+0.7%) to 463.7



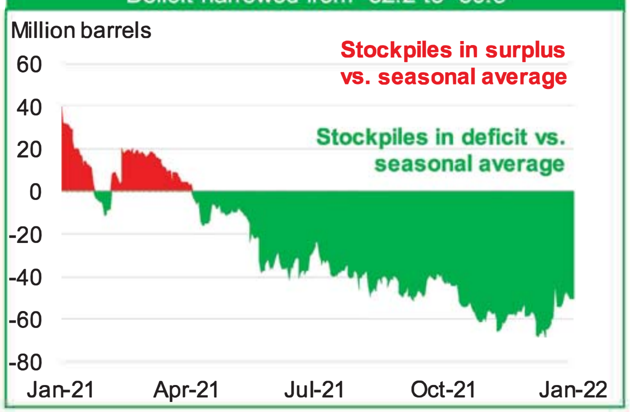
Land storage: East of Suez

Weekly build of +2.9 (+5.1%) to 59.2

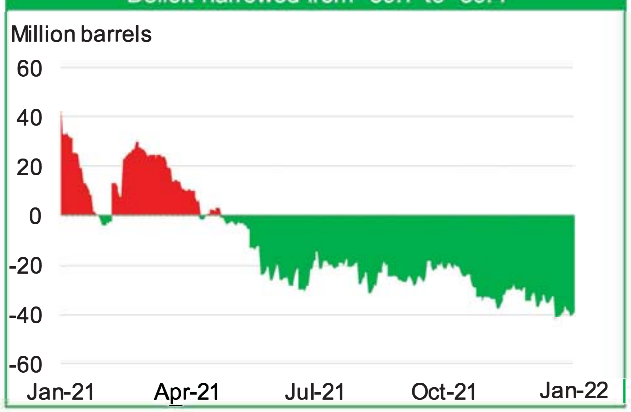


Charts below subtract current stockpiles by the 2015-19 (five-year) seasonal average

Deficit narrowed from -52.2 to -50.8



Deficit narrowed from -39.7 to -39.4



Deficit narrowed from -29.9 to -28.2

Source: BloombergNEF, U.S. EIA, Genscape, PAJ, SCIG. Note: As of the ***week ending January 14.***

Crude stocks: Floating

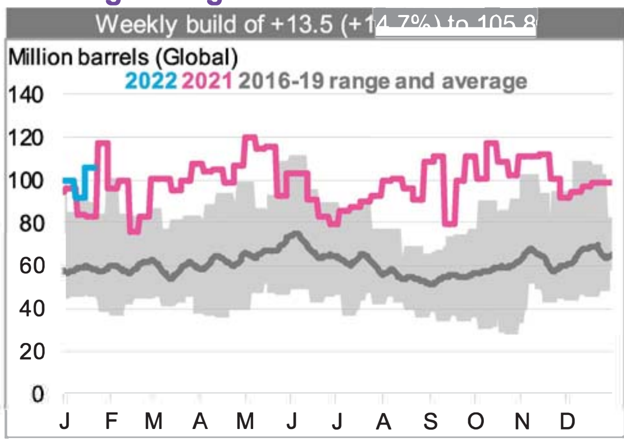
Bearish: Stockpile surplus widened significantly

- Floating storage is only profitable if the strength of contango (future vs. prompt price) is greater than the tanker costs. Therefore, tankers become floating storage when the profit from a storage play exceeds the cost of the forward freight agreement (FFA).
- The floating storage data used in the "Oil Price Outlook" slide is for the previous week (i.e. the week before the latest data shown below). That data is available in the table to the right.

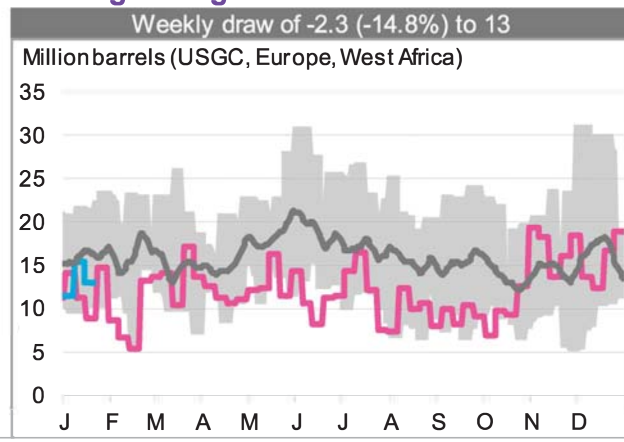
***Vortexa's revision to global floating crude inventories**

Million barrels	Previous report	Current report	*Vortexa's revision
Inventories in week of Jan. 14	82.0	92.3	+10.3
Inventories in week of Jan. 7	101.9	99.4	-2.5

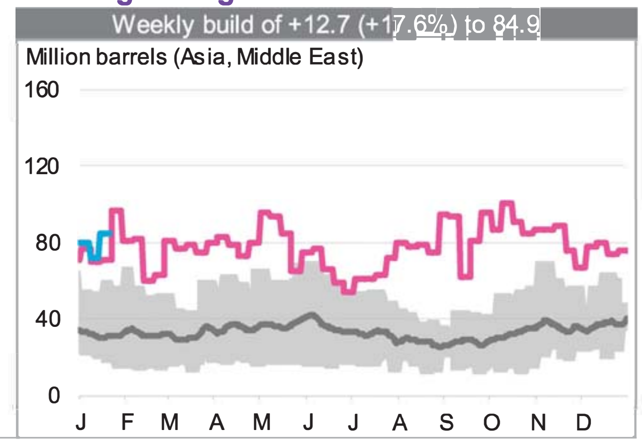
Floating storage: Total



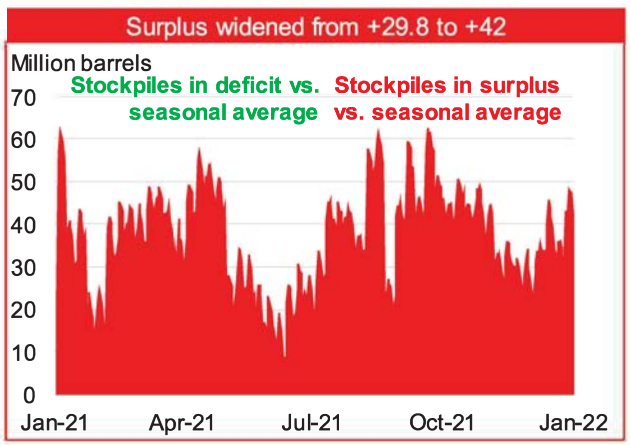
Floating storage: West of Suez

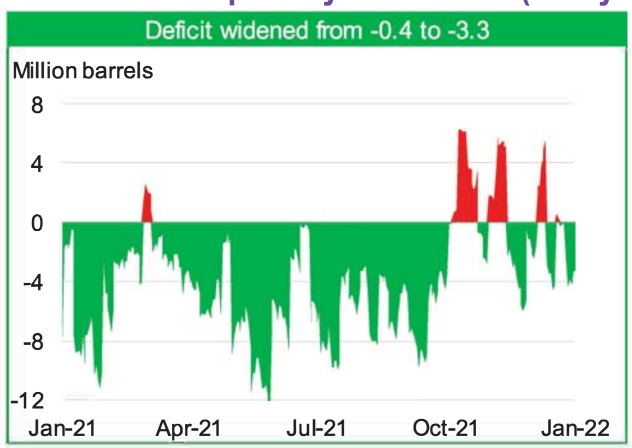


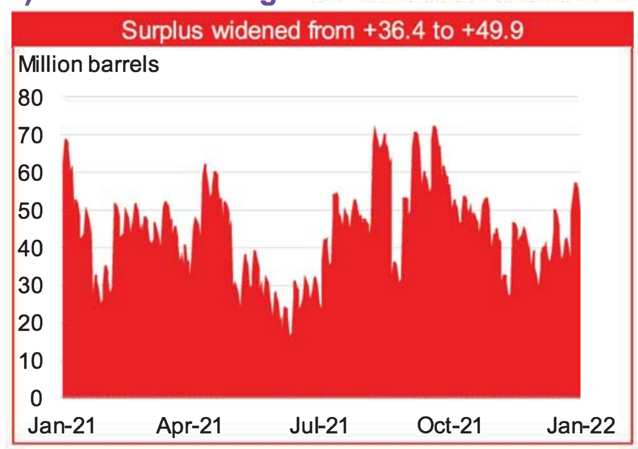
Floating storage: East of Suez



Charts below subtract current stockpiles by the 2016-19 (four-year) seasonal average







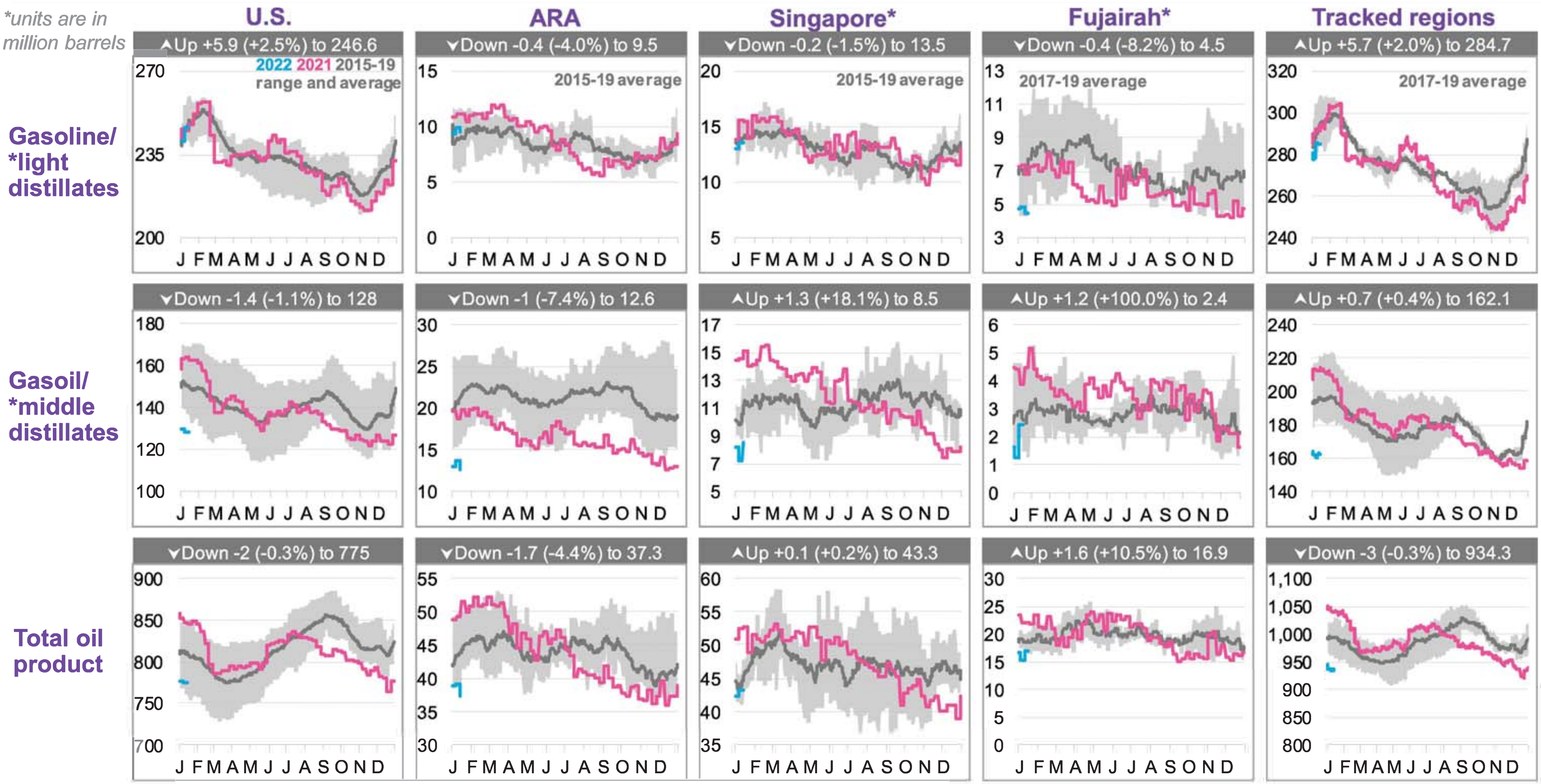
Source: BloombergNEF, Vortexa. Note: As of the ***week ending January 21****. *Raw data from Vortexa is revised frequently, so the data in this report might change week-to-week.*

Fundamentals Financial

Product stocks: Current vs. seasonal average

Neutral: Oil product stockpiles in tracked regions fell by 0.3% week-on-week

- Chart legend are as follows: 2021, 2020 and the 2015-19 range and average. For Fujairah and tracked regions, the **2017-19 (three-year) seasonal range** is shown. Tracked regions include U.S., ARA, Singapore, Japan and Fujairah



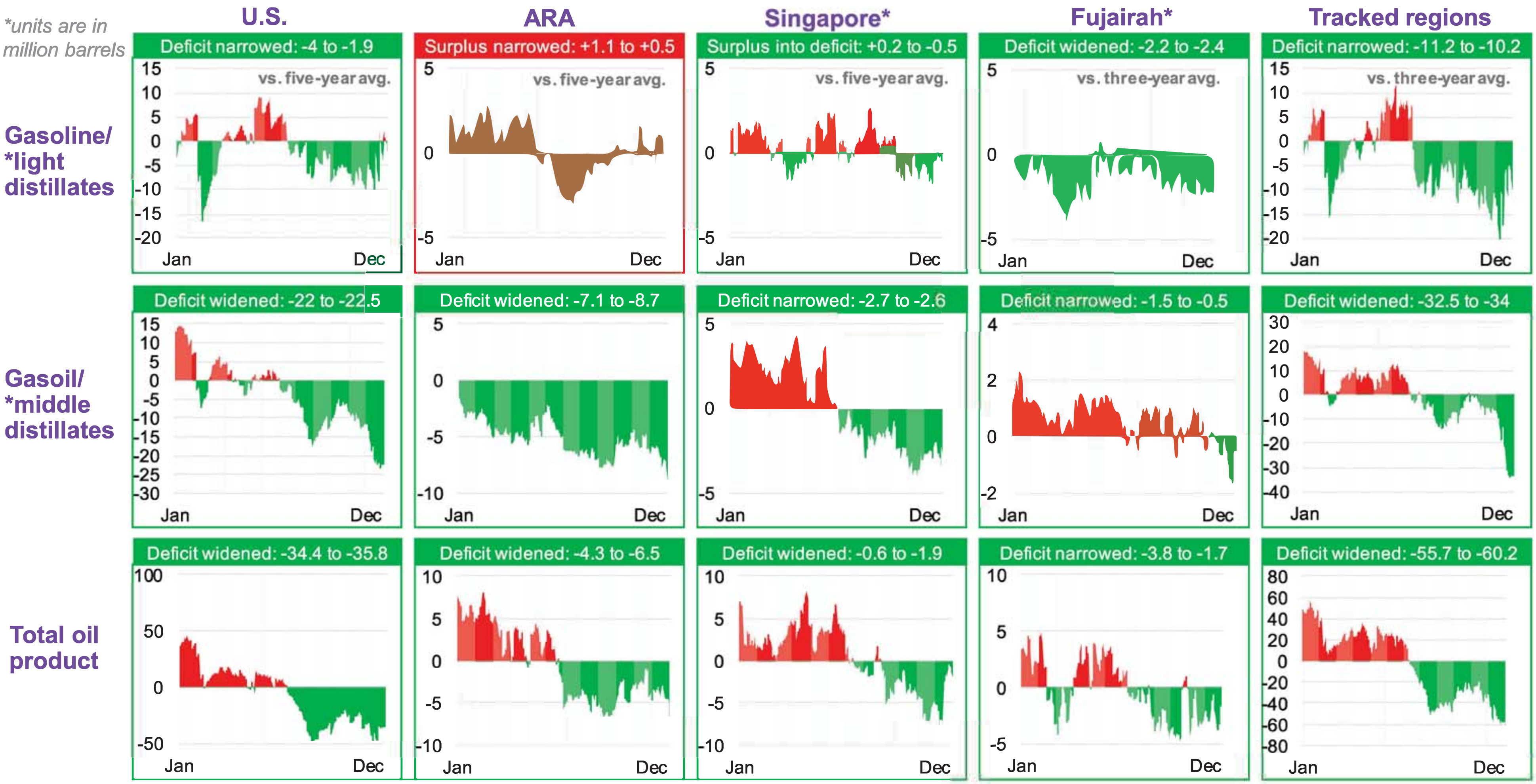
Source: BloombergNEF, U.S. EIA, PJK, IE Singapore, FEDCom/Platts, PAJ. Note: As of the ***week ending January 14.***

Fundamentals Financial

Product stocks: Current vs. seasonal average

Neutral: Oil product stockpile deficit against the seasonal average widened from 55.7m bbl to 60.2m bbl

- The charts below compare each respective regional product stockpile level against the seasonal average defined in the previous slide.
- **Red** signifies that the current stockpile levels are higher (in surplus) than the seasonal average, while **green** signals that the current stockpiles are lower (in deficit).



Source: BloombergNEF, U.S. EIA, PJK, IE Singapore, FEDCom/Platts, PAJ. Note: As of the **week ending January 14.**

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Fundamentals | Financial

Aggregated oil stockpiles

Note: We will continue to compare current inventory levels with the three-year (2017-19) seasonal average for the time being. Crude inventory data for Shandong teapots will excluded from January 10.

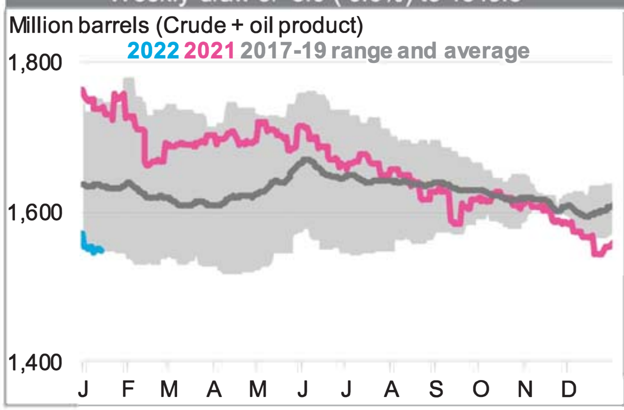
Bullish: Stockpiles deficit widened from 85.0m bbl to 95.3m bbl

- Charts below use the **2017-19** (three-year) seasonal stockpiles. All calculations are recalibrated to measure against their respective three-year seasonal averages, so the values below might differ from the previous slides.
- Land crude inventories include the U.S., ARA, Japan and Shandong Teapots. Floating storage data is global. Oil product storage includes the U.S., ARA, Japan, Singapore, Shandong Teapots and Fujairah. Floating crude inventories might have been adjusted since the previous report – see slide 8 for more info.

Total oil and product stocks = Total crude stocks (land + floating) + Total oil product stockpiles

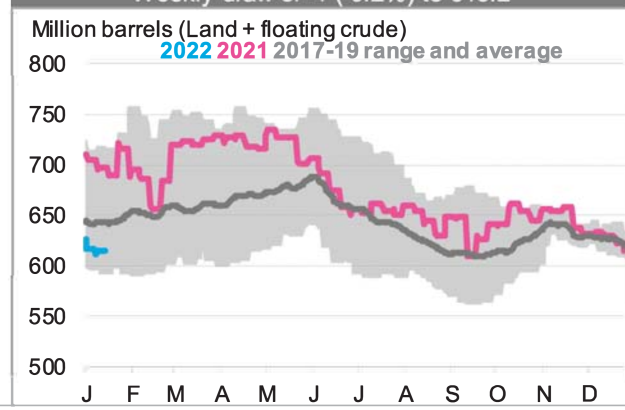
Total oil and product stocks

Weekly draw of -3.9 (-0.3%) to 1549.5



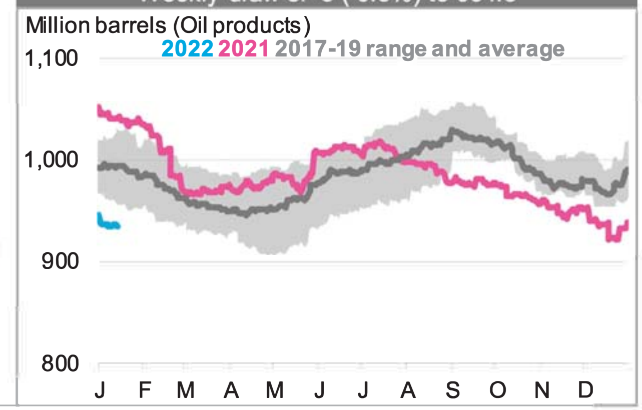
Total crude stocks (land + floating)

Weekly draw of -1 (-0.2%) to 615.2



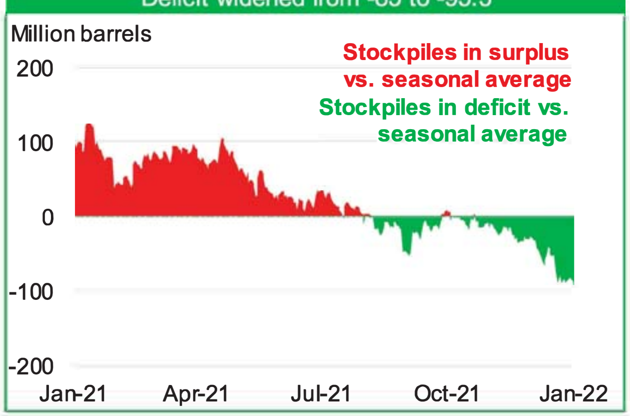
Total oil product stockpiles

Weekly draw of -3 (-0.3%)

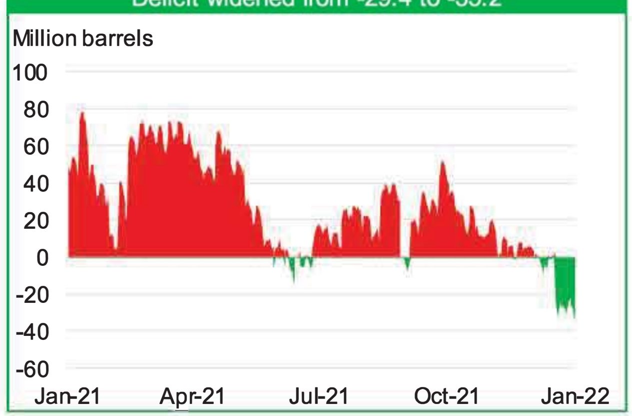


Charts below subtract current stockpiles by the 2017-19 (three-year) seasonal average

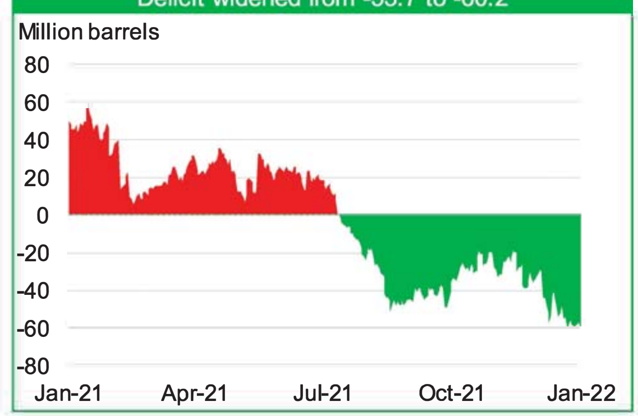
Deficit widened from -85 to -95.3



Deficit widened from -29.4 to -35.2



Deficit widened from -55.7 to -60.2



Source: BloombergNEF, U.S. EIA, PJK, IE Singapore, FEDCom/Platts, PAJ ,Vortexa, Genscape, SCIG. As of the ***week ending January 14.***

Jan 25, 2022 11:30:03

OIL DEMAND MONITOR: U.K. Sales Recover Quicker Than Last January

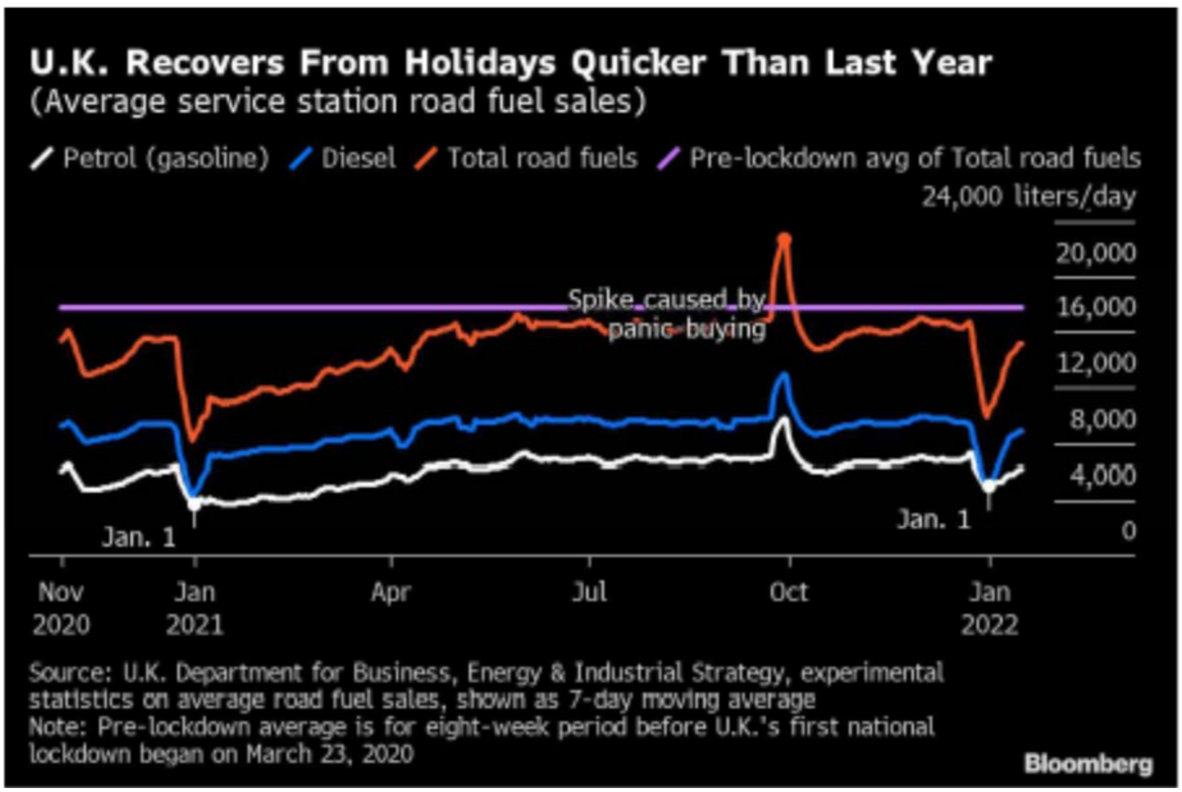
- U.K.'s omicron infection wave has peaked; London traffic busy
- Italy's December oil product sales stronger than pre-pandemic

By Stephen Voss

(Bloomberg) -- U.K. road fuel sales are still recovering from the steep dip during the Christmas-New Year holiday period, though the hangover appears to be clearing much more quickly than a year earlier when coronavirus restrictions were harsher.

Omicron infection numbers have peaked and declined in England, emboldening the government to end its work-from-home advice and scrapping other so-called "Plan B" restrictions from Jan. 27. That's in contrast to early January 2021 when England entered a third national lockdown, including some restrictions that lasted until July, slowing the increase in fuel consumption.

Other parts of Europe appear to be a week or two behind the U.K. in terms of the cresting of their own virus waves and may experience a similar dip in fuel demand once January data is available. For a second week in a row, out of 13 world cities regularly tracked in this monitor, only London showed congestion levels at 8 a.m. on Monday morning that were higher than typical levels seen in 2019.

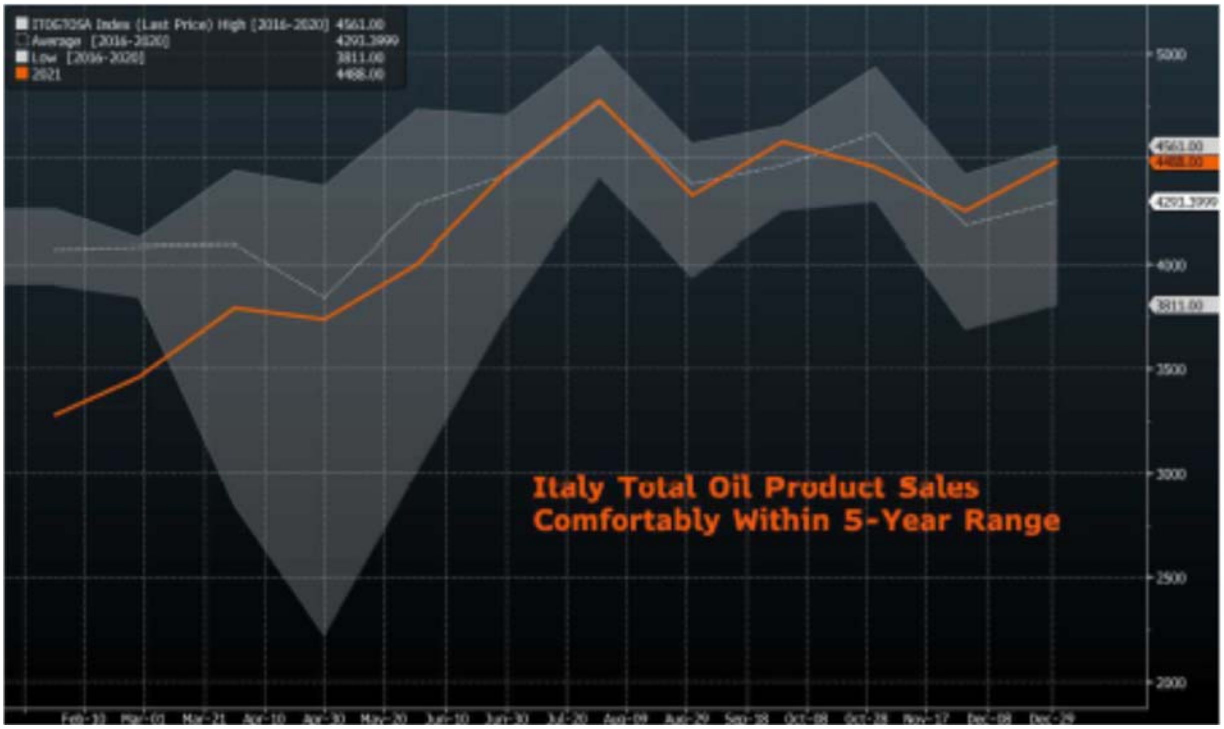


Compared with a week earlier, city traffic strengthened in Rome and Madrid while weakening slightly in Tokyo, Jakarta, Berlin and Paris. Road queues also lengthened in New York and Los Angeles, though that's not surprising since the prior Monday was a public holiday.

Monthly fuel consumption statistics are now available for Italy, as well as for Spain, France and Portugal.

The new Italian data shows total oil product sales marginally exceeded pre-pandemic levels in December as strong road fuel volumes outweighed the enduring slump in jet fuel. Italian and Portuguese data -- as a proxy for Europe in general --show that, as of the last month of 2021, demand for gasoline and diesel was within a few percentage points either side of pre-pandemic levels and comfortably near five-year average levels.

Only jet fuel remains the laggard, trailing 2019 levels by 23% in Portugal and 39% in Italy, for example.



Asia's International Rights Suffer

A rolling seven-day average of the worldwide number of commercial flights on Monday was 35% higher than a year ago, but still trailed the equivalent 2019 number by 18%, a similar percentage to the prior week, according to daily tracking data from RightRadar24.

Separate data from OAG Aviation measuring the number of seats on planes offered by airlines shows global capacity lags 2019 by 28% for the week starting Jan. 24.

In terms of international travel, the three regions most affected by Covid-19 are South East Asia, down 82% versus the same week in 2019, North East Asia down 87%, and Southwest Pacific down 78%, OAG said in a note on its website. Central America is the most recovered region with international seat capacity only 5% below the 2019 level.

Still, while parts of Asia suffer from less cross-border travel, the two largest regions for domestic capacity are North East Asia and North America, both close to 2019 levels at -0.7% and -7.9%, respectively, OAG said. Those two regions are dominated by China and the U.S.

The Bloomberg weekly oil-demand monitor uses a range of high-frequency data to help identify emerging trends.

Following are the latest indicators. The first two tables show fuel demand and mobility, the next shows air travel globally and the fourth is refinery activity:

Demand Measure	Location	% y/y	% vs 2019	% m/m	Freq	Latest Date	Latest Value	Source
Gasoline	U.S.	+1.4	-4	-8.5	w	Jan. 14	8.22m b/d	EIA
Distillates	U.S.	+19	+2.4	+19	w	Jan. 14	4.56m b/d	EIA
Jet fuel	U.S.	+39	-8.9	+3.6	w	Jan. 14	1.51m b/d	EIA
Total oil products	U.S.	+12	+4.8	+7.1	w	Jan. 14	21.9m b/d	EIA
All vehicles miles traveled	U.S.		+0.1		w	Jan. 16	14.2b miles	DoT
Passenger car VMT	U.S.		-2.3		w	Jan. 16	n/a	DoT
Truck VMT	U.S.		+9.2		w	Jan. 16	n/a	DoT
All motor vehicle use index	U.K.	+44	-9	-3.2	w	Jan. 17	91	DfT
Car use	U.K.	+51	-14	-4.4	w	Jan. 17	86	DfT
Heavy goods vehicle use	U.K.	+7.1	+5	-0.9	w	Jan. 17	105	DfT
Gasoline (petrol) avg sales per filling station	U.K.	+64	-14	-8.3	w	Jan. 16	6,245 liters/d	BEIS
Diesel avg sales per station	U.K.	+26	-15	-7	w	Jan. 16	8,908 liters/d	BEIS
Total road fuels sales per station	U.K.	+39	-15	-7.5	w	Jan. 16	15,153 liters/d	BEIS
Gasoline	India	-2.8		-14	2/m	Jan. 1-15	964k tons	Bberg
Diesel	India	-5		-14	2/m	Jan. 1-15	2.47m tons	Bberg
LPG	India	+9.5		+4.8	2/m	Jan. 1-15	1.3m tons	Bberg
Jet fuel	India	+7.3		-13	2/m	Jan. 1-15	209k tons	Bberg
Total Products	India	+0.4	-5.4	+7.7	m	December	18.4m tons	PPAC
Toll roads volume	Italy	+102	+3.7		w	Dec. 20-26	n/a	Atlantia
Toll roads volume	Spain	+39	-9		w	Dec. 20-26	n/a	Atlantia
Toll roads volume	France	+28	-5.3		w	Dec. 20-26	n/a	Atlantia
Toll roads volume	Brazil	+7.9	+0.5		w	Dec. 20-26	n/a	Atlantia
Toll roads volume	Chile	+51	+27		w	Dec. 20-26	n/a	Atlantia
Toll roads volume	Mexico	+20	+11		w	Dec. 20-26	n/a	Atlantia

Gasoline	Spain	+23	+1.4	+6.3	m	December	477k m3	Exolum
Diesel	Spain	+7.6	-0.7	+2.7	m	December	2466k m3	Exolum
Jet fuel	Spain	+142	-24	+8	m	December	377k m3	Exolum
Road fuel sales	France	+12		+4.7	m	December	4.28m m3	UFIP
All petroleum products	France	+14	-0.3		m	December	4.83m m3	UFIP
Total fuel sales	Italy	+18	+1.6	+5.6	m	December	4.49m tons	Ministry
Gasoline	Italy	+33	+5.4	+10	m	December	644k tons	Ministry
Diesel /gasoil	Italy	+20	+6.6	+7.4	m	December	2.4m tons	Ministry
Jet fuel	Italy	+101	-39	-2.3	m	December	217k tons	Ministry
All vehicles traffic	Italy	+35		-2	m	December	n/a	Anas
Heavy vehicle traffic	Italy	+9		-10	m	December	n/a	Anas
Gasoline	Portugal	+17	-2.5	+8	m	December	87k tons	ENSE
Diesel	Portugal	+10	-3.4	+0.8	m	December	405k tons	ENSE
Jet fuel	Portugal	+77	-23	-14	m	December	91k tons	ENSE
Gasoline	Brazil	+6.7	+6.7	-0.9	m	November	720k b/d	ANP
Diesel	Brazil	+4.2	+6.2	-6.2	m	November	1.07m b/d	ANP
Jet fuel	Brazil	+40	-21	+10	m	November	94k b/d	ANP

Note: Click here for a PDF with more information on sources, methods. The frequency column shows w for data updated weekly, 2/m for twice a month and m for monthly.
* In Dfr U.K. data, the column showing versus 2019 is actually showing the change versus the first week of February 2020, to represent the pre-Covid era.
** In BEIS U.K. data, which is only released once per month, the column showing versus 2019 is actually showing the change versus the average of Jan. 27-March 22, 2020, to represent the pre-Covid era.

City Congestion:

Measure	Location	% chg vs avg 2019	% chg m/m	Jan. 24	Jan. 17	Jan. 10	Jan. 3	Dec. 27	Dec. 20	Dec. 13	Dec 6	Nov 29
		(Jan. 24)		Congestion minutes added to 1 hr trip at 8am* local time								
Congestion	Tokyo	-15	+4	32	35	5	1	31	38	37	33	35
Congestion	Taipei	-8	-25	32	33	32	32	43	31	42	41	
Congestion	Jakarta	-22	+50	31	37	32	26	20	28	30	28	
Congestion	Mumbai	-81	-21	9	7	7	10	11	14	16	18	17
Congestion	New York	-17	+378	26	4	19	11	5	20	26	32	28
Congestion	Los Angeles	-27	+330	26	8	13	10	6	16	27	29	29
Congestion	London	+8	+3300	41	41	37	1	1	13	36	41	43
Congestion	Rome	-48	+163	25	22	28	7	10	44	50	46	53
Congestion	Madrid	-56	+420	16	12	12	2	3	13	23	0	24
Congestion	Paris	-24	+250	34	35	36	19	10	18	46	52	46
Congestion	Berlin	-27	+173	25	29	29	20	9	22	37	32	31
Congestion	Mexico City	-63	+67	18	15	20	13	11	20	31	34	31
Congestion	Sao Paulo	-64	+33	14	16	19	10	11	23	28	29	

Source: TomTom. Click here for a PDF with more information on sources, methods.
* Mumbai and Sao Paulo use 9am statistics rather than 8am.
NOTE: m/m comparisons are Jan. 24 vs Dec. 27. TomTom has been unable to provide Chinese data since late April. Taipei and Jakarta were added to the table in early December. It was a public holiday in New York and Los Angeles on Jan. 17.

Air Travel:

Measure	Location	y/y	vs 2 yrs ago	vs 2019	m/m	w/w	Freq.	Latest Date	Latest Value	Source
		changes shown as %								
Airline passenger throughput	U.S.	+99	-21	-36	-33	-18	d	Jan. 24	1.40m	TSA
Commercial flights	Worldwide	+35	-23	-18	-9	+0.5	d	Jan. 24	85,547	FlightRadar24
Air traffic (flights)	Europe			-36	-24	-5.7	d	Jan. 24	16,151	Eurocontrol
Seat capacity	Worldwide	+48	-29	-28		-0.7	w	Jan. 24-30	75.7m	OAG

NOTE: Comparisons versus 2019 or versus the early weeks of 2020 are a better measure of a return to normal for most nations, rather than y/y comparisons.
FlightRadar24 data shown above, and comparisons thereof, all use 7-day moving averages, except for w/w which uses single day data.

Refineries:

Measure	Location/area	y/y	chg vs 2019	m/m chg	Latest as of Date	Latest Value	Source
		Changes are in ppt unless noted					
Crude intake	U.S.	+4.7%	-10%	-2.3%	Jan. 14	15.5m b/d	EIA
Apparent Oil Demand	China	+2.5%		-3.8%	December 2021	13.65m b/d	NBS
Utilization	U.S.	+5.6	-6.5	-1.5	Jan. 14	88.1 %	EIA
Utilization	U.S. Gulf	+4.9	-6.5	-2.1	Jan. 14	87.7 %	EIA
Utilization	U.S. East	+17	-5.5	-2.7	Jan. 14	88.8 %	EIA
Utilization	U.S. Midwest	+6.1	-3.9	+1.4	Jan. 14	94 %	EIA

NOTE: All of the refinery data is weekly, except NBS apparent demand, which is usually monthly. Changes are shown in percentages for the rows on crude intake and Chinese apparent oil demand, while refinery utilization changes are shown in percentage points. SCI99 data on Chinese refinery run rates was discontinued in late 2021.

Rising Caseloads, a Disrupted Recovery, and Higher Inflation

- *The global economy enters 2022 in a weaker position than previously expected. As the new Omicron COVID-19 variant spreads, countries have reimposed mobility restrictions. Rising energy prices and supply disruptions have resulted in higher and more broad-based inflation than anticipated, notably in the United States and many emerging market and developing economies. The ongoing retrenchment of China's real estate sector and slower-than-expected recovery of private consumption also have limited growth prospects.*
- *Global growth is expected to moderate from 5.9 in 2021 to 4.4 percent in 2022—half a percentage point lower for 2022 than in the October* World Economic Outlook *(WEO), largely reflecting forecast markdowns in the two largest economies. A revised assumption removing the Build Back Better fiscal policy package from the baseline, earlier withdrawal of monetary accommodation, and continued supply shortages produced a downward 1.2 percentage-points revision for the United States. In China, pandemic-induced disruptions related to the zero-tolerance COVID-19 policy and protracted financial stress among property developers have induced a 0.8 percentage-point downgrade. Global growth is expected to slow to 3.8 percent in 2023. Although this is 0.2 percentage point higher than in the previous forecast, the upgrade largely reflects a mechanical pickup after current drags on growth dissipate in the second half of 2022. The forecast is conditional on adverse health outcomes declining to low levels in most countries by end-2022, assuming vaccination rates improve worldwide and therapies become more effective.*
- *Elevated inflation is expected to persist for longer than envisioned in the October WEO, with ongoing supply chain disruptions and high energy prices continuing in 2022. Assuming inflation expectations stay well anchored, inflation should gradually decrease as supply-demand imbalances wane in 2022 and monetary policy in major economies responds.*
- *Risks to the global baseline are tilted to the downside. The emergence of new COVID-19 variants could prolong the pandemic and induce renewed economic disruptions. Moreover, supply chain disruptions, energy price volatility, and localized wage pressures mean uncertainty around inflation and policy paths is high. As advanced economies lift policy rates, risks to financial stability and emerging market and developing economies' capital flows, currencies, and fiscal positions—especially with debt levels having increased significantly in the past two years—may emerge. Other global risks may crystallize as geopolitical tensions remain high, and the ongoing climate emergency means that the probability of major natural disasters remains elevated.*
- *With the pandemic continuing to maintain its grip, the emphasis on an effective global health strategy is more salient than ever. Worldwide access to vaccines, tests, and treatments is essential to reduce the risk of further dangerous COVID-19 variants. This requires increased production of supplies, as well as better in-country delivery systems and fairer international distribution. Monetary policy in many countries will need to continue on a tightening path to curb inflation pressures, while fiscal policy—operating with more limited space than earlier in the pandemic—will need to prioritize health and social spending while focusing support on the worst affected. In this context, international cooperation will be essential to preserve access to liquidity and expedite orderly debt restructurings where needed. Investing in climate policies remains imperative to reduce the risk of catastrophic climate change.*

The Forces Shaping the Outlook

Adverse developments since the October WEO mean that the global economy is entering 2022 in a weaker position than anticipated. News of the Omicron variant led to increased mobility restrictions and financial market volatility at the end of 2021. Supply disruptions have continued to weigh on activity. Meanwhile, inflation has been higher and more broad-based than anticipated, particularly in the United States. Adding to these pressures, the retrenchment in China's real estate sector appears to be more drawn out and the recovery in private consumption is weaker than previously expected.

The pandemic's continued grip: Since the start of October, COVID-19 deaths have averaged about 7,000 a day worldwide, down from about 10,000 in late August. The diffusion of vaccines—although still uneven—has played a major role, with over 55 percent of people having received at least one dose. Yet the emergence of the Omicron variant in late November threatens to set back this tentative path to recovery. As of mid-January, Omicron appeared to be more transmissible than Delta, but its symptoms are perhaps less severe. The net effect on hospitalizations and deaths is still unknown. The baseline forecast is conditioned on adverse health outcomes—severe illness, hospitalizations, and deaths—coming down to low levels in most countries by the end of 2022. This assumes that most countries achieve vaccination rates consistent with the IMF's pandemic proposal[1] by end-2022, therapies become widely accessible, and the combination proves effective in protecting against Omicron and any other variants that emerge. Some emerging market and developing economies are anticipated to fall short of the vaccination target in 2022 and achieve sufficiently broad coverage only in 2023.

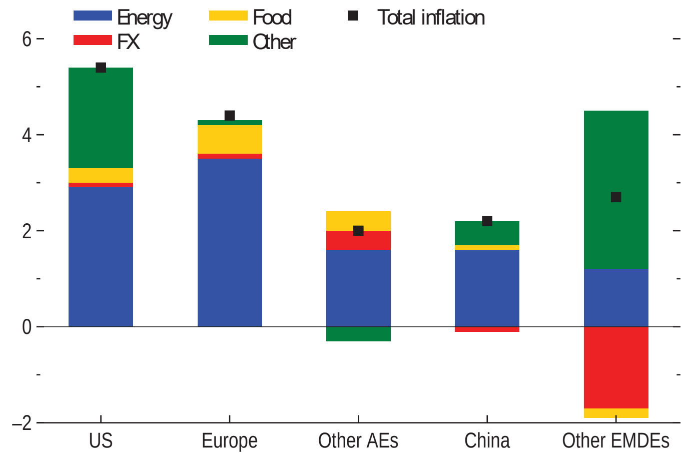
Downside surprises in the second half of 2021: Supply disruptions continued into the fourth quarter, hindering global manufacturing—especially in Europe and the United States. A resurgence in COVID cases (particularly in Europe) also held back a broader recovery. In China, disruptions from COVID outbreaks, interruptions to industrial production from power outages, declining real estate investment, and a faster-than-expected withdrawal of public investment all contributed to a second-half slowdown. Although there were signs of a global turnaround in November—with a pickup in international trade and upside surprises for services activity and industrial production data—this only partially offset earlier declines.

Broadening price pressures: The emergence of a new variant is not the only risk that has crystallized in recent months. Inflation continued to rise throughout the second half of 2021, driven by several factors of varying importance across regions (Figure 1). Fossil fuel prices have almost doubled in the past year, driving up energy costs and causing higher inflation, most prominently in Europe. Rising food prices have contributed to higher inflation, for example in sub-Saharan Africa. Meanwhile, ongoing supply chain disruptions, clogged ports, land-side constraints, and high demand for goods have also led to broadening price pressures, especially in the United States. Higher imported goods prices have contributed to inflation for example in Latin America and the Caribbean region.

1 Agarwal, R. and Gopinath, G., 2021. A Proposal to End the COVID-19 Pandemic. *Staff Discussion Notes*, 2021(004).

Monetary conditions have tightened globally (see box). In the United States, with price and wage pressures broadening, the Federal Reserve decided to accelerate its taper of asset purchases and signaled that it will raise rates further in 2022 than previously expected. The European Central Bank (ECB) has announced it will end net asset purchases under the Pandemic Emergency Purchase Programme in March 2022, while it will temporarily increase net purchases by a modest amount under its longer-standing Asset Purchase Programme. The ECB has also committed to maintaining its key interest rates at current levels until adequate progress is made toward stabilizing inflation at its medium-term target.

Figure 1. Change in Inflation, December 2020 — Latest
(Percentage points)



Sources: Haver Analytics; and IMF staff calculations.
Note: "Change in inflation" refers to the difference in year-over-year growth of the consumer price index between December 2020 and the latest available data. Stacked bars show the contribution of each component to that change. FX refers to short-term depreciation-induced inflation using estimates from Carrière-Swallow and others (2021). Sample includes countries for which all components are available. This covers 26 European countries, 2 other AEs, and 15 EMDEs. Purchasing-power-parity weights are used for aggregation. AEs = advanced economies; EMDEs = emerging market and developing economies; FX = import-weighted nominal effective exchange rate depreciation.

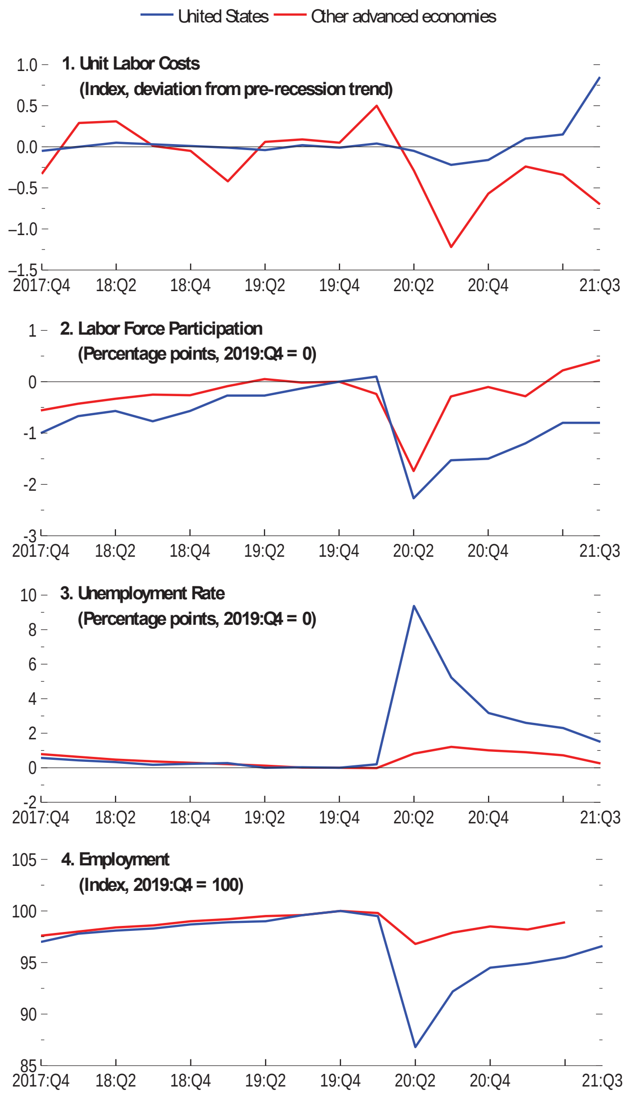
Global Growth Set to Moderate and Inflation to Persist Longer

Global growth is estimated at 5.9 percent in 2021 and is expected to moderate to 4.4 percent in 2022, half a percentage point lower than in the October 2021 *World Economic Outlook* (Table 1). The baseline incorporates anticipated effects of mobility restrictions, border closures, and health impacts from the spread of the Omicron variant. These vary by country depending on susceptibility of the population, the severity of mobility restrictions, the expected impact of infections on labor supply, and the importance of contact-intensive sectors. These impediments are expected to weigh on growth in the first quarter of 2022. The negative impact is expected to fade starting in the second quarter, assuming that the global surge in Omicron infections abates and the virus does not mutate into new variants that require further mobility restrictions. Forecasts are based on information up to 18 January 2022.

Among changes to advanced economy forecasts for 2022, a revised assumption removing the Build Back Better fiscal policy package from the baseline, earlier withdrawal of monetary accommodation, and continued supply chain disruptions have contributed to a downgrade of 1.2 percentage points for the United States. In Canada, weaker data outturns toward the end of 2021 and anticipated softer external demand for 2022 (related to the US revision) have led to a 0.8 percentage-point downgrade. In the euro area, prolonged supply constraints and COVID disruptions produced a less severe revision of 0.4 percentage point—led by a markdown of 0.8 percentage point for Germany largely due to the economy's exposure to supply chain shocks. Mobility restrictions imposed toward the end of 2021 are expected to drag on growth in the euro area in early 2022. In the United Kingdom, disruptions related to Omicron and supply constraints (particularly in labor and energy markets) mean that growth is revised down by 0.3 percentage point to 4.7 percent.

The 2022 forecast downgrade also reflects revisions among a few large emerging markets. In China, disruption in the housing sector has served as a prelude to a broader slowdown. With a strict zero-COVID strategy leading to recurrent mobility restrictions and deteriorating prospects for construction sector employment, private consumption is likely to be lower than anticipated. In combination with lower investment in real estate, this means that the growth forecast for 2022 is revised down relative to October by 0.8 percentage point, at 4.8 percent, with negative implications for trading partners' prospects. The outlook has also weakened in Brazil, where the fight against inflation has prompted a strong monetary policy response, which will weigh on domestic demand. A similar dynamic is at work in Mexico, albeit to a lesser extent. In addition, the US downgrade brings with it the prospect of weaker-than-expected external demand for Mexico in 2022. In Russia, the forecast is marginally marked down because of a weak harvest and worse-than-expected third wave. South Africa's growth forecast is downgraded in light of a softer-than-expected second half in 2021 and a weaker outlook for investment as business sentiment remains subdued.

Figure 2. Labor and Wages



Sources: Haver Analytics; Organisation for Economic Co-operation and Development; and IMF staff calculations.
Note: All panels present changes relative to 2019:Q4. Panel 1 shows deviations of labor cost indices from their pre-pandemic trend, estimated by linear regression using quarterly observations from 2017:Q4 to 2019:Q4. Panel 2 uses the labor force participation rate of the 15–64 age range, where available. Purchasing-power-parity weights are used for aggregation. Other advanced economies includes 30 countries.

The upward revision to global growth in 2023 is mostly mechanical. Eventually, the shocks dragging 2022 growth will dissipate and—as a result—global output in 2023 will grow a little faster. Among prominent revisions not due to the pandemic, India's prospects for 2023 are marked up on expected improvements to credit growth—and, subsequently, investment and consumption—building on better-than-anticipated performance of the financial sector. Japan's 2023 growth outlook is also revised up by 0.4 percentage point, reflecting anticipated improvements in external demand and continued fiscal support. The upward revision to 2023 global growth is, however, not enough to make up ground lost due to the downgrade to 2022. Cumulative global growth over 2022 and 2023 is projected to be 0.3 percentage point lower than previously forecast.

Table 1. Overview of the *World Economic Outlook* Projections
(Percent change, unless noted otherwise)

	Year over Year								
					Difference from October 2021 WEO Projections 1/		Q4 over Q4 2/		
		Estimate	Projections				Estimate	Projections	
	2020	2021	2022	2023	2022	2023	2021	2022	2023
World Output	–3.1	5.9	4.4	3.8	–0.5	0.2	4.2	3.9	3.4
Advanced Economies	–4.5	5.0	3.9	2.6	–0.6	0.4	4.4	3.5	1.8
United States	–3.4	5.6	4.0	2.6	–1.2	0.4	5.3	3.5	2.0
Euro Area	–6.4	5.2	3.9	2.5	–0.4	0.5	4.8	3.2	1.8
Germany	–4.6	2.7	3.8	2.5	–0.8	0.9	1.9	4.2	1.6
France	–8.0	6.7	3.5	1.8	–0.4	0.0	5.0	1.9	1.7
Italy	–8.9	6.2	3.8	2.2	–0.4	0.6	6.2	2.5	1.7
Spain	–10.8	4.9	5.8	3.8	–0.6	1.2	4.9	5.0	2.5
Japan	–4.5	1.6	3.3	1.8	0.1	0.4	0.4	3.6	1.1
United Kingdom	–9.4	7.2	4.7	2.3	–0.3	0.4	6.3	3.8	0.5
Canada	–5.2	4.7	4.1	2.8	–0.8	0.2	3.5	3.9	1.9
Other Advanced Economies 3/	–1.9	4.7	3.6	2.9	–0.1	0.0	3.8	3.4	2.5
Emerging Market and Developing Economies	–2.0	6.5	4.8	4.7	–0.3	0.1	4.0	4.3	4.8
Emerging and Developing Asia	–0.9	7.2	5.9	5.8	–0.4	0.1	3.7	5.4	5.7
China	2.3	8.1	4.8	5.2	–0.8	–0.1	3.5	5.1	5.0
India 4/	–7.3	9.0	9.0	7.1	0.5	0.5	4.3	5.8	7.5
ASEAN-5 5/	–3.4	3.1	5.6	6.0	–0.2	0.0	3.5	5.6	5.9
Emerging and Developing Europe	–1.8	6.5	3.5	2.9	–0.1	0.0	5.8	2.2	3.0
Russia	–2.7	4.5	2.8	2.1	–0.1	0.1	4.2	2.1	1.8
Latin America and the Caribbean	–6.9	6.8	2.4	2.6	–0.6	0.1	3.7	1.8	2.6
Brazil	–3.9	4.7	0.3	1.6	–1.2	–0.4	0.6	1.5	1.4
Mexico	–8.2	5.3	2.8	2.7	–1.2	0.5	2.9	3.4	1.9
Middle East and Central Asia	–2.8	4.2	4.3	3.6	0.2	–0.2	. . .	. . .	. . .
Saudi Arabia	–4.1	2.9	4.8	2.8	0.0	0.0	5.2	5.3	2.8
Sub-Saharan Africa	–1.7	4.0	3.7	4.0	–0.1	–0.1	. . .	. . .	. . .
Nigeria	–1.8	3.0	2.7	2.7	0.0	0.1	2.4	2.1	2.3
South Africa	–6.4	4.6	1.9	1.4	–0.3	0.0	1.3	2.6	0.9
Memorandum									
World Growth Based on Market Exchange Rates	–3.5	5.6	4.2	3.4	–0.5	0.3	4.2	3.9	2.8
European Union	–5.9	5.2	4.0	2.8	–0.4	0.5	4.9	3.5	1.9
Middle East and North Africa	–3.2	4.1	4.4	3.4	0.3	–0.1	. . .	. . .	. . .
Emerging Market and Middle-Income Economies	–2.2	6.8	4.8	4.6	–0.3	0.0	4.0	4.3	4.8
Low-Income Developing Countries	0.1	3.1	5.3	5.5	0.0	0.0	. . .	. . .	. . .
World Trade Volume (goods and services) 6/	–8.2	9.3	6.0	4.9	–0.7	0.4	. . .	. . .	. . .
Advanced Economies	–9.0	8.3	6.2	4.6	–0.7	0.6	. . .	. . .	. . .
Emerging Market and Developing Economies	–6.7	11.1	5.7	5.4	–0.7	0.0	. . .	. . .	. . .
Commodity Prices (US dollars)									
Oil 7/	–32.7	67.3	11.9	–7.8	13.7	–2.8	79.2	–4.7	–6.8
Nonfuel (average based on world commodity import weights)	6.7	26.7	3.1	–1.9	4.0	–0.4	17.2	1.5	–1.6
Consumer Prices									
Advanced Economies 8/	0.7	3.1	3.9	2.1	1.6	0.2	4.8	2.8	2.0
Emerging Market and Developing Economies 9/	5.1	5.7	5.9	4.7	1.0	0.4	5.9	5.1	4.3

Note: Real effective exchange rates are assumed to remain constant at the levels prevailing during December 10, 2021--January 7, 2022. Economies are listed on the basis of economic size. The aggregated quarterly data are seasonally adjusted. WEO = World Economic Outlook.
1/ Difference based on rounded figures for the current and October 2021 WEO forecasts. Countries whose forecasts have been updated relative to October 2021 WEO forecasts account for approximately 90 percent of world GDP measured at purchasing-power-parity weights.
2/ For World Output, the quarterly estimates and projections account for approximately 90 percent of annual world output at purchasing-power-parity weights. For Emerging Market and Developing Economies, the quarterly estimates and projections account for approximately 80 percent of annual emerging market and developing economies' output at purchasing-power-parity weights.
3/ Excludes the Group of Seven (Canada, France, Germany, Italy, Japan, United Kingdom, United States) and euro area countries.
4/ For India, data and forecasts are presented on a fiscal year basis, with FY 2021/2022 starting in April 2021. For the January 2022 WEO Update, India's growth projections are 8.7 percent in 2022 and 6.6 percent in 2023 based on calendar year. The impact of the Omicron variant is captured in the column for 2021 in the table.
5/ Indonesia, Malaysia, Philippines, Thailand, Vietnam.
6/ Simple average of growth rates for export and import volumes (goods and services).
7/ Simple average of prices of UK Brent, Dubai Fateh, and West Texas Intermediate crude oil. The average price of oil in US dollars a barrel was $69.07 in 2021; the assumed price, based on futures markets (as of January 10, 2022), is $77.31 in 2022 and $71.29 in 2023.
8/ The inflation rate for the euro area is 3.0% in 2022 and 1.7% in 2023, for Japan is 0.7% in 2022 and 2023, and for the United States is 5.9% in 2022 and 2.7% in 2023, respectively.
9/ Excludes Venezuela.

Inflation is expected to remain elevated in the near term, averaging 3.9 percent in advanced economies and 5.9 percent in emerging market and developing economies in 2022, before subsiding in 2023. Assuming medium-term inflation expectations remain well anchored and the pandemic eases its grip, higher inflation should fade as supply chain disruptions ease, monetary policy tightens, and demand rebalances away from goods-intensive consumption towards services. The rapid increase in fuel prices is also expected to moderate during 2022–23, which will help contain headline inflation. Futures markets indicate oil prices will rise about 12 percent and natural gas prices about 58 percent in 2022 (both considerably lower than the increases seen in 2021) before retreating in 2023 as supply-demand imbalances recede further. Similarly, food prices are expected to increase at a more moderate pace of about 4½ percent in 2022 and decline in 2023. In many countries, nominal wage growth remains contained despite employment and participation returning almost to pre-pandemic levels (Figure 2). But in the United States the story is different: a sharp decline in unemployment has been accompanied by buoyant nominal wage growth. This suggests a degree of tightening in US labor markets not evident elsewhere. If US labor force participation remains below pre-pandemic levels and discouraged workers remain on the sidelines, tighter labor markets may feed through to higher prices. As a result, the Federal Reserve communicated in December 2021 that it will taper asset purchases at a faster pace and signaled that the federal funds rate will likely be raised to 0.75–1.00 percent by the end of 2022, some 50 basis points higher than in the previous guidance.

Less accommodative monetary policy in the United States is expected to prompt tighter global financial conditions, putting pressure on emerging market and developing economy currencies. Higher interest rates will also make borrowing more expensive worldwide, straining public finances. For countries with high foreign currency debt, the combination of tighter financial conditions, exchange rate depreciations, and higher imported inflation will lead to challenging monetary and fiscal policy trade-offs. Although fiscal consolidation is anticipated in many emerging market and developing economies in 2022, high post-pandemic debt burdens will be an ongoing challenge for years to come.

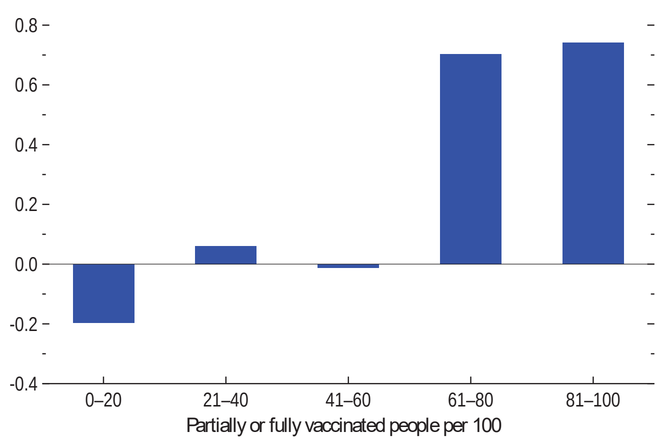
Global trade is expected to moderate in 2022 and 2023, in line with the overall pace of the expansion. Assuming that the pandemic eases over 2022, supply chain problems are expected to abate later in the year. The accompanying moderation in global goods demand will also help reduce imbalances. Cross-border services trade—particularly tourism—is expected to remain subdued.

Risks to the Outlook

The balance of risks remains tilted to the downside, with the outlook for the global economy depending critically on five key questions.

What is the likely path of the pandemic? Despite rapid and effective rollouts of vaccination programs in most advanced economies, vaccination programs in many emerging market and developing economies are too slow. This sluggish progress has been a contributing factor weighing on the recovery in under-vaccinated countries (Figure 3).

Figure 3. Average Revisions to 2021 Output
(Percentage points, compared with October 2020)



Sources: Our World in Data; and IMF staff calculations.
Note: "Revision to 2021 output" refers to the difference between real GDP growth rates for 2021 estimated in the October 2020 *World Economic Outlook* and the latest IMF staff estimates, simple averages.

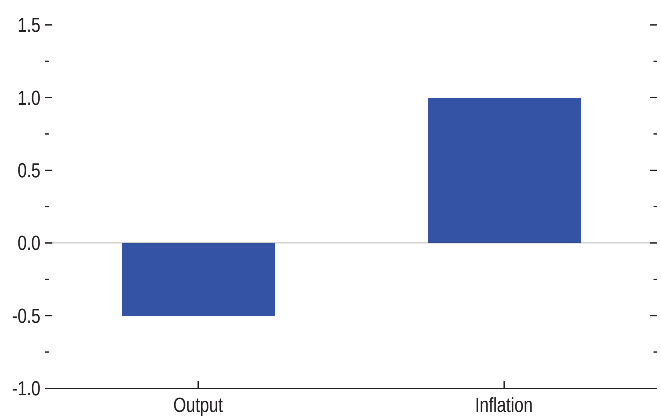
The most pressing health risk is the impact of the Omicron variant. Even if symptoms are less severe, increased transmissibility could still add to labor shortages and put extra pressure on hospitals, prompting tighter and longer-lasting mobility restrictions beyond the first quarter (as assumed in the baseline forecast). Global growth could fall below the baseline if these risks materialize.

Moreover, the global growth forecast assumes that adverse health outcomes—severe illness, hospitalizations, deaths—are brought to low levels in most countries by the end of 2022. But low current vaccination rates in many countries risk further new variants. The longer and more widely the COVID-19 virus circulates, the greater the likelihood of new mutations that evade vaccines, turn back the clock on the pandemic, and fuel social discontent if recurrent mobility restrictions are needed to slow transmission.

How will less accommodative monetary policy in the United States affect global financial conditions? With inflation on the rise and still large pent-up demand in the system in part due to the pandemic recovery program, US monetary policy will have to tighten. But how far and fast is not yet clear. The WEO forecast is conditioned on an end to asset purchases in March 2022 and three rate increases in both 2022 and 2023—consistent with what will be needed to bring inflation back down to the 2 percent medium-term goal. But there are upside risks. Inflation could turn out higher than expected (if, for instance, supply disruptions persist and wage pressures feed into inflation). A different policy stance will be required if circumstances change. Communicating such changes will be a delicate task and risks prompting strong market reactions that could, in turn, result in tighter financial market conditions. Markets' reactions to (actual or perceived) changes in Federal Reserve policies will govern how less-accommodative policy in the United States spills over to other countries, particularly emerging markets and frontier economies. Any miscommunication or misunderstanding of such changes may provoke a flight to safety, raising spreads for riskier borrowers. This may put undue pressure on emerging market currencies, firms, and fiscal positions.

When will supply chain disruptions ease? The shift toward goods consumption, particularly in advanced economies, overloaded global supply chain networks during the pandemic. This problem was compounded by pandemic-related impediments to transportation and staffing, as well as by the inherently fragile nature of just-in-time logistics and lean inventories. The resulting disruption to global trade led to shortages and higher prices for imported consumer goods. Disruptions in the United States have been particularly severe, consistent with the larger switch into goods consumption. IMF staff analysis suggests that supply disruptions shaved 0.5–1.0 percentage point off global GDP growth in 2021 while adding 1.0 percentage point to core inflation (see Figure 4).

Figure 4. Impact of 2021 Shocks on World Output and Core Inflation
(Percentage points)



Sources: Haver Analytics; and IMF staff calculations.
Note: The figure shows the impact of global supply shocks as identified by the IMF staff global macro model, the Flexible System of Global Models.

Although international shipping fleets have limited spare capacity, the bottlenecks are often on land, with trucking and other services unable to move freight off the docks faster than new ships can bring it in. These supply chain disruptions will eventually ease, not least because the composition of demand is likely to shift back to services (households can buy only so many durable goods). The baseline assumes supply-demand imbalances will wane over the course of 2022. But the longer they persist, the more likely they are to feed through to expectations of higher future prices and the larger the risk to the world economy. Dysfunctional global supply chains also leave economies less able to adapt to a possible resurgence of the pandemic, as clogged ports impede the flow of goods needed to adapt to changing public health conditions. The impact of the Omicron variant may further limit the efficiency of ports, add to shipping problems, and delay the rebalancing of consumer demand from goods to services—thus exacerbating supply-demand imbalances.

Will tight labor markets drive up wages and cause persistently higher inflation? In the baseline forecast, inflation is expected to subside in the coming year and expectations to remain well anchored. Yet there is a risk that persistently elevated living costs and tighter labor markets will compel workers to ask for (and firms to accede to) higher wages. The resulting higher labor costs would in turn push up prices further, perpetuating an inflationary cycle that would require aggressive policy action to combat. These risks appear particularly salient in the United States, where labor market slack seems to have dissipated and labor costs have risen. Inflation in the United States also appears more broad-based—including shelter-related components—and supply disruptions are likely to last longer than in Europe or Asia (see more discussion below). In addition, workers who dropped out of in-person service professions (for example, leisure and hospitality), during the pandemic may be unwilling to return, leading to potential labor shortages in those industries. As such, wages in these professions will be an important bellwether for medium-term inflation as pre-pandemic activities resume and demand rebalances back toward service consumption.

Will China's real estate slowdown intensify? A broader slowdown in China will affect global prospects, principally via spillovers to commodity exporters and emerging markets. The baseline assumes a significant moderation in real estate investment growth in 2022, reflecting continued tight policies to rein in risks related to leveraged property developers. If the real estate slowdown intensifies further and balance sheet stresses spread beyond property developers, exposed banks and other financial intermediaries may be forced to shrink credit to the broader economy. Such an outcome would hold back investment and consumption, dragging overall growth lower with adverse implications for commodity exporters and other emerging markets.

Beyond these questions, *the ongoing climate emergency* continues to pose grave risks to the global economy. Major natural disasters are more likely, threatening all economies (as seen in the range of extreme weather events—floods, droughts, wildfires—across all continents in 2021). The recurrence of such events would deliver a twofold blow that would most harm vulnerable low-income (often low-vaccination) countries, while also further straining global supply chains. Despite the stated ambition at the Glasgow climate conference (COP26), current commitments to reduce greenhouse gases fall far short of limiting the increase in global temperature to 2 degrees Celsius above preindustrial levels.

Other factors: Geopolitical tensions, including in eastern Europe and east Asia, imperil energy supply, international trade, and policy cooperation. Social unrest, which had declined earlier in the pandemic, is once again on the rise in some countries—related in part to elevated food and energy prices. Moreover, many of the tariff increases introduced during 2018–19 are still in place, and cross-border technology frictions remain salient. All of these elements threaten additional roadblocks in the path to recovery.

How Should Policymakers Respond?

An exit from the pandemic and a full economic recovery are both within the grasp of the global community. More limited fiscal space than earlier in the pandemic and rising inflation, however, pose difficult policy challenges. Bold and effective international cooperation will therefore be essential.

Health policies: Stamping out the pandemic demands an end to the persistent disparities in access to COVID-19 tools such as vaccines, tests, treatments, and personal protective equipment (PPE). However, the rollout of many such tools is proceeding at alarmingly unequal speeds. The fully vaccinated share of the population is about 70 percent for high-income countries, but below 4 percent for low-income countries. And 86 countries—accounting for 27 percent of the world's population—fell short of the end-2021 40 percent vaccination target (excluding boosters) set out in the IMF pandemic proposal. The aggregate shortfall of administered doses in these 86 countries was 974 million below the amount needed to meet the end-2021 vaccination target. Nearly all countries in this group face unpredictable supply. About half of these countries have absorptive capacity constraints and need support to scale up in-country deliveries. There is also deep testing inequity: testing rates are about 80 times higher in high-income countries than in low-income countries.

There is now broad agreement on global targets, but the world must come together to meet them. The spread of Omicron has only amplified the need for urgent action. This will require addressing the financing needs for vaccines, tests, treatments, PPE, and in-country delivery for developing economies, including by closing the financing gap of the ACT Accelerator of about $23 billion. Urgent action is needed to ensure an equitable and predictable supply of vaccines to developing economies through COVAX and the African Vaccine Acquisition Trust. Scaling up absorptive capacity will require support for in-country vaccine delivery costs, addressing vaccine hesitancy, and improving health infrastructure, so that countries can administer doses as vaccines become available. The world community must balance the goal of helping all countries achieve the vaccine targets set out in the IMF pandemic proposal with the focus on rolling out boosters in highly vaccinated countries. Without this worldwide effort, the virus will be more likely to mutate further and extend the pandemic's global grip. And because the effectiveness of oral antivirals is contingent on timely identification of cases, better testing remains imperative. Finally, consideration should be given to incentivizing global technology transfers and licensing arrangements that may speed diversification of production of vaccines and other lifesaving medical tools.

Countries with high levels of immunization will need to tread carefully, balancing risks from higher numbers of cases against the economic harm of continued restrictions. Policymakers https://www.washingtonpost.com/climate-environment/2022/01/27/biden-gulf-of-mexico-lease-sale/

Judge throws out Biden administration's massive Gulf of Mexico oil and gas lease sale

The decision cancels 1.7 million acres of drilling leases, citing a flawed analysis completed during the Trump administration

By Anna Phillips and Maxine Joselow

Yesterday at 8:59 p.m. EST|Updated yesterday at 9:32 p.m. EST

A federal judge on Thursday invalidated the largest offshore oil and gas lease sale in the nation's history, ruling that the Biden administration violated federal law by relying on a seriously flawed analysis of the climate change impact of drilling in the Gulf of Mexico.

The decision, by the U.S. District Court for the District of Columbia, threw out 1.7 million acres of oil and gas leases that the Biden administration did not want to sell. Shortly after taking office, President Biden suspended new oil and gas drilling on lands and waters owned by the federal government. But after a Louisiana judge struck down the moratorium last summer, administration officials said they were forced to go through with the sale in November.

The auction took place just four days after Biden pledged ambitious climate action to world leaders at a United Nations climate summit in Glasgow, Scotland. Though the administration offered up to 80 million acres in the Gulf of Mexico for drilling leases, the Interior Department ultimately sold only a fraction of that amount. The sale netted nearly $192 million and ranked as the most profitable offshore auction since March 2019.

Then environmental advocacy organizations filed a lawsuit claiming that the sale rested on incorrect assumptions.

In his ruling, Judge Rudolph Contreras concluded that the Interior Department's Bureau of Ocean Energy Management had based its decision to hold the sale on a flawed environmental analysis that miscalculated the greenhouse gas emissions associated with future oil and gas drilling in the Gulf of Mexico. Completed under the Trump administration, the analysis found that the climate impacts would be worse if the acreage went unsold because foreign oil companies would increase their production, leading to more emissions of planet-warming gases.

The model and the set of assumptions that produced this result were "arbitrary and capricious," Contreras wrote, reaching the same conclusion as both the U.S. Court of Appeals for the 9th Circuit and the District Court for the District of Alaska in previous cases concerning lease sales based on a similar analysis.

"The Court believes that [the Bureau of Ocean Energy Management's] error was indeed a serious failing," Contreras wrote.

The decision means the Biden administration will have the chance to conduct a new environmental analysis to quantify the climate impacts of future oil and gas production, a step climate activists hope will lead to a different outcome.

"We're confident that once they do the emissions modeling right, given the climate crisis that we're in, they will reach the decision that leasing doesn't make sense right now," said Brettny Hardy, an attorney for the environmental law firm Earthjustice, who worked on the case.

A spokeswoman for the Interior Department declined to comment on the specifics of the case, saying the agency is reviewing the judge's decision.

Scott Lauermann, a spokesman for the oil and gas industry's largest trade group, the American Petroleum Institute, called the decision "disappointing." And Eric Milito, president of the National Ocean Industries Association, which represents offshore oil and gas companies, called on the administration to "defend responsible U.S. offshore production and to take the necessary steps to ensure continued leasing and energy production from the U.S. Gulf of Mexico, for the benefit of all Americans."

The decision comes at a sensitive time for the Biden administration, which has been criticized by environmental groups for failing to curb fossil fuel production in the United States. At a Thursday briefing, White House press secretary Jen Psaki defended the administration's climate policies and said that the court ruling striking down the oil and gas moratorium had become a "significant challenge."

Legal challenges have "made it impossible for us to stop many of these leases," Psaki said.

ENERGY BRIEFING: U.S. Cancels Twin Metals' Mining Right
2022-01-27 11:03:14.949 GMT

By Kellie Lunney and Zachary Sherwood
(Bloomberg Government) -- The Interior Department yesterday canceled two mining leases near the Boundary Waters Canoe Area Wilderness in northeastern Minnesota, the latest development in a long-standing back-and-forth over a proposed copper-nickel mine in the region, Kellie Lunney reports.
Secretary Deb Haaland said the department based its decision on a "careful legal review" that found the hardrock mining leases "were improperly renewed in violations of applicable statues and regulations." Read the Interior solicitor's opinion.
The Biden administration is the latest to weigh in on mining near Boundary Waters. In May, a federal judge rejected a lawsuit filed by opponents seeking to invalidate the mineral rights leases. The Trump administration reinstated the leases Twin Metals needed in 2019, after the Obama administration declined to renew them in 2016.
Twin Metals in a statement said the move to cancel the leases is "disappointing, but not surprising" and vowed to challenge the decision. "We expect to prevail," company said. The company's mineral leases were first issued in 1966.
Rep. Betty McCollum (D-Minn.) praised the lease cancellation, saying she has fought against mining in the area for the better part of a decade. Interior's move "is a rejection of the deeply flawed and politically motivated process under the Trump administration and a victory for sound science and protecting a precious and irreplaceable natural resource," she said in a statement.
Still, the move is stoking concerns as to whether it will be possible to secure enough domestic supply of materials for batteries that are needed in everything from electric vehicles to power grid storage, Joe Deaux and Jennifer A. Dlouhy report.
"Biden's decision to cancel mining leases in Minnesota will further increase our dependence on foreign sources of copper, nickel, cobalt, and platinum group metals," said Senate Energy and Natural Resources ranking member John Barrasso (R-Wyo.). "Demand for these minerals is skyrocketing."
"The Biden Administration is yet again talking out of both sides of its mouth, and their actions demonstrate just how disingenuous their words are when it comes to securing our nation's domestic mineral supply," said Congressional Western Caucus Chairman Dan Newhouse (R-Wash.). "On one hand, they want to pursue a clean energy future, relying on renewable energy resources and pushing the manufacturing of electric vehicles. On the other hand, they continue to stifle domestic development of

the very minerals we need to achieve these clean energy goals, making us reliant on countries with unacceptable labor and environmental standards.”
The GOP-led caucus is planning a trip to visit the site in northern Minnesota in February.

Happening on the Hill

Biden Touts CEOs’ Support for Economic Plan: President Joe Biden yesterday sought to revive his stalled economic plan, Build Back Better, hosting at the White House corporate executives of General Motors, Ford and others. All of the companies in attendance back the Build Back Better package—though not every part of it—and came to the White House because they believe its benefits outweigh the costs, a White House official said. Ford CEO Jim Farley said in an interview before the White House meeting that he would urge Biden to retain tax credits for electric vehicles included in the initial legislation.
While discussions on Capitol Hill hit a dead end after Sen. Joe Manchin (D-W.Va.) came out against the bill in December, the president said he will continue to fight for the plan. The White House says negotiations have continued at a staff level despite the public blow-up last month. Jenny Leonard, Jennifer Epstein and Keith Naughton have more.
House Democrats Launch Climate Task Forces: The House Sustainable Energy and Environment Coalition yesterday launched the Climate and National Security Task Force, along with two others that will focus on agriculture and clean energy aspects of the climate crisis.

* Reps. James R. Langevin (D-R.I.) and Katie Porter (D-Calif.) will serve as co-chairs of the Climate and National Security Task Force that will propose climate-related amendments to the annual defense policy bill, the defense appropriations bill, as well as foreign policy considerations exacerbated by the climate crisis;
* Reps. Chellie Pingree (D-Maine) and Kim Schrier (D-Wash.) will co-chair the Climate and Agriculture Task Force, which will build on engagement by farmers on climate change issues in the lead up to the reauthorization of the Farm Bill; and
* Reps. Sean Casten (D-Ill.) and Raja Krishnamoorthi (D-Calif.) will lead the Power Sector Task Force, which will focus on efforts to decarbonize the economy.

Energy & Natural Resources

Conservation Groups Press BLM on Methane Waste Rule: A coalition of groups including the Environmental Defense Fund, Earthjustice, League of Conservation Voters and the Natural Resources Defense Council wrote to Bureau of Land Management Director Tracy Stone-Manning urging the agency to end routine venting and flaring of gas at oil wells on leased federal and tribal lands. The group cited the bureau's November plan to decrease the practice by charging royalties, warning that approach is insufficient to limit the quantity of waste.
"BLM has clear authority and a statutory duty to prohibit the waste of oil and gas owned by the public and Native American tribes," the groups wrote. "BLM should build from examples in leading states and commitments from operators by promulgating regulations to end routine venting and flaring." Read the letter.
Explaining Mountain Valley Pipeline's Legal Journey: For about seven years, the Mountain Valley Pipeline project has forged through a raft of legal challenges and regulatory hurdles that ultimately doomed several other projects in the region. The $6.2 billion, 304-mile natural gas pipeline system would span from northwestern West Virginia to southern Virginia. The line is more than 90% constructed, according to pipeline developers, with an aim of transporting Appalachian shale gas to the eastern U.S.—a cherished goal for the gas industry. EQM Midstream Partners would operate the pipeline, and it owns a significant interest in the project.
But the latest legal blow arrived Tuesday. The U.S. Court of Appeals for the Fourth Circuit tossed the federal government's approval of the project's three-and-a-half-mile route through Jefferson National Forest. Daniel Moore and Maya Earls break down the path to the current ruling.
Cybersecurity Plan Lays Out 'Zero Trust' Approach: The White House has finalized a strategy to move the federal government toward a "zero trust" approach to cybersecurity. Zero trust gained attention following a series of high-profile cyberattacks in the U.S., including a ransomware attack that forced Colonial Pipeline to shut down fuel for much of the East Coast. Read more from Andrea Vittorio.
More Headlines:

* Brent Rises to Highest Since 2014 Amid Geopolitical Tensions
* Americans' Gas Stoves Are as Bad for Climate as 500,000 Cars
* Energy Transition Drew Record $755 Billion of Investment in 2021
* PolyMet Mine Endangered Species Review Draws New Federal Lawsuit
* EP Energy to Pay $41 Million for Breach of Oil Lease Contracts
* Chevron Fight Against Fracking Ban Heads to California Justices

Environment & Chemicals

White House Official Says More Progress Ahead on Equity Efforts: The White House yesterday sought to highlight its first year of efforts in tackling environmental inequities, even as advocates continue to bemoan slow progress on tools to measure progress and the vacuum triggered by the recent loss of a top environmental justice official. Brenda Mallory, chair of the White House Council on Environmental Quality, said CEQ's environmental justice team has grown to six in the last year and is "fiercely determined" to ensure there isn't a loss of momentum after the departure weeks ago of Cecilia Martinez, CEQ's first-ever senior director for environmental justice. Mallory said CEQ expects "very soon" to add to its environmental justice team, but didn't offer a timeline for filling the vacant top adviser post. Read more from Dean Scott.

Group Sues Administration Over California Drilling: The Biden administration is failing to protect whales and sea turtles from oil and gas drilling off the California coast, an environmental group told a federal court in the state yesterday. The National Marine Fisheries Service said in 2017 that ongoing development and production may affect threatened or endangered species, but it's unlikely to cause harm. This finding wasn't based on the best available science and makes incorrect assumptions, according to the complaint in the U.S. District Court for the Central District of California.

Reliance by the Bureaus of Ocean Energy Management and Safety Environmental Enforcement on the agency's finding violates the Endangered Species Act, the lawsuit says. The bureaus and NMFS should work together to complete a new review of the effects oil and gas drilling have on protected species, the lawsuit says. Read more from Maya Earls.

Environment Group Petitions FDA on BPA Limits: The Environmental Defense Fund plans to file a petition today asking the Food and Drug Administration to set strict limits on the use of bisphenol A (BPA) in plastics that contact food, and rescind its prior approvals on the use of BPA in adhesives and coatings used in a variety of food packaging. "With Americans overexposed to BPA by more than 5,000 times, the agency must make this a top priority and make a final decision by the 180-day statutory deadline," Tom Neltner, EDF's senior director for safer chemicals, said in a statement. The group cited findings from a panel convened by the European Food Safety Authority that indicated harmful effects from BPA exposure can occur at levels 100,000 times lower than previously thought.

EPA to Keep 2016 Ethylene Oxide IRIS: The EPA announced

yesterday it will not change its decision to use the 2016 ethylene oxide Integrated Risk Information System (IRIS) assessment and replace it with a comparatively weaker ethylene oxide risk value developed by the Texas Commission on Environmental Quality, Stephen Joyce reports.
The decision demonstrates the agency's commitment to preserving public health and protecting affected communities, Rep. Brad Schneider (D-Ill.) said in a statement. "In the face of industry calling for a weaker standard, for years we have pushed the EPA to uphold the IRIS value for EtO. It has been one of the Task Force's top priorities, and today we applaud the EPA for listening," said Schneider, who with Rep. Jody Hice (R-Ga.) leads the Congressional Ethylene Oxide Task Force. Schneider's Illinois congressional district includes two facilities that emit the pollutant, Medline Industries and Vantage Specialty Chemicals.
EPA Posts Chemical Manufacturer Risk Reports: The EPA has publicly posted some of the more than 1,300 risk reports submitted by chemical manufacturers since early 2019, according to Public Employees for Environmental Responsibility. The agency once posted online risk notices for hundreds of chemicals every year, but that practice all but stopped in January 2019 because the employee who updated the website retired, and the agency isn't legally required to update the site, the EPA told Bloomberg Law in December, Stephen Lee reports.
"We are glad that EPA has resumed posting industry's risk warnings and wonder why it has taken so long," said Kyla Bennett, PEER's science policy director and a former EPA attorney, said in a statement. "We hope that EPA will also ensure that its staff scientists are apprised of these new postings and are able to include them in formulating risk assessments." Bennett also said that the EPA has approved hundreds of chemicals with inadequate or inaccurate risk assessments, "but it still refuses to address the public health threats its past malfeasance has created."
More Headlines:

* NYC's Central Park Will Open a Lab to Study Urban Climate Change
* Order Allowing California Logging to Proceed Reversed in Part
* SEC Sees Leeway for Companies on Good-Faith Climate Disclosures
* Carbon Reporting Bill for Big Companies Passes California Senate
* New York Needs $15 Billion More to Combat Climate, Advocates Say

With assistance from Stephen Joyce, Jennifer A. Dlouhy, Stephen Lee, and Katrice Eborn

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Key U.S. Natural Gas Pipeline in Doubt After Court Ruling (3)
2022-01-25 21:49:36.393 GMT

By Gerson Freitas Jr. and Maya Earls
(Bloomberg) -- A major U.S. natural gas pipeline project that's crucial for shale drillers in the Appalachians is now in doubt after a court rejected its permit to cross a national forest in the Virginias.
The U.S. Court of Appeals for the Fourth Circuit on Tuesday tossed the federal government's approval for Equitrans Midstream Corp.'s $6.2 billion Mountain Valley Pipeline to go through Jefferson National Forest, sending the shares of the company slumping the most since March 2020.
Mountain Valley, which is more than 90% complete, aims to provide drillers in the gas-rich Appalachian Basin with much-needed takeaway capacity, after projects from Dominion Energy Inc., Duke Energy Corp. and Williams Cos. were scrapped amid fierce opposition from environmental groups.
Equitrans shares lost 17% in New York, the biggest decline since March 2020, with the plunge triggering a circuit breaker. Utility giant NextEra Energy Inc., which also owns a stake in the project, fell 8.3% to the lowest level since July. The announcement that Jim Robo is stepping down as chief executive officer also weighed on the Florida utility shares.
The Bureau of Land Management and U.S. Forest Service's reauthorizations for the project didn't consider sedimentation and erosion impacts, prematurely approved the use of a conventional bore method to build stream crossings, and failed to comply with the Forest Service's 2012 planning rule, the court said.
"We are thoroughly reviewing the court's decision regarding MVP's crossing permit for the Jefferson National Forest and will be expeditiously evaluating the project's next steps and timing considerations," said Equitrans Midstream Corp. spokeswoman Natalie Cox.
Also See: Mountain Valley Pipeline Forest-Crossing Approval Thrown Out
Equitrans, which owns 48% of the 303-mile conduit, was targeting full operations at the pipeline by next summer.

The decision likely means the conclusion of the pipeline, which is already four years behind schedule and costs almost twice as much as initially planned, may be pushed back into 2023, according to Brandon Barnes, a Bloomberg Intelligence analyst. The ruling also “doesn’t bode well” for another pending case in the same court related to a key species permit that spans much more of the unconstructed pipeline, Barnes added.
Environmental group Sierra Club, which opposes the project, had a grimmer outlook.
“Three billion over budget, years behind schedule, and facing mounting legal hurdles, today’s decision makes it highly unlikely that this dirty, dangerous, and unnecessary fracked gas pipeline will ever be completed,” the group’s senior director of energy campaigns, Kelly Sheehan, said in an emailed statement.
In 2020, Dominion Energy and Duke Energy scrapped an $8 billion Atlantic Coast gas project, and Williams abandoned its Constitution gas pipeline and its Northeast Supply Enhancement plan. In September, the $1 billion PennEast conduit project was also halted after failing to receive water-quality certification and other wetland permits for the New Jersey section.

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know, reconciliations of operating income and other GAAP to non-GAAP measures can be found in our earnings release.

With that, I will turn the call over to Lorenzo.

Lorenzo Simonelli {BIO 15243700 <GO>}

Thank you, Jud. Good morning, everyone, and thanks for joining us.

We are pleased with our fourth quarter results as we generated another quarter of strong free cash flow, solid margin rate improvement, and strong orders performance from TPS.

During the quarter, TPS continued to operate at a high level; OFE successfully executed on its cost improvement initiatives; and OFS performed extremely well despite continued pressure on supply chain and commodity inflation. For the full year, we were pleased with our financial performance. We took several steps in 2021 to accelerate our strategy and help position the company for the future. Last year proved to be successful on many fronts for Baker Hughes with key commercial successes and developments in the LNG and new energy markets, as well as record cash flow generation and peer-leading capital allocation.

After a quiet start to the year, LNG activity played an important role in helping TPS book almost $7.7 billion in orders in 2021, which was just below the record levels achieved in 2019. Perhaps more importantly, we believe that the step-up in LNG order activity provides a solid indication that a new LNG cycle is beginning to take shape. We also believe that the uptick in orders along with other recent policy movements, particularly in Europe confirms that natural gas is gradually gaining greater acceptance as a transition and destination fuel for a net-zero world.

In new energy frontiers, we started to see more pronounced commercial successes from our energy transition efforts, generating approximately $250 million in new orders across our TPS, OFS, and DS product companies, primarily in the areas of hydrogen and CCUS. We remain confident in our ability to grow this business over the next decade to ultimately total $6 billion to $7 billion of orders by 2030.

I'm also very pleased to report that Baker Hughes delivered its strongest ever free cash flow year, generating over $1.8 billion in 2021, which represents almost 70% conversion from adjusted EBITDA. We are pleased to see this performance as our cash restructuring and separation payments wound down and we continue to make progress on improving our working capital and broader cash processes.

Our strong free cash flow profile provides the company with ample flexibility and optionality when it comes to our broader capital allocation strategy. As evidence of this, we returned almost $1.2 billion back to shareholders through dividends and buybacks in 2021 while also making multiple acquisitions and investments across the industrial and new energy spaces.

On the industrial front, we completed the acquisition of ARMS Reliability and a major investment in Augury, which will help Baker Hughes, continue to build out its industrial asset management platform and deliver an expanded set of asset performance capabilities.

On the new energy front, we were active this year in pursuing early-stage technologies in CCUS and in hydrogen. In CCUS, we acquired a position in Electrochaea, a bio-methanation company, and also entered into an exclusive license with SRI for the mixed-salt process. In hydrogen, we made an investment in Ekona, a growth stage company developing novel turquoise hydrogen production technology as well as Nemesis, a technology company focused on a range of early-stage hydrogen technologies.

While 2021 saw many positive achievements, the year was also not without its challenges. We saw continued disruptions from the COVID-19 pandemic, which continued to impact our operations. Supply chain and inflationary pressures also drove higher costs and delivery issues, primarily across our OFS and DS product companies. Our teams have continued to work to offset some of these pressures. But we expect to continue to see some level of tension and disruption in these areas potentially through the first half of the year.

As we look ahead to 2022, we expect the pace of global economic growth to remain strong. However, growth rates are likely to moderate from 2021 levels as central banks are expected to begin tightening monetary policy in order to reduce COVID-related stimulus plans and quell growing inflationary pressures.

Despite the expected slowdown in the pace of growth, we believe the continuing broader macro recovery would translate into rising energy demand in 2022 with oil demand likely recovering to pre-pandemic levels by the end of the year. Pairing this demand scenario with continued OPEC-plus, IOC, and EMP spending discipline, we expect the oil markets to remain tight for some time. We believe that this will provide an attractive investment environment for our customers and a strong tailwind for many of our product companies.

We also expect continued momentum in the global gas markets in 2022, building on a strong 2021. A combination of demand and supply factors converged in 2021, pushing natural gas and LNG prices to record-breaking levels in both Europe and in Asia. The gas price spikes also highlighted the fragility of the global energy system as the world transitions to net-zero.

Looking ahead, we expect a number of additional LNG FIDs in 2022 and beyond, supported by the growing appetite for longer-term LNG purchase agreements. As we have previously mentioned, we see significant structural demand growth for LNG in the coming decades. Our positive long-term view is also supported by the recent improvement in policy sentiments in certain parts of the world towards natural gases role within the energy transition.

Against this constructive macro backdrop, Baker Hughes remains focused on executing our strategy across the three pillars of transform the core, invest for growth, and position for new energy frontiers. Importantly, we also continue to work towards aligning Baker Hughes across the two business areas that we outlined in the third quarter of last year, Oilfield Services and Equipment and industrial energy technology or OFSE and IET.

Since we unveiled our vision of ultimately executing across these two broad business areas, we have been evaluating all aspects of the company in order to determine the most efficient organizational and corporate structure. Our goal is to find the right structure that property aligns our internal resources and helps accelerate growth in key strategic areas while also enhancing our profitability and returns and increasing shareholder value.

We have reached some early conclusions and have started to implement changes internally. Most notably, we recently created the climate technology solutions group and industrial asset management group, which will both report to Rod Christie, Executive Vice President of TPS. Climate Technology Solutions or CTS will encompass CCUS, hydrogen, emissions management, and clean and integrated power solutions. Industrial Asset Management or IAM will bring together key digital capabilities, software and hardware from across the company to help customers increase efficiencies, improve performance, and reduce emissions for their energy and industrial assets.

We believe that the creation of these two groups will help accelerate the speed for commercial development for solutions based business models across our new energy and industrial asset management offerings. Importantly, it will not change any of our reporting structure today. Overall, we are very excited with the strategic direction of Baker Hughes and believe the company is well-placed to capitalize on near-term cyclical recovery and well-positioned for the long-term structural change in the energy markets.

Now, give you an update on each of our segments. In Oilfield Services, activity levels ended the year on a positive note in both the international and North American markets, and all signs point to a strong year of growth in 2022. Additionally, the OFS team had to navigate an increasingly difficult supply chain environment, over the second half of 2021, and ended the year on a high note with a strong fourth quarter margin performance.

Looking into 2022, we expect a strong broad-based recovery across the international markets, led by Latin America and the Middle East. While Latin America should see the second consecutive year of double-digit growth, the Middle East is in the very early stages of what we expect to be a multi-year growth cycle. Capital is being deployed in the region to restore near-term production levels and lay the foundation for longer-term capacity expansion.

In North America, we expect another year of impressive growth in the U.S. land market as well as recovery in offshore. Based on conversations with our customers, we expect the underlying trends in North America to remain the same as 2021 with public E&Ps and IOCs remaining discipline in deploying capital while private E&Ps will remain more active.

While we were pleased to achieve 10% operating margin rates in OFS in the fourth quarter, margins are still below our broader objectives, namely due to the recent negative impacts of commodity price inflation and supply chain disruptions. That being said, our

OFS team is working extremely hard to offset these headwinds with successful pricing increases across multiple product lines and continued progress in mitigating some of the logistics constraints. Based on the actions being taken by our OFS team and assuming the gradual normalization of the current state of supply chain disorder, we remain focused on achieving 20% EBITDA levels in OFS by the end of 2022.

Moving to TPS, the outlook remains constructive driven by opportunities in LNG, onshore, offshore production, and new energy initiatives. I'd like to thank Rod and the TPS team for an exceptional year in 2021, which exemplified the strength of the TPS business. TPS booked almost $7.7 billion of orders, which included 22 MTPA of LNG orders across four projects, and nine FPSOs and offshore top side project awards.

On the execution side, TPS generated over $1 billion of operating income, representing over 16% in operating margin rate, despite revenue growth and equipment, significantly outpacing services. We are excited about what the future holds for TPS across multiple fronts. In LNG, we were pleased to book two awards in the fourth quarter. We announced a major LNG award for the five MTPA Pluto Train 2 project in Western Australia, which is operated by Woodside and also received a large-scale LNG equipment award in the Eastern Hemisphere.

Additionally, we were awarded an order to deliver power-generation equipment for a major LNG project in North America. We continue to be optimistic on the outlook for LNG and remain confident on the potential for 100 to 150 MTPA of awards over the next two to three years. Based on the continued pace of discussions with multiple customers and the positive fundamentals in the global gas markets, we have a general bias towards the upper end of this range.

For the non-LNG segments of our TPS portfolio, we see multiple opportunities for continued growth, and we were pleased to book a number of awards in new energy during the quarter. In hydrogen, we booked an award for advanced compression technology for the NEOM carbon-free hydrogen project in the Kingdom of Saudi Arabia, building on the announcement we made with Air Products in the second quarter of 2021. We will be providing our HPRC solutions to the NEOM project, which will enable a lower cost of production and accelerate the adoption of hydrogen as a zero-carbon fuel.

Our collaboration with Air Products will be critical for a net-zero future. And the award is a good example of how Baker Hughes' proven technology is helping to accelerate the hydrogen economy. In CCUS, we received an order from Santos to supply turbomachinery equipment for the Moomba Carbon Capture and Storage project in South Australia. Baker Hughes will provide gas turbine compressor and heat recovery steam generator technologies to compress the carbon dioxide. The project will serve as a gas processing plant and permanently store 1.7 million tons of carbon dioxide annually in the depleted natural gas reservoirs in the onshore Cooper Basin. Even though, 2021 order activity came in well ahead of our expectations, we still expect to see a similar level of orders for TPS in 2022, driven primarily by LNG.

our presence to non-critical assets, and developing software capabilities to allow us to cover the entire balance of plant.

As the world strives towards the net-zero target in the coming decades, enterprise-level industrial asset management capabilities will be a key driver by enabling better operating efficiency, lowering energy consumption, and reducing emissions across multiple industries.

Overall, I'm pleased with the progress we made in 2021 in navigating the many challenges presented during the year while also executing on the commercial opportunities across our portfolio. At the same time, we were able to convert almost 70% of our 2021 adjusted EBITDA into free cash flow. We returned almost two-thirds of this free cash flow back to shareholders and made good progress on transforming our company into an energy transition leader.

As we enter 2022, we expect to benefit from solid macro tailwinds across both of our major business areas with cyclical recovery in OFSE and a longer-term structural growth trends in LNG, new energy, and industrial asset management. We look forward to further developing our corporate strategy, building on our commercial success and focusing on a range of capital allocation opportunities.

I want to conclude by thanking all of our Baker Hughes employees for their hard work in overcoming another year of challenges surrounding the pandemic. And I look forward to their continued commitment to our success in 2022 and beyond.

With that, I'll turn the call over to Brian.

Brian Worrell {BIO 16231736 <GO>}

Thanks, Lorenzo. I will begin with the total company results and then move into the segment details. Orders for the quarter were $6.7 billion, up 24% sequentially driven by TPS, Digital Solutions, and OFS, partially offset by a decrease in OFE. Year-over-year, orders were up 28% driven by increases in TPS, Digital Solutions, and OFS, and a decrease in OFE.

Remaining performance obligation was $23.6 billion, up 1% sequentially. Equipment RPO ended at $8.2 billion, up 9% sequentially and services RPO ended at $15.3 billion, down 4% sequentially. We are pleased with our strong orders performance in the quarter, particularly in TPS, which provides a good level of revenue visibility into 2022 and beyond.

Our total company book-to-bill ratio in the quarter was 1.2 and our equipment book-to-bill in the quarter was 1.4. Revenue for the quarter was $5.5 billion, up 8% sequentially, driven by increases across all four segments. Year-over-year, revenue was flat driven by an increase in OFS, and offset by decreases in TPS and OFE.

Operating income in the quarter was $256 million, a 35% increase sequentially, and a 210 basis point improvement in margin rate. The improvement in margin was driven by better operating productivity, pricing gains in certain product lines and favorable product mix. For the total year of 2021, OFS improved operating income margin rate by 320 basis points.

As we look ahead to the first quarter, we expect to see continued growth in international and North American activity offset by typical seasonal softness in the international markets. As a result, we expect our first quarter revenue to decline modestly on a sequential basis along with a modest decline in margin rates.

For the full year 2022, our expectations are largely in line with the view we shared in October on our third quarter earnings call. In the international market, we expect the continuation of a broad-based recovery with growth in the low-to-mid-double digits. In North America, we expect a continuation of the ramp-up in activity levels and believe that the broader market could experience strong growth in the 25% to 30% range. With this type of macro backdrop, we would expect to generate solid double-digit revenue growth in 2022 in OFS. Margin rates should also see solid improvement as some of the recent supply chain and cost escalation headwinds normalize and we remain focused on achieving 20% EBITDA margin rates by the end of 2022.

Moving to Oilfield Equipment, orders in the quarter were $510 million, down 9% year-over-year. The reduction in orders was driven by SPS as well as the removal of Subsea Drilling Systems from consolidated OFE operations as a result of the merger with MHWirth. These declines were partially offset by growth in Services and Flexibles. Revenue was $619 million, down 13% year-over-year. The reduction in revenue was driven by the removal of SDS and lower volumes in SPS and SPC projects, partially offset by growth in services. Operating income was $23 million, a 1% improvement year-over-year. This was driven by higher volume in services and cost productivity, partially offset by lower volume in SPS and the removal of SDS.

For the first quarter, we expect a double-digit sequential decline in revenue driven primarily by seasonality and lower backlog. We expect operating income to also decline sequentially with margin rates in the low single-digits. For the full year 2022, we expect a modest recovery in offshore activity driven by higher oil prices and capital deployment into low-cost basins and projects. We expect OFE revenue to be down double-digits, primarily driven by the de-consolidation of SDS, but we expect OFE margins to remain in the low to mid-single digit range, driven by business mix and benefits from the recent cost out actions taken.

Next, I will cover Turbomachinery. The team delivered another strong quarter with solid execution. Orders in the quarter were $3 billion, up 62% year-over-year. Equipment orders were up $1.1 billion year-over-year. As Lorenzo mentioned earlier, orders this quarter were supported by an award to supply power generation for a major LNG project in North America, and order for the Pluto Train 2 LNG project, and an award for a large-scale LNG project in the Eastern Hemisphere.

Service orders in the quarter were up 7% year-over-year, driven by growth in both contractual and transactional services, partially offset by lower volume in upgrades. Revenue for the quarter was $1.8 billion, down 9% versus the prior year. Equipment revenue was down 30% driven by the timing of our equipment backlog conversion. Services revenue was up 16% versus the prior year. Operating income for TPS was $346 million, up 4% year-over-year, driven by favorable mix from a strong volume quarter in services. Operating margin was 19.5%, up 240 basis points year-over-year driven by higher services mix.

For the first quarter, we expect revenue to be roughly flat year-over-year with higher service revenues offsetting a decline in equipment revenue. Based on this revenue outlook, we expect TPS operating income rates to increase slightly on a year-over-year basis. For the full year, we expect TPS orders in 2022 to be roughly the same as 2021 driven by continued strength in LNG awards. We also continue to see a solid pipeline in our onshore/offshore production segment along with opportunities in pumps, valves, and new energy areas. We now expect solid revenue growth in 2022, driven by growth in services and strong orders growth in 2021.

On the margin side, we still expect operating income margin rates to be roughly flat year-over-year in 2022, depending on the mix between services and equipment. Included in this framework is an expected increase in investments and R&D expenses that relate to our new energy and industrial growth areas.

Finally, in Digital Solutions, orders for the quarter were $605 million, up 14% year-over-year. We saw improvements in orders across most end markets, most notably in industrial, transportation, and oil and gas. Sequentially, orders were up 16% driven by seasonality in oil and gas, power generation, and industrial.

Revenue for the quarter was $558 million, flat year-over-year with higher volumes in Waygate, Reuter-Stokes, and PPS, offset by lower volumes in Nexus Controls, Druck, and Bently Nevada. Sequentially, revenue was up 9% with improvements across most product lines. Operating income for the quarter was $51 million, down 33% year-over-year driven by headwinds from mix and higher R&D costs. Sequentially, operating income was up 97% primarily driven by higher volume.

For the first quarter, we expect to see modest revenue growth year-over-year, supported by a stronger opening backlog. We expect operating margin rates to be down slightly year-over-year, but to remain in the mid-single digits. For the full year, we expect solid growth in revenue as supply chain constraints begin to ease and orders pick up across Digital Solutions. With higher volumes, we expect strong improvements in DS margins, which could approach double digits for the total year.

Overall, I am very pleased with the execution in the fourth quarter and the total year across all the key financials. We are confident in our strategy and our ability to continue to execute as we head into 2022.

With that, I will turn the call back over to Jud.

As we said last year, as the energy markets evolve, we think operating around these two broad focus areas makes sense in terms of investment strategy, et cetera. And we also said that aligning across the two broad business areas will actually help us give the most optionality longer-term. So the work we've done only just reinforces our view. Again, the company is strong together at this stage, and we'll continue to align across the two business areas, continue the work and continue to update us on our progress and decisions. But it goes without saying, we continue to operate the company for the best returns to shareholders.

Q - James West {BIO 19758684 <GO>}

Of course. Absolutely. And then maybe an unrelated follow-up, Lorenzo, on TPS, and you gave some good guidance on kind of expected orders over the next several years. I'm just curious how we should think about 2022, the cadence of the orders and then what that means for growth in TPS as we get into 2023.

A - Lorenzo Simonelli {BIO 15243700 <GO>}

Sure, James. And I think importantly, I believe the order momentum we saw at the end of 2021 is likely to continue into 2022. We've indicated over the past quarters that we're seeing an LNG cycle beginning to accelerate. And generally speaking, LNG projects are beginning to be pull forward versus previous expectations due to the strong long-term LNG fundamentals and also the improving environment to secure long-term offtake agreements.

So we also believe the recent policy movement out of Europe, that's encouraging to see what would be FIDs in 2023, maybe potentially be pulled forward into 2022 as well. So there a couple of large awards this year in 2022 and also some small and mid-sized awards that should be coming through. And I think although we're calling the TPS orders in 2022 really flat to 2021, we believe that orders could potentially increase as we go through the year.

So the specific areas are U.S., Middle East and Russia. And for 2023, it's a little early. But I think, again, the outlook is positive, and we still see a lot of projects that we're discussing with our customers. As you know, we're very close on the LNG side. I also think it's important to remember that LNG is a headline for TPS orders. We also see a solid pipeline in our onshore/offshore production segment along with opportunities in pumps, valves, and we continue to see positive traction in the new energy front on the back of a strong order intake in 2021.

Q - James West {BIO 19758684 <GO>}

Okay, got it. Thanks, Lorenzo.

Operator

Our next question comes from Chase Mulvehill with Bank of America.

Okay, perfect. The follow-up is really just kind of same line of questioning and just kind of digging in a little bit more on the energy transition. I mean, obviously, in the fourth quarter, you had a key hydrogen order with NEOM and you had the CCUS with Moomba. But could you talk about other opportunities that you see on the horizon? And maybe also kind of hit on M&A opportunities. You did Ekona, the hydrogen investment there, so maybe highlight that and any other opportunities that you see to kind of do some tuck-in acquisitions.

A - Lorenzo Simonelli {BIO 15243700 <GO>}

Yes, Chase, we were very pleased with the performance in 2021 for the new energy orders. You cited the two in the fourth quarter, one for hydrogen and also CO2 with the Santos Cooper Basin. And we see those opportunities continuing. We've given a 2022 outlook of between $100 million, $200 million. We think that we're on the higher end of that, and its continued momentum with our customers on really helping them to achieve their net zero targets.

And I think the Ekona investment that you mentioned, again, it's another way in which we're expanding our portfolio of capabilities. It's a growth stage company, which develops turquoise hydrogen production technology, and it's another solution that can really help our customers.

As we look at 2022 and beyond, again, we still see the opportunity to create a new business through the energy transition that by 2030 is $6 billion to $7 billion. And we're actively building our portfolio to represent that through the small tuck-in technologies, and I see us continuing to do that.

Q - James West {BIO 19758684 <GO>}

Alrighty, perfect. Thanks, Lorenzo. I'll turn it back over.

Operator

Our next question comes from Scott Gruber with Citigroup.

Q - Scott Gruber {BIO 18283463 <GO>}

Yes. Good morning.

A - Lorenzo Simonelli {BIO 15243700 <GO>}

Hey, Scott.

Q - Scott Gruber {BIO 18283463 <GO>}

Good morning. It sounds like the supply chain issues may linger for you and peers here at least in the first half of the year. But are we finally at the point where we can see light at the end of the tunnel? Are you able to identify a quarter when the supply chain issues really just have a limited impact on reported financials? Or is that too early to call at this point?

Yes, sure, Scott. And I think, the last four years have been an interesting rollercoaster. And I'm really pleased about the way in which we as a team and Baker Hughes has been focused on approaching it, and also creating a good setting for 2022 and beyond. We started out with a lot of integrations, restructuring, the separation from GE, then another major restructuring due to COVID downturn.

At the same time, we continued laying the groundwork for the energy transition, pivoting to be an energy technology company, making the investment in C3.ai, disposing of unprofitable and non-strategic operations and really continuing our strategy to transform the company across what we said were the three pillars, transform the core, invest for growth and also the new energy frontiers.

And over the course of time, we continue to actively cut costs. We've invested in growth areas with over six transactions, the small-scale acquisitions or also new energy or industrial investments. We've created a good partnership network across multiple capabilities that are required for the future. And we've always been optimistic on natural gas and the continued role that it plays in the energy transition in LNG.

So I'm very excited about the macro environment for Baker Hughes. And more importantly, how we're positioned as a company to capitalize on the LNG cycle, the upstream spending cycle and longer-term growth for the new energy opportunities. I think in my tenure at least, it's nice to see macro tailwinds across both of our two large business areas.

A - Brian Worrell {BIO 16231736 <GO>}

And Scott, the only thing I'd add there to what Lorenzo says is, you've seen how we've been running the company. We've got a strong balance sheet. We believe we've had a pretty shareholder-friendly capital allocation. We're able to maintain the dividend during the last turmoil because of COVID. And we'll continue to run the company with a strong balance sheet and make sure we maintain the most flexibility and optionality as we look to increase returns.

Q - Scott Gruber {BIO 18283463 <GO>}

Appreciate the color. Thank you.

Operator

Our next question comes from Arun Jayaram with JP Morgan.

Q - Arun Jayaram {BIO 5817622 <GO>}

Yes. Good morning. I had a couple of questions on TPS. You guys booked nearly $3 billion of inbound orders this quarter, $7.7 billion for the year. I was wondering if you could comment on if you think the orders would be accretive to the margins you realized in 2021 in TPS?

Hi, good morning. I was just wondering if you could talk a little bit about the tendering activity going on in the Middle East. Lorenzo, you talked about kind of the beginning of a multi-year growth phase in the Middle East. There's been a bunch of large awards. You guys have been pretty selective. I was wondering if you could just kind of talk about kind of maybe some of the dynamics you're seeing out there. And would you expect to see more large tenders in the coming months and kind of your view on the pricing? Thank you.

A - Lorenzo Simonelli {BIO 15243700 <GO>}

David, on the international outlook for OFS in particular, based on conversations with our customers, we expect a broad-based recovery across all major geographies and overall international growth in the low- to mid-teens. And unlike 2021 where the Middle East has lagged, we believe this to be one of the strongest markets in 2022 and it's likely in the early stages of a growth cycle with the NOCs in the region to add production capacity on a gradual long-term basis. So we also expect another strong year of growth in Latin America, led by Brazil and Mexico, elsewhere North Sea, Russia, Asia Pacific solid growth, and not as much as the Middle East or Latin America, but still solid growth, and then also West Africa off a low base starting to see some growth return.

With regards to some of the larger (inaudible) that take place, we're continuing to see that (inaudible). We are very judicious in the way in which we tender, and we've always said we're going to be disciplined. And we like the outlook internationally as we go forward.

Q - David Anderson {BIO 20142363 <GO>}

Great. Thank you. On a just kind of a separate subject. You have a number of partnerships and investments that you've got involved in across the new energy spectrum, which I think all of them are going to fall under this new Climate Technology Solutions group. Just kind of curious where you go from here. A number of these technologies are going to take time to scale.

So do you keep expanding your portfolio and keep kind of looking out to other technologies like with this Ekona in hydrogen or -- and do you get into the other parts of clean tech with smaller investments? Or is there a point where there's more sizable M&A opportunities out there? I mean, I'm just kind of curious of kind of what that looks like in kind of the horizon. Is it just too early even to be talking about M&A opportunities in the space?

A - Lorenzo Simonelli {BIO 15243700 <GO>}

I think it's a little early. But I think as you look at our approach, and it really resonates with what we're hearing from our customers is across oil and gas and also the other industrial segments we serve. Customers are asking, help me achieve a net zero road map, whether it be the 2030 target or the 2050 target that they have. And that requires a compilation of different technologies. And what we're doing within our Climate Technology Solutions group and why we stood it up is really to be able to respond to that customer request and walk them through the various technologies and capabilities.

I therefore refer you to our latest 10-K filing And our other SEC filings. Our comments today may also include non-GAAP financial measures. Additional details and reconciliation to the most directly comparable GAAP financial measures can be found in our fourth quarter press release, which is on our website. With that, I'll turn the call over to Olivier

Olivier Le Peuch {BIO 16885975 <GO>}

Thank you, ND. Ladies and gentlemen, thank you for joining us on the call today. In my prepared remarks, I will cover our Q4 results and full year of 2021 achievements. Thereafter, I will follow with our view of the 2022 outlook and some insights into our near-term financial ambitions. Stephane will then give more detail on our financial results and we will open for your questions.

The fourth quarter was characterized by broad based activity growth. We've continued momentum in North America, activity acceleration in the international markets and accretive offshore market contribution, upon which we delivered strong sequential revenue growth, our sixth consecutive quarter of margin expansion and outstanding double-digit free cash flow generation.

These financial results conclude an exceptional year of financial performance for Schlumberger at a pivotal time for the company and in our industry at large. Underlying these results are the following highlights from the quarter. Geographically, sequential growth in North America exceeded rig activity, growing in excess of 20% offshore and international revenue growth accelerated closing the second half of 2021 up 12% versus the prior year. All international areas posted growth driven by gains in more than 75% of our international business units. By division, revenue of -- in all four divisions grew sequentially and when compared to the same period last year.

Digital integration net growth posting double-digit sequential growth and record high margins. Well construction, another area of performance, our (Inaudible) service oriented divisions outperformed expectations with strong sequential growth and approximately 30% growth year-over-year on a pro forma basis. Production Systems, we call it (Inaudible) sales, which drove mid-single digit growth though partially impacted by logistics change. Operating margins expanded in spite of seasonality effects, improving further beyond pre-pandemic levels. And finally, we generated outstanding cash flow from operation, exceeding $1.9 billion in the quarter.

All in all, I'm very pleased with our operational execution, our safety performance and our financial results through the fourth quarter. Now, let me briefly reflect on what we achieved in 2021. In our core, we fully operationalized our returns-focused strategy, leveraging our new division and (Inaudible) in the organization to seize the start of the up cycle. In North America, this resulted in full-year top line revenue growth, excluding the effects of divestiture and significantly expanded margins, achieving double-digits. One of the financial targets we laid out in 2019. Internationally, we also grew the top line and expanded margin significantly as international activity strengthened in the second half of the year.

This also resulted in full year international margins that exceeded 2019 levels. Taken together, these margins result in the highest global operating margins of the last six years, setting an excellent foundation for further expansion as activity accelerates and market conditions further support (Inaudible) improvement.

In digital, our second engine of growth, I'm very proud of the momentum we established during the year. We advanced on our goals to expand market access and accelerate adoption of our platform, AI capabilities and powerful digital tools to reduce cycle time, improve performance and lower carbon intensity. We built partnerships to achieve comprehensive cloud access globally, collaborated with AI innovators to deploy machine learning and AI solutions and enable digital operations through the automation of key workflows in well construction and production operation.

At the end of 2021, we have more than 240 commercial DELFI customers, we recorded more than 160% DELFI-user growth year-over-year and saw more than 10-fold increase in compute cycle intensity on our DELFI cloud platform. We also made significant progress in our data business wing, and digital operations, advancing our EU commercial offerings, autonomous drilling and the adoption of Agora Edge AI and IoT Solutions with great success. The Q4 results, including significant uptake in digital sales and sizable income off the margin are clear a testament of this success. In Schlumberger New Energy, we continue to advance the development of clean-energy technologies and low carbon projects.

In 2021, we took a position in stationary energy storage, expanding our total addressable market. And advanced all of our ventures in hydrogen lithium, gee energy and a suit of CCUS opportunities, including our bioenergy CCS project. Some notable milestones achieved include the signature of pilot agreements with Genvia, our hydrogen venture with ArcelorMittal, Ugitech, Vicat and Hynamics, leading company in steel and cement

And in Celsius, our geo energy venture, we secured five commercial contract in Europe and one in North America for a prestigious university campus. This was also a pivotal year for us in terms of our commitment to sustainability. We announced our comprehensive 2050 net sale commitment, inclusive of Scope 3 emissions and launched the Transition Technology portfolio to focus on the decarbonization of oil and gas operation with much success.

In addition, Schlumberger earned a AA rating by MSCI and won an ESG top performer award by Hart Energy, recognizing our sustainability effort, our enhanced disclosure and a commitment to apply our technology and capabilities towards helping the world meet future energy demand.

In summary, 2021 was a great year for Schlumberger. Beyond this operational and financial results and our ESG accomplishments, we made excellent progress in our core Digital and New Energy. The three engines of growth that support our success now and well into the future.

Above all, I am most proud of our people. Their unique ability to execute remobilizing operation across the world through numerous pandemic constraints, adapting the logistics and supply chain dynamics and setting new performance benchmark, all of which earned the recognition of our customers. I would like to thank the entire team for delivering a year of outperformance on every metric. They surpassed all of our targets this year and created excellent momentum as we enter 2022. For which I would like now to share our outlook.

Looking ahead, we have increased confidence in our view of robust, multi-year market growth. Tight oil supply and demand growth beyond the pre-pandemic peak, I'll project that will result in a substantial step-up in capital spending amid shrinking spare capacity, declining inventory balance and supportive oil price. In addition, we expect more pervasive service pricing improvements in response to market conditions, as technology adoption increases, while service capacity tightens.

In essence, 2022 will be a period of stronger short-cycle activity resurgence, driven by improved visibility into demand recovery and greater confidence in the oil price environment.

And as oil demand exceeds pre-pandemic levels in 2023 and beyond, long-cycle developments will augment capital spending growth in response to the (Inaudible) supply. This demand-led capital spending growth sets the foundation for a strong multi-year upcycle. Indeed, this scenario is already been established, as the number of FID increases service pricing has begun to improve and multi-layer long cycle capacity expansion plans have started, particularly internationally and offshore as seen during the last quarter.

Turning to 2022 more specifically, we expect an increase in capital spending of at least 20% in North America, impacting both the onshore and offshore markets, while internationally, capital spending is projected to increase in the low-to-mid teens, building momentum from a very strong exit in the second half of 2021. All area and operating environments, short and long cycle, including deepwater, are expected to post strong growth. With upside potential, Omicron disruptions dissipate as the year advances.

In this scenario, increased activity and pricing will drive simultaneous double-digit growth, both internationally and in North America that will lead our overall 2022 revenue growth to reach mid-teens. Our mission is to, once again, expand on providing an EBITDA margin on a full year basis, exiting the year with EBITDA margins at least 200 bps higher than the fourth quarter of 2021.

In this context, (Inaudible) are we seeing the year unfolding. Directionally, while we are still experiencing Covid-related disruptions, we anticipate typical seasonality in the first quarter with revenue and margin progression similar to historical sequential trends, which will be seen most prominently in digital integration. This will be followed by strong seasonal uptick in the second quarter across all divisions. With growth further strengthening through the second half of the year, supporting our full-year mid-teens revenue growth ambition and EBITDA margin expansion.

2018 margin performance. Secondly I think the market mix. The market mix is set to improve and resonate to our profit of strength. Increased offshore activity mix has already started to happen and we expect this to only accelerate as the year unfolds and further into 2022. The adoption of technology also is accelerating, as you have seen, including digital, but our fit-for-basin, our transition technology and all the technology that extract performance for our operation and making an impact today and are getting further adoption by customer and giving us a premium and suddenly pricing. Well, a year ago, we're talking about provincial pricing in North America. Today, we are seeing and we are already recording some pricing improvement on a broad market condition, both in North America and also internationally when we are getting awarded new contract as well as when we have to mobilize and deliver unique technology to our customer. So as the year develop we believe that these attributes our foundation, operating leverage, our performance that differentiate and execution give us a premium. Our market mix, our technology adoption success with customer and finally pricing giving a tailwind to this will drive and further expand our margin to the 20, 25. The 25% margin expansion. So it's not about if, but it's about when and we have gained confidence and we have moved forward our confidence into the 2024.

Q - James West {BIO 7351884 <GO>}

Okay, great, that's very clear, Olivier. Maybe a second question for me. As we think about the cycle is really starting to take hold here, how should we think about the cadence of growth, you've given obviously numbers for 2022, but if we think about it by both geography and by division, where do you see the I guess the biggest growth where could there be some lagging areas just a little more color on the cadence would be very helpful?

A - Olivier Le Peuch {BIO 16885975 <GO>}

Maybe in one word, the market will be growth will be very broad across all geographical division first as a backdrop. I think that's what we are realizing and that's quite. But I think you've had to calculate first geographically or very high level. I think it's possibly a tale of two halves with North America leading a peak of growth, activity growth in the first half, international further accelerating in the second half where we did end on the H2, of H2 of 12%. We expect this to be the base in the first half and accelerate further in the second half internationally so that we are even accelerating into 2023 for international activity.

Q - James West {BIO 7351884 <GO>}

Okay.

A - Olivier Le Peuch {BIO 16885975 <GO>}

Secondly I believe that if I had to characterize what will lead and accretive to grow. I would say I'll make as lands because of the activity uptick, but I will also put offshore environment and Middle East. These are the three engines of growth that we pull this year growth to the target ambition we have put at mid-teens. So now per division. I think the service or the division of our performance and well construction will be accretive to this. We expect followed by because they are benefiting from the social environment. They're benefiting from a pricing and they have strong both North America and international

Q - Chase Mulvehill {BIO 17240736 <GO>}

Hey, good morning, Olivier. So I guess the first question is just kind of around you know this looming investment cycle that you and I and hopefully investors are starting to realize needs to happen. And you know, you had mentioned that you expect a substantial increase in spending this cycle. So maybe you did. You framed it a little bit. But so could you kind of add a little bit of context about how you see this cycle shaking out? What gives you confidence in it? And then what it means for pricing for OFS? You know, the competitive dynamics have obviously changed, especially in international, where it feels like you've got more disciplined, less players. If so just kind of frame the cycle in activity and where you see the most opportunity for growth. And then ultimately what this could mean for pricing this cycle for OFS companies?

A - Olivier Le Peuch {BIO 16885975 <GO>}

Thank you. Great question. I think the fundamental as we see them have not changed and actually some characteristic of the cycle have accelerated have been accelerated in the recent months. So the first attributes that we put first is the outlook of economic GDP growth that considering the oil intensity and energy intensity will still and will drive the old demands as a key attributes beyond the previous peak no later at the end of this year according to the latest projection and is set to expand visibly beyond not only in 2023, but in few years beyond this. So the first is the macro demand situation is set to be favorable for the next few years. Secondly I think the supply demand imbalance and the supply will go almost call it crisis that we are facing is pumping not only an uplift on to the commodity price, but also is pumping the investment return to investment across the broad portfolio of our customers. So you have seen it in North America. No surprise, but in North America is still and we remained structurally smaller than the previous cycle due to the capital discipline, but also due to the contract supply including on the services side. Secondly I think the international under investments for the last few years, actually the last downcycle combined with the deep in the last two years is creating condition for let's say injection of short cycle capital and then long cycle capital investments to respond to the supply. So we are seeing growth in North America albeit a cut. We are seeing a rebound visible rebound in short and long cycle investments internationally and I will insist on the long cycle because I believe that both old capacities is being looked upon and by some OPEC member to secure future supply market share, but also the international and major are investing into their advantage offshore basins and we are seeing not only infill drilling, but we are seeing FID for offshore that are accelerating going forward. So it's a mix of offshore rebound, solid including deepwater international short cycle and all capacity inland and finally solid growth in North America. So these are unique condition that are tightening the capacity and that are creating the underlying pricing improvement condition.

Q - Chase Mulvehill {BIO 17240736 <GO>}

Okay, perfect. Appreciate the color. You know a follow up to that would be, you know, obviously with this constructive backdrop for Schlumberger and OFS industry. You've got a wall of free cash flow coming to you. And so when we look at this obviously you did 3 billion of free cash flow last year. And you know it looks like over the next two years, you know, that should be growing. So how should we think about, you know, returning cash how Schlumberger is going to return cash to shareholders? And then how does M&A fit into this capital allocation strategy because obviously you're trying to reshape the company for new energy ventures and things like that as well?

A - Stephane Biguet {BIO 18640415 <GO>}

Hi Chase, it's Stephane. Look here I like your expression on free cash flow. It was indeed quite strong last year with 3 billion. Now indeed we visibly accelerated the deleveraging of our balance sheet, but we are not quite there yet at the leverage ratio we committed to, so we have a clear line of sight now to achieving the target leverage we announced earlier, even though there's still some uncertainty remaining in at the start of the year. Nevertheless with the market fundamentals consolidating, particularly in the second half of the year and in 2023 we have even more confidence indeed now in generating significant excess cash this year and beyond. So we will be able to maintain quite a healthy balance sheet and it will give us the flexibility to increase returns to shareholders as well as fund the new growth opportunities. So we will certainly provide a comprehensive framework for future capital allocation as part of the Capital Market Day that we announced earlier. Returns to shareholders are obviously important and increased dividends and buybacks will definitely be part of this equation. As you asked about M&A sorry I didn't answer on M&A, it's also part of what we will -- it's of course part of the toolbox and you'll get more details when we give you that more comprehensive framework again.

Q - Chase Mulvehill {BIO 17240736 <GO>}

Okay. Look forward to it. Appreciate the color. I'll turn it back over.

A - Stephane Biguet {BIO 18640415 <GO>}

Thank you.

Operator

Next we go to the line of Arun Jayaram with JPMorgan. Please go ahead.

Q - Arun Jayaram {BIO 5817622 <GO>}

Yeah, good morning. With the marginal supply source now moving from U.S. shale to OPEC. I wanted to see if you could frame what kind of changes in spending patterns are you seeing from the NOCs versus call it maintenance work versus FIDs and things to increase productive capacity?

A - Olivier Le Peuch {BIO 16885975 <GO>}

I think what we have seen and we are already witnessing today I think and is visible in the Middle East, but beyond is the short cycle, the return of offshore cycle activity to assure as you said maintenance of production and with small, but visibly increment of output supply. What we are seeing is also a commitment and some FID in the pipeline to increase oil capacity, sustain oil capacity with a few country committing to participate fully and are laying now the foundation this year and next year into expanding the supply. But what we should not forget about and it's partly true for Middle East is there is also a gas market that is being very sustain that I've seen reinvestment and it's part of the regional dynamic and that is already seeing is continue to seeing double-digit growth. So I think it's a combination of gas market being sustained and having had less setback then all in the recent time short cycle expansion and long cycle acceleration with the new FID capacity and this is true from Deepwater Brazil to the future investment and the current and future investment Middle East for FID that are in the pipeline in Russia. So that's again very broad and that combined short and long cycle and if you were to project I think 2022 is a supply-led activity rebound and 2023 would be a demand-led activity growth and the capacity expansion the long cycle will further contribute going forward into well into 2023.

Q - Arun Jayaram {BIO 5817622 <GO>}

Great. And my follow-up is your outlook on 2022 embeds 200 basis points of year-over-year margin expansions in the fourth quarter. So that if I did my math right that would put your EBITDA margins based on the outlook slightly above 24% and so I want to talk a little bit -- go ahead.

A - Olivier Le Peuch {BIO 16885975 <GO>}

Yeah, as we exit, it's an exit rates, we made the comprising 200 bps or higher as we exit 2022 when compared to the second half or Q4 of 2021.

Q - Arun Jayaram {BIO 5817622 <GO>}

Exactly. Okay. Got it. It's exit rates. So as we think about 2023, your outlook is that you could reach or exceed a mid-cycle EBITDA margin of 25%, right?

A - Olivier Le Peuch {BIO 16885975 <GO>}

Second half. Yeah, in the second half, so, in the second half, we expecting to reach or exceed, indeed.

Q - Arun Jayaram {BIO 5817622 <GO>}

Great. Great. And I just wanted to comment on the drivers of that would be just mix and just further pricing improvement?

A - Olivier Le Peuch {BIO 16885975 <GO>}

I think, again as I commented in a previous question, I think operating leverage will continue to give us a full through as we continue to leverage the structural change we have done and digital operation, in particular. The mix will be with long cycle, and offshore will continue to be digital part of the technology adoption across the different basin will also (inaudible) to the mix further, and finally, pricing would expand. So I think this is the combination that give us more confidence that we'll reach this -- the mid cycle prior to previous anticipation.

Q - Arun Jayaram {BIO 5817622 <GO>}

Great, thanks a lot.

dynamic and a new mindset in our commercial and (Inaudible) engagement with the customer and we have the organization focus on effectively and efficiently using the equipment pool that we have to deploy to the most accretive contract and the most active engagement that we have. So we'll continue to use this discipline to make sure that we keep in check, broadly, the capital intensity in this cycle.

Q - Scott Gruber {BIO 6761975 <GO>}

Got it. And then of the $1.9 billion to $2 billion budget this year, are you able to state how much is APS and if you do end up selling the Canadian project this year, how much could the APS portion step down on an annualized basis?

A - Stephane Biguet {BIO 18640415 <GO>}

So look, we don't disclose the split of the guidance. There is a small increase in APS investment, but it's matched with increased cash flow. As you know, the way we look at the APS investment is really based on the cash flow of the individual projects, and as an aside, we are generating very good cash flow within our APS projects, so overall, as Olivier mentioned the business of APS, because it's just a handful of projects, it's going to be pretty flat this year and the investment level is definitely not going to increase in the future -- in future years.

Q - Scott Gruber {BIO 6761975 <GO>}

Got it. Appreciate the color. Thank you.

A - Stephane Biguet {BIO 18640415 <GO>}

Thank you.

Operator

Our next question is from Connor Lynagh with Morgan Stanley. Please go ahead.

Q - Connor Lynagh {BIO 19713242 <GO>}

Yeah, thanks. I was wondering if we could go back to pricing for a minute here, and I'm curious if you could maybe characterize, it certainly sounds like pricing has become more broad-based, but are there specific areas globally or specific divisions in which you're realizing more pricing and I guess the question is, when do we see this in the result? I mean is this broad-based and you're going to be seeing it in 2022 or is this sort of early signs and it's more of a 2023 dynamic?

A - Stephane Biguet {BIO 18640415 <GO>}

I think it's broad-based, but let me maybe underline what -- where and how we see pricing condition and commercial getting developed. I think -- and we see it in three ways. First, we believe that pricing condition and commercial (Inaudible) commercial term are linked to performance. So performance in execution, our performance contract differentiated in the impact we provide customer give us the opportunity to negotiate favorable commercial terms and keep or expand our market position with key customers. So I think this has started and this is the depending on the region. This is something that impacts our service division, I would say, as our performance and with construction particularly.

The second one is linked to, I think, capacity and I think capacity on unique technology, capacity on equipment that is tight, be it for offshore deployments, or be it for high volume intensity basin, like North America. So this we have seen, when the condition are set and we are getting no opportunity to expand from (Inaudible) to broad passing improvement condition. So this we have seen happening for the last year in North America and we see this starting to happen in offshore deployments, where a unique equipment have to be mobilized, have to be secured and they are done at pricing conditions that improved over the last few months.

Finally, inflation. Inflation is something that exists. It's a related to market condition. Inflation is something that we always deal with. And today, we are seeing more into the OECD and North America, but we are dealing with inflation every day in every (Inaudible) unit as we call it over the years and we know how to manage it to engage with the customer. It's more acute, and it's more pronounced in some parts, in some basin and we're responding it with engagement for customer and using the contract term we have to offset the inflation pressure we're getting. So it's all about performance, including our technology. It's all about capacity tightening and it's about responding to the inflation pressure.

So these three things are lever we're using and that are starting to be more broad each of them across the different basin and its progressive and it's touching and addressing different basin and all divisions throughout 2022 and further into '23.

Q - Connor Lynagh {BIO 19713242 <GO>}

Thank you. That's all helpful context. The inflation topic, obviously is when we haven't really talked about extensively, it hasn't seemed to prevent you guys from expanding margins significantly. But as we look into 2022, I'd say the market expectation seems to be that commodity deflation could occur but labor inflation could increase. I'm curious what you're seeing on that front. And should we think about either of those having a meaningful impact on your margins, either positively or negatively?

A - Olivier Le Peuch {BIO 16885975 <GO>}

I think first, I think as you mentioned, I think inflation is nothing new, and it happened last year. And I think the performance of our supply organization, the way we are dealing with it, I think has helped us to mitigate and shift to the right, if I may, some of these. And secondly, I think we have been able to engage commercially to offset and create net pricing condition. So I think we see this happening forward and when it comes to resource versus equipment, I think resource ease and is always hot topic in our organization, but I think we respond to these by further improving and accelerating our digital operation adoption, so that we offset some of the push on our resource as much as we can and can offset this pressure as well. So I think it's part of our toolbox that we use and that we'll continue to tune as the cycle unfolds

Q - Connor Lynagh {BIO 19713242 <GO>}

That's great, thanks very much.

A - Stephane Biguet {BIO 18640415 <GO>}

Thank you, Connor.

Operator

Our next question is from Roger Read with Wells Fargo. Please go ahead.

Q - Roger Read {BIO 6161944 <GO>}

Thank you and good morning.

A - Stephane Biguet {BIO 18640415 <GO>}

Morning.

A - Olivier Le Peuch {BIO 16885975 <GO>}

Good morning

Q - Roger Read {BIO 6161944 <GO>}

Certainly good to see things turning around here. I just had a couple of questions, follow-up on some of the discussions about the expectations on EBITDA margins, the mix that you expect to see. I was curious what you would anticipate or what is embedded in the forecast, in terms of a recovery in E&A spending within the overall spending increase and if that's going to be less? And the reason I say that is, we know several companies have essentially eliminated their E&A departments, how that might affect the EBITDA expansion that you anticipate '22 and then on into '23?

A - Olivier Le Peuch {BIO 16885975 <GO>}

I think it's a valid question, but I think if you were to notice some of the highlights that we have released in the fourth quarter, we had a rebound of E&A data exploration cells, as part of the E&A is albeit very compressed compared to the peak of the last cycle, I think he is seeing a resurgence for two reasons. First, customers are trying to assess and reassess their reserve near around their hubs, be it on the land that we own, or be it on the key offshore hubs that they have developed to make sure they can fasttrack infield drilling and develop near field exploration. So we see a lot of infrastructure-led exploration, not necessarily large greenfield, new, and we don't expect this to be the trend going forward, but we see that the exploration is a much more surgical exploration, if I may use that word, to be near field backyard exploration, as we call it, around, near infrastructure, so that the operator partially offshore get to accelerate the return on the existing infrastructure and get fasttrack, fast short cycle return on the existing offshore.

So we see that in Latin America, we see that in the Gulf of Mexico, in Europe, in West Africa, this is very broad. So we are benefiting from it in our (Inaudible) performance, we're benefiting from it in some of the key technology that we provide, including in digital. So I think while it has been a step down compared to the previous cycle, there is a keen interest and investment resurgence in E&A for this reason. And I think we'll see that as a backup of FID and is true particularly offshore.

Q - Roger Read {BIO 6161944 <GO>}

I appreciate that. Thanks. And then just looking at the digital and integration segment, it's obviously one a lot of us are focused on and I know you've got a lot of expectations embedded in it as well. I was just curious if you look back over the last 12 months and forward over the next 12, kind of what's been a positive surprise, what's been, maybe a little bit of a headwind there? And if there has been a headwind, maybe how you would anticipate that reversing as we look into '22 and '23? Probably more from the customer side, but if there is anything internal as well?

A - Olivier Le Peuch {BIO 16885975 <GO>}

No, in general, I think we are very pleased with the progress of the deploying and continue to build the digital foundation and digital platform foundation that support our strategy. Now every customer has their own pace of adoption, their own intel in digital infrastructure they choose to deploy in which we need to plug. So our choice two years ago to go with open data ecosystem foundation, the choice we have made to go in partnership with different cloud provider, different industry partners, to expand our market reach has unlocked some of these customers to come and join us in our digital journey and with our platform.

So it's, we continue to work on it. The last two years could have been better and larger adoption, possibly. But I think we have the (Inaudible) in place, we are in the early innings as I said of full adoption, considering the size, the oversize, the scale of our customer base. So, I remain confident that this is just the first step and this will only accelerate. So we have the right foundation. So digital is here to stay, digital transformation is here to accelerate the cost to industry and I think we are taking it one customer at a time, and this is what is happening. So we are positive.

Q - Roger Read {BIO 6161944 <GO>}

Great, thank you.

A - Olivier Le Peuch {BIO 16885975 <GO>}

Thank you.

Operator

Our next question is from Neil Mehta with Goldman Sachs. Please go ahead.

Q - Neil Mehta {BIO 16213187 <GO>}

Good morning, team.

A - Olivier Le Peuch {BIO 16885975 <GO>}

Indeed, Thank you. I believe we have done from one last question. Operator.

Operator

Very good. That last question is from Keith Mackey with RBC Capital Markets. Please go ahead.

Q - Keith Mackey {BIO 19833215 <GO>}

Hi, good morning.

A - Olivier Le Peuch {BIO 16885975 <GO>}

Morning, Keith.

Q - Keith Mackey {BIO 19833215 <GO>}

I just wanted to maybe break, ask you to dig into your North American outlook for the 20% increase in spending this year. Can you maybe just sort of break that out in terms of what you might expect for drilling versus completion versus price inflation in general?

A - Olivier Le Peuch {BIO 16885975 <GO>}

Yeah, good question. I think first the North America outlook, we are providing is inclusive of offshore and onshore, and onshore inclusive of U.S. and Canada. So I think it's a mix that it's a bit, not difficult but it's a lot of variable at play to decipher here. So, but to your specific question, we foresee indeed that the US land, which is a big portion of this activity outlook, we'll be having a bias towards well construction, as the market ease rotating from depleting the ducts to replenishing the ducts, and so well construction rig-based activity is -- will be the lead, in the 20% plus. And I think we are set to respond to this with well construction portfolio in that environment and this would be a very favorable to us. On the offshore environment, is broad and I think offshore environment will be an execution of well construction and also as our performance. And so when you put all of this and you put a more modest, a more moderate Canada environment, you have a mix that is favorable to our construction and production system in the US lands and favorable to our reserve performance and well construction in offshore environments, all of which to give us this ambition, about 20%.

Q - Neil Mehta {BIO 16213187 <GO>}

Perfect, thanks for that. And maybe -- one quick follow-up just on the Canadian APS, I know there is a sales process outstanding. Just curious if you can give any update on your thinking there currently?

A - Stephane Biguet {BIO 18640415 <GO>}

So we have received several offers for our APS asset in Canada as part of the process we launched last year. So while we were assessing those proposals, the market conditions, actually continued to improve and the value of the asset increased as a result. So we actually took the decision that the offers we had received were not -- no longer reflective of the economic value and the cash flow potential of the asset, so we are not (Inaudible) those at the moment, the asset is now generating very strong cash flows, but we remain open to all options.

Q - Neil Mehta {BIO 16213187 <GO>}

Perfect. Thanks very much.

A - Olivier Le Peuch {BIO 16885975 <GO>}

Thank you.

A - Stephane Biguet {BIO 18640415 <GO>}

Thank you

A - Olivier Le Peuch {BIO 16885975 <GO>}

So I believe we need to close the call. So before we close the call. I would like to leave you with few takeaways. Firstly, the quality of our results during the fourth quarter, partially the cash flow generation and our digital sales have helped us close a remarkable year, we finished with outperformance during 2021, supporting significant EBITDA margin expansion and very sizable reduction of our net debt. Credit to the entire Schlumberger team for outstanding execution across all basins and divisions. Secondly, our performance strategy execution has resulted in significant progress in the adoption of our digital platform, the deployment of out fit-for-basin and transition technology and the successful acceleration of our new energy venture, each developing towards a sizable addressable market.

Thirdly, during 2021, we have enhanced our market position with key customers ahead of the significant up cycle and we'll be fully benefit from the scale and breadth of the (Inaudible) activity mix unfolding across all basins during '22 and beyond. This has resulted in significant growth and further margin expansion and will support our double-digit free cash flow ambition.

Finally, the macro environment is increasingly supportive of a potential supercycle, as this side of the market condition extend both onshore and offshore well beyond 2022, we have increased confidence in enriching our mid cycle EBITDA margin, our mission of 25% in the second half of 2023.

Ladies and gentlemen, 2021 was a defining and transformative year for Schlumberger and 2022 presents a unique environment to substantially build upon our success and accelerate our growth into the future. Thank you very much.

Operator

Ladies and gentlemen, that does conclude your conference for today. Thank you for your participation and for using AT&T Teleconference service. You may now disconnect.

https://www.whitehouse.gov/briefing-room/statements-releases/2022/01/28/joint-statement-by-president-biden-and-president-von-der-leyen-on-u-s-eu-cooperation-on-energy-security/

Joint Statement by President Biden and President von der Leyen on U.S.-EU Cooperation on Energy Security

JANUARY 28, 2022•STATEMENTS AND RELEASES

We are jointly committed to Europe's energy security and sustainability and to accelerating the global transition to clean energy. We also share the objective of ensuring the energy security of Ukraine and the progressive integration of Ukraine with the EU gas and electricity markets.

The EU and the United States cooperate closely on energy policy, decarbonization and security of supply in the U.S.-EU Energy Council. The EU's and the United States' commitments to meet the goals of the Paris Agreement, through clean energy, in particular renewables, energy efficiency, and technologies, provide a path to energy security and reduced dependence on fossil fuels. The current challenges to European security underscore our commitment to accelerating and carefully managing the transition from fossil fuels to clean energy.

Over the last decade, the EU has invested in diversification of supply through infrastructure and reinforcement of its internal energy networks, increasing the resilience and flexibility of EU energy markets. The European Commission will intensify work with Member States for security of supply, within transparent and competitive gas markets in a manner compatible with long-term climate goals and reaching net-zero emissions by 2050.

While that process intensifies during this critical decade, we are committed to working closely together to overcome today's challenges of security of supply and high prices in energy markets.

We commit to intensifying our strategic energy cooperation for security of supply and will work together to make available reliable, and affordable energy supplies to citizens and businesses in the EU and its neighborhood.

The United States and the EU are working jointly towards continued, sufficient, and timely supply of natural gas to the EU from diverse sources across the globe to avoid supply shocks, including those that could result from a further Russian invasion of Ukraine. The United States is already the largest supplier of liquefied natural gas (LNG) to the EU. We are collaborating with governments and market operators on supply of additional volumes of natural gas to Europe from diverse sources across the globe. LNG in the short-term can enhance security of supply while we continue to enable the transition to net zero emissions. The European Commission will work for improved transparency and utilization of LNG terminals in the EU.

We intend to work together, in close collaboration with EU Member States, on LNG supplies for security of supply and contingency planning. We will also exchange views on the role of storage in security of supply.

More broadly, we call on all major energy producer countries to join us in ensuring world energy markets are stable and well-supplied. This work has already started, and we will take it forward at the meeting of the U.S.-EU Energy Council on February 7.

https://www.ft.com/content/8385f5d8-b045-46a7-a822-47a9ba09e219

Macron warns of threat to global economy from energy crisis

French president urges world leaders to act on climate change with more financial pledges ahead of COP26 summit

Leila Abboud in Paris and Leslie Hook in London YESTERDAY

President Emmanuel Macron has warned that an energy crisis threatens the world's post-pandemic recovery, calling for leaders at a G20 summit in Rome this weekend to work together to stabilise supplies.

In an interview, the French president also urged bigger financial commitments towards the fight against global warming on the eve of the COP26 climate summit in Scotland, and for particular attention to be paid to a deal to phase out coal power.

The G20 needed to co-ordinate between energy producers and consuming countries to prevent a supply breakdown this winter, which risked "extreme tensions both economically and socially", Macron said.

"In the coming weeks and months, we need to get better visibility and stability on prices so tension on the energy prices doesn't generate uncertainties, and undermine the global economic recovery, " he told the Financial Times in the Elysée Palace. "What we expect is to have co-ordination to avoid soaring prices."

Global energy costs have surged this year, disrupting industry and hitting consumers with higher prices. Eurozone inflation surged in October to a 13-year-high of 4.1 per cent, according to a flash estimate published by the EU's statistics arm on Friday.

"I don't think we're going to be able to lower prices given tensions on the demand side," Macron said. "But what we need to avoid is to have a break in supply [and further] increases in prices, particularly as we're moving into the winter period for the northern hemisphere."

Emmanuel Macron: 'I don't think we're going to be able to lower [gas] prices given tensions on the demand side' © Magali Delporte/FT

Rapid economic recovery from the pandemic has pushed up energy prices "almost too rapidly" which risked "weighing on economic growth and putting a burden on households", Macron said.

France and a number of other EU governments have sought to protect consumers and businesses with billions in aid and price freezes.

Concerns have mounted that Russia's state-backed gas producer Gazprom has kept storage levels unusually low in western Europe, exacerbating fears over supplies and driving up prices.

Asked whether he blamed high European energy prices on Russia, Macron said: "I have no evidence that there's been manipulation of prices and I'm not accusing anybody. These are trading relations. They shouldn't be used for geopolitical reasons."

Asked about Gazprom's power over Europe, Macron said: "It's not a matter of whether we're too dependent on a company or not, it's how do we create alternatives. And the only alternatives are to have European renewables and of course, European nuclear."

France is the EU's biggest user of nuclear power, contrasting with a move away from atomic power by Germany and some other countries.

Macron called for Europe to develop a more diverse gas supply but also to speed up a transition away from fossil fuels, which will be necessary to slow rising temperatures and tame the climate disruptions caused by global warming.

“What is happening now is ironic, because we are building a system where in the medium and long term fossil energy will cost more and more, that’s what we want [to fight climate change],” he said. “The problem is that industries and households will need to be accompanied in this transition . . . or it won’t be sustainable.”

The French president, who is facing national elections in April, has been a vocal advocate of multilateralism. He has pushed for more co-operation globally and at EU level to reach deals on issues including international taxation and global warming.

“The first subject for the G20 is to accelerate the exit from coal power” Emmanuel Macron

Against a backdrop of global tensions, a supply chain crisis and the Covid-19 pandemic, Macron said the G20 had a responsibility to work together, especially to help low-income countries. He urged leaders at the Rome summit to agree a plan for faster vaccine delivery to developing countries.

“France has always stressed the importance of maintaining multilateralism, but we have to get concrete results from it,” he said.

The leaders of China, Russia and Japan will not attend the summit in Rome in person this weekend because of Covid-19 concerns and an election in Japan.

Macron said the G20 meeting, which is being hosted by Italian leader Mario Draghi on the eve of COP26, would also give countries a chance to hammer out more ambitious plans to fight climate change.

“When we’ll be meeting in Rome, the major challenge is to ensure that members of G20 can usefully contribute in Glasgow, to making this COP26 a success,” he said. “Nothing can be taken for granted before a COP,” he added.

“The first subject for the G20 is to accelerate the exit from coal power,” he said. G20 leaders expect a heated debate this weekend over including a pledge to end international coal financing.

“We need the G20 to go right through to the eradication of all international financing of coal-fired power plants,” Macron said.

Macron also called for rich countries, particularly the US, to commit more financially to help developing countries meet their climate goals. And he called on China to bring forward the date at which it will peak emissions, from 2030, to 2025.

“So as not to lose more time, we have to do as much as is absolutely possible in terms of financing, and encourage the US administration so that they can convince Congress to front-load its financing.”

Another issue will be to hold countries to their emissions targets for 2030 and 2050. “Our objective is to get maximum results from all countries,” he said. “This pathway is possible, even if it’s a challenge, especially for emerging countries which at the same time are trying to recover from the Covid crisis.”

Macron also urged the G20 leaders to do more to help vaccinate the world against Covid-19. The group should end vaccine export bans, increase its donations of vaccine doses, and support vaccine production in Africa, he said.

“Every French person has given one vaccine to somebody else in the world,” he said, referring to the roughly 60m doses that were on the way to Covax, the World Health Organisation’s procurement scheme for low-income countries. “If everybody in the G20 could do that we would get to the 20 per cent of the population vaccinated. This is vital,” he said.

https://english.news.cn/20220125/2ac02a88b6854ff8b19561f91e2ca19d/c.html

Xi Focus: Xi stresses solid implementation of decisions, arrangements on carbon peaking, neutrality

Source: XinhuaEditor: huaxia2022-01-25 21:16:46

BEIJING, Jan. 25 (Xinhua) -- Xi Jinping, general secretary of the Communist Party of China (CPC) Central Committee, has stressed profoundly analyzing the country's situation and tasks on advancing the carbon peaking and carbon neutrality work, and making solid efforts to implement decisions and arrangements made by the CPC Central Committee.

Xi made the remarks on Monday while addressing a group study session of the Political Bureau of the CPC Central Committee.

Since the 18th CPC National Congress, the CPC Central Committee has achieved marked progress in boosting the green transition of social and economic development, Xi said, urging efforts to recognize the significance of realizing the carbon peaking and neutrality goals and beef up confidence on promoting the work.

Stressing the country's green pursuit is no easy job, Xi said strategic thinking must be improved as people should bear in mind the big picture throughout the whole process of delivering the carbon peaking and neutrality goals.

The relations between development and emission reduction must be properly handled, Xi said.

Cutting emissions is not aimed at curbing productivity or no emissions at all, Xi said, stressing that the economic development and green transition should be mutually reinforcing.

While bringing down carbon emissions, efforts should be made to safeguard energy security, industrial and supply chain security, and food security, as well as ensure people's normal daily lives, Xi said.

Xi stressed national and regional policy coordination and said the "one-size-fits-all" approach should not be adopted.

Both goals in the long run and short-term targets should be taken into account, Xi said, stressing efforts to get the right tempo and strength in carbon cut. He also urged the alignment of a capable government and an effective market.

Xi urged enabling China's institutional advantages, resources, technology potentials and market vitality to play better roles in accelerating the formation of resource-conserving and environment-friendly industrial structures, production modes, living styles and spatial layout.

Coordination should be strengthened to take concerted moves in reducing carbon emissions, cutting pollution, expanding green efforts and promoting growth, Xi said.

On advancing energy revolution, Xi noted that the gradual exit of traditional energy sources should be based on the safe and reliable substitution of new energy sources.

China should resolutely control fossil fuel consumption, especially regulating the growth of coal consumption in a strict and reasonable manner, Xi said.

China should consolidate the foundation for domestic energy production, ensure coal supply security, and keep steady growth of crude oil and natural gas output, according to Xi.

It is necessary to accelerate the development of new energy sources such as wind, solar, biomass and hydrogen energy that have scale and benefits, coordinate hydropower development and ecological protection, and actively develop nuclear power in a safe and orderly manner, according to Xi.

On industrial upgrading, Xi urged efforts to deepen integration between green and low-carbon industry and new technologies like internet, big data, artificial intelligence, and 5G.

Efforts should be made to increase the proportion of green and low-carbon sector in the Chinese economy while strictly curbing the blind expansion of energy-intensive, high emission and low-standard projects, he noted.

Xi also underscored accelerating green and low-carbon technological revolution, calling for efforts to advance related technological breakthroughs, research and development, and application.

The country should further improve the "dual control" system on both total energy consumption and energy intensity, as well as standards for carbon peaking and neutrality, and build a unified and standardized calculating system for carbon emissions, Xi said.

Xi called for efforts to fully leverage market mechanism, improve carbon pricing mechanism and strengthen coordination in trading of electricity, carbon emission rights and energy consumption rights.

China will take a more active role to participate in the global climate negotiations agenda and the formulation of international rules, with the aim of building a fair and equitable global climate governance system featuring mutually beneficial cooperation, Xi said. ■

Google Translate of http://www.gov.cn/premier/2021-10/11/content_5641907.htm

Li Keqiang presided over a meeting of the National Energy Commission, emphasizing on ensuring stable energy supply and safety, enhancing the ability to support green development and Han Zheng attended the meeting

2021-10-11 21:06 Source: Xinhua News Agency

Xinhua News Agency, Beijing, October 11th. On October 9, Li Keqiang, member of the Standing Committee of the Political Bureau of the CPC Central Committee, Premier of the State Council, and Director of the National Energy Commission presided over a meeting of the National Energy Commission to deploy energy reform and development work and deliberate the "14th Five-Year Plan" modern energy system plan. , Energy and carbon peak implementation plan, suggestions on improving the system and mechanism of energy green and low-carbon transition and policy measures, etc.

Han Zheng, member of the Standing Committee of the Political Bureau of the CPC Central Committee, Vice Premier of the State Council, and Deputy Director of the National Energy Commission attended the meeting.

On October 9, Li Keqiang, member of the Standing Committee of the Political Bureau of the CPC Central Committee, Premier of the State Council, and Director of the National Energy Commission hosted a meeting of the National Energy Commission in Beijing. Han Zheng, member of the Standing Committee of the Political Bureau of the CPC Central Committee, Vice Premier of the State Council, and Deputy Director of the National Energy Commission attended the meeting. Photo by Xinhua News Agency reporter Ding Haitao

At the meeting, the Development and Reform Commission and the Energy Administration made reports. Li Keqiang said that energy is a major issue related to the overall economic and social development. During the "Thirteenth Five-Year Plan" period, under the strong leadership of the Party Central Committee with Comrade Xi Jinping as the core, all parties worked together to achieve remarkable results in my country's energy development, structural optimization, and efficient and clean utilization. At present, the international environment and global energy structure and system are undergoing profound changes, and my country's energy development and security are facing new challenges. It is necessary to adhere to the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, implement the deployment of the Party Central Committee and the State Council, follow the requirements of building a new development pattern, building a new development pattern, and promoting high-quality development based on the new development stage, implement the new development concept, and proceed from the actual conditions of the country. Improve the relationship between development and emission reduction, current and long-term development, coordinate stable growth and structural adjustment, deepen market-oriented reforms in the energy sector, promote green and low-carbon transformation of energy, improve energy security capabilities, and provide solid support for modernization.

Li Keqiang pointed out that energy security is related to development security and national security. my country is still a developing country, and development is the foundation and key to solving all problems. At this stage, industrialization and urbanization are intensifying, and energy demand will inevitably continue to grow. Supply shortage is the biggest energy insecurity. We must build a modern energy system on the premise of ensuring safety, and strive to improve the ability of independent energy supply. Aiming at the endowment of coal-based energy resources, the layout of coal production capacity should be optimized, advanced coal-fired power should be constructed rationally according to development needs, and backward coal-fired power should be eliminated in an orderly manner. Increase domestic oil and gas exploration and development, actively develop shale gas and coalbed methane, and carry out diversified international oil and gas cooperation. Strengthen the construction of gas and oil storage capacity, promote the large-scale application of advanced energy storage technology, and continuously enrich the insurance tools for safe energy supply.

Li Keqiang said that achieving carbon peak and carbon neutrality is a requirement for the transformation and upgrading of my country's economy, and it is also a requirement for jointly responding to climate change. To advance the realization of the "dual carbon" goal in a scientific and orderly manner, long-term arduous efforts must be made. It is necessary to take into account the recent situation of dealing with the contradiction between power and coal supply and demand, in-depth calculations and demonstrations, and study and put forward the timetable and roadmap of the steps to reach the peak of carbon. All localities and all relevant parties must insist on breaking first and then breaking, insisting on a game of chess across the country, and not rushing away. Proceeding from reality, we should correct the “one size fits all” power restriction or campaign-style “carbon reduction” in some places, to ensure that the people in the north can survive the winter warmly and safely, and ensure the stability of the industrial supply chain and the sustained and stable economic development. Vigorously promote the clean utilization of coal, increase the proportion of clean energy, deepen the transformation of energy conservation and emission reduction in key areas, advocate energy conservation in the whole society, and continuously improve the capacity for green development.

Li Keqiang pointed out that innovation is an important driving force for the high-quality development of energy. It is necessary to speed up the research on key core technologies and equipment in the energy field, and strengthen the research and development of green and low-carbon cutting-edge technologies. Improve the intelligent level of the power grid, and enhance the ability to absorb new energy and safe operation. Improve tiered electricity prices, deepen reforms in key areas such as power transmission and distribution, rely more on market mechanisms to promote energy conservation, emission reduction and carbon reduction, and improve energy service levels.

Sun Chunlan, Hu Chunhua, Liu He, Wang Yong, Wang Yi, Xiao Jie, He Lifeng, and relevant units and heads of some enterprises attended the meeting.

https://www.aramco.com/en/news-media/speeches/2022/remarks-by-amin-nasser-at-the-iktva-forum-and-exhibition

Remarks by Amin H. Nasser at the 2022 IKTVA Forum and Exhibition

DHAHRAN, January 24, 2022

Amin H. Nasser, Saudi Aramco President & CEO
TAGS:
Ladies and gentlemen, as I'm sure everyone here knows – IKTVA is a program that is very dear to my heart.

Over the years, I've spoken of IKTVA's progress and its challenges. Of obstacles and opportunities. …

Of the value of resilience.

But more than words, the Covid pandemic has proven beyond any doubt the true value of a "Made in KSA" supply chain.

In fact, this is the second time we have witnessed this in real-time.

First, following the attacks on Abqaiq and Khurais. … Where the quick response of our supply chain enabled a rapid recovery that surprised the world.

And now, with a pandemic that is not yet behind us, we see the resilience we have created play out over years … not just days or weeks.

In many ways, IKTVA has weathered storm after storm, and it continues to prove that its structure is sound. …

Its foundation is strong.

Our progress to-date proves this.

But ladies and gentlemen, history will not judge us by the quality of the foundation we have built.

Many years from now, it will ask, "Does the structure still stand?"

"Did they finish what they started?"

I am here today to tell you that we must finish what we have started.

Because the stakes have never been higher.

I know the past two years have been extremely difficult … and put tremendous pressure on your businesses. … From the oldest and the largest companies, to the youngest start-ups.

But I want you to understand the crucial role you play … in the future of billions around the world who depend on this industry, and on Aramco.

We know that energy is the lifeblood of modern civilization.

And as the energy transition unfolds, oil and gas will remain essential in many ways. …Yet, this is not the popular narrative … which is built on un-realistic assumptions.

We are already seeing signs of an energy crisis in some parts of the world due to lack of investments.

Let me be very clear.

Aramco will never compromise on our reliability …

Because we will never back down from our responsibility.

In our deepest DNA, we honor a commitment to the billions around the world who depend on us.

And to “walk the talk” of words like “sustainability” and “reliability” and “responsibility” – you have to back that up with investment. …

You have to deliver on what you started.

Just look at our progress with unconventional gas at Jafurah – with an estimated 200 trillion standard cubic feet of gas in place. … Many doubted us.

Or in crude-to-chemicals, or non-metallic materials, or innovations in fuels and lubes and engine technology.

Or how we are working at the cutting edge of the Fourth Industrial Revolution.

But by any measure – and in any ambition – Aramco is only as strong as our supply chain.

So, we need IKTVA partners who share our sense of responsibility … and are equally ambitious about the future. …

And for those rising to meet the challenge, there are significant opportunities.

At the Forum this year, you will learn of more than 180 investment opportunities across 12 sectors to bridge a market gap of 15-billion dollars annually.

But we must also share a commitment to constant innovation.

In 2021, Aramco was among the Top-50 companies and universities in the world being granted U.S. patents. Five years ago, we were not even in the Top-300.

And innovation must extend through every link of the supply chain.

As you know, the Kingdom has announced its goal of Net-Zero greenhouse gas emissions by 2060. And Aramco has committed to achieve Net-Zero by 2050.

IKTVA partners must share our passion for sustainability and strengthen ESG performance.

At the same time, cyber-resilience is required to withstand one of our most serious threats.

So, IKTVA is incorporating both ESG and Cybersecurity domains to ensure we work as a true ecosystem. …

Because if there is one thing I am absolutely certain of …

It is that, regardless of what the future holds … we are stronger when we stand together.

Ladies and gentlemen, although IKTVA remains a “work-in-progress” … it is also work that has made tremendous progress.

I wish to thank His Excellency, Yasir Al-Rumayyan, and the members of Aramco’s Board of Directors for their unwavering support of IKTVA every step of the way.

Additionally, His Royal Highness Prince Abdulaziz bin Salman, Minister of Energy, his Ministry team, and all those within the government who are determined to make Saudi Arabia one of the brightest examples of localization in the 21st century.

With their support, we must work harder to finish what we have started.

With a foundation of localization …

And resilience as our blueprint …

We are building an ecosystem of critical importance.

One that will strengthen the resilience and diversification of the Kingdom’s economy …

And one that will ensure we meet our responsibility to the world, and the billions who depend on us.

For all these reasons, we must craft it with care. …

With the belief that generations from now, what we are building will still be standing strong.

Let us work together, and finish what we have started.

Thank you, and I wish you a wonderful Forum.

https://www.arabnews.jp/en/business/article_64204/

Japan to implement subsidy program to curb gasoline prices

25 Jan 2022 11:01:34 GMT9

TOKYO: Japanese industry minister Koichi Hagiuda said Tuesday that the government will put its new subsidy program aimed at curbing surging gasoline prices into place for the first time.

The average retail price of regular gasoline in Japan looks certain to have reached 170 yen per liter as of Monday, the first such development in about 13 years and four months, meeting the condition for activating the subsidy program. The latest average pump price, set to be announced by the industry ministry Wednesday, is forecast at 170.20 yen.

The move by the government is intended to mitigate the impact of surging gasoline prices on people's daily lives.

The subsidy program will start Thursday, providing oil wholesalers with 3.4 yen per liter of gasoline, gas oil, kerosene and fuel oil. The industry ministry will investigate retail price levels in terms of whether and to what extent the subsidies are reflected.

"While retail prices vary from region to region, we expect that the subsidies will help prevent a sharp rise in oil prices," Hagiuda said at a press conference.

The program is activated once regular gasoline prices hit 170 yen, with subsidies of up to 5 yen per liter given to oil distributors to help curb their wholesale prices and prevent a spike in retail prices at gas stations.

The actual level of subsidies is decided on the basis of factors including weekly regular gasoline price data from the ministry and crude oil price developments.

The program will be in place until March. About 80 billion yen has been secured for the program under the government's supplementary budget for fiscal 2021.

To examine the effects of the subsidies, the ministry will survey prices of oil products at about 32,000 gas stations and other outlets, up sharply from around 3,000 stores at present.

Crude oil prices remain high as the world economy is recovering and major oil-producing countries are cautious about increasing output.

The Japanese government created the subsidy program in December last year in response to spikes in gasoline and kerosene prices.

JIJI Press
Topics

Japan Quietly Endorses Fossil Fuel Investments Weeks After COP
2021-12-01 23:30:14.75 GMT

By Stephen Stapczynski and Tsuyoshi Inajima
(Bloomberg) -- It's been less than a month since world leaders pledged to combat climate change at the COP26 summit in Glasgow, yet Japan is already showing signs of putting the brakes on divestment from fossil fuels.
Government officials have been quietly urging trading houses, refiners and utilities to slow down their move away from fossil fuels, and even encouraging new investments in oil-and-gas projects, according to people within the Japanese government and industry, who requested anonymity as the talks are private.
The officials are concerned about the long-term supply of traditional fuels as the world doubles down on renewable energy, the people said. The import-dependent nation wants to avoid a potential shortage of fuel this winter, as well as during future cold spells, after a deficit last year sparked fears of nationwide blackouts.
Japan joined almost 200 countries last month in a pledge to step up the fight against climate change, including phasing down coal power and tackling emissions. However, the moves by the officials show the struggle to turn those pledges into reality, especially for countries like Japan which relies on imports for nearly 90% of its energy needs, with prices spiking partly because of the world's shift away from fossil fuel investments.
The nation has been slow to make any concrete commitments to phase out coal in the near term, and has often been criticized for its funding of overseas power plants that use the dirtiest burning fossil fuel. The government has also avoided joining efforts by developed nations to reduce consumption of natural gas.
Japan's Ministry of Economy, Trade and Industry declined to comment directly on whether it is encouraging industries to boost investment in upstream energy supply, and instead pointed to a strategic energy plan approved by Prime Minister Fumio Kishida's cabinet on October 22. That plan says "no compromise is acceptable to ensure energy security, and it is the obligation of a nation to continue securing necessary resources."
That latest strategy calls for the share of oil and natural gas produced either domestically or under the control of Japanese enterprises overseas to increase from 34.7% in fiscal year 2019 to more than 60% in 2040. Japanese officials plan to convey to other nations the importance attached to continued investments in upstream supply, the people added.
While Japan will likely avoid rolling blackouts or gasoline rationing this winter when demand for energy peaks in the region, the global energy crisis is leaving many within the government thinking about how to prepare for the future.
Japan is still expected to be highly dependent on fossil fuels for the next decade as there is limited available space to significantly expand solar power, and the nation's wind sector is developing slowly. It's also struggling to restart nuclear reactors in the wake of the Fukushima disaster.
To achieve net-zero emissions by 2050, the world needs to stop developing new gas, oil and coal fields, the International Energy Agency said in May. Japanese officials are echoing concerns highlighted by Australia last month, which said Europe's gas supply squeeze is proof that nations need to continue to add more production.
Japan's trading houses, including Sumitomo Corp. and Marubeni Corp., are aggressively divesting from fossil fuels amid an uncertain future for the energy sources and pressure from shareholders. These companies, formally known as "Sogo Shosha," have traditionally been among the biggest investors in oil and natural gas assets in order to bring the fuel to resource-poor Japan.
Oil prices had surged to the highest level since 2014 in October, which many Japanese government officials believe was exacerbated by a lack of investment in new supply, the people said. Meanwhile, liquefied natural gas prices have jumped to a record on the back of a global shortage, helping to push Japan's wholesale power rate to the highest level for this time of year.

--With assistance from Isabel Reynolds, Shoko Oda and Javier Blas.

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https://www.mofa.go.jp/press/release/press1e_000227.html

Video conference between Ms. Ono, Director General of Economic Affairs Bureau, Ministry of Foreign Affairs of Japan, and Dr. Birol, Executive Director of the International Energy Agency (IEA)

e-mail

November 9, 2021

Japanese

On November 9, Ms. ONO Hikariko, Director General of Economic Affairs Bureau, held a videoconference with Dr. Fatih Birol, Executive Director of the IEA.

1. At the outset, Ms. Ono expressed concern over the rapid surge in crude oil prices, which could hamper the global economic recovery from COVID-19. She stated that Japan is engaged in dialogues with oil-producing countries and would like to work closely with the IEA, which plays a central role in stabilizing the energy market.
2. In his response, Dr. Birol mentioned that he is closely watching the energy market including oil, and expressed the IEA's willingness to cooperate with member countries and oil-producing countries to work for stabilization of market. He also shared with Ms. Ono the IEA's analysis of the future energy market following the results of the OPEC Plus Ministerial Meeting held on November 4, 2021. He pointed out that the gap between supply and demand will continue to be tight in the short term, however, the supply and demand balance will improve around the turn of the year and the market will gradually regain stability.
   Furthermore, he underscored the need for additional investment to meet future demand, explaining that the demand for oil and natural gas will not drastically decrease even through our path towards transition to renewable energy. The two sides agreed to further strengthen cooperation to enhance energy security, including that of oil. Dr. Birol expressed his wish to visit Japan to exchange views with Japanese counterparts.
3. The two sides also exchanged views on acceleration of decarbonization efforts following COP26, and shared the importance on measures with pragmatic time frame based on individual circumstances that each countries face including its renewable energy potentials, while it is important to expand investment on renewable energy to achieve carbon neutral. In addition, the two sides frankly exchanged their views on Japan's funded initiative with the IEA for clean energy transition in resource producing countries, as well as on the Ministerial meeting scheduled to be held in February 2022.

Environmental Science & Technology

pubs.acs.org/est

Article

Methane and NO_x Emissions from Natural Gas Stoves, Cooktops, and Ovens in Residential Homes

Eric D. Lebel,* Colin J. Finnegan, Zutao Ouyang, and Robert B. Jackson

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ABSTRACT: Natural gas stoves in >40 million U.S. residences release methane (CH_4)—a potent greenhouse gas—through post-meter leaks and incomplete combustion. We quantified methane released in 53 homes during all phases of stove use: steady-state-off (appliance not in use), steady-state-on (during combustion), and transitory periods of ignition and extinguishment. We estimated that natural gas stoves emit 0.8−1.3% of the gas they use as unburned methane and that total U.S. stove emissions are 28.1 [95% confidence interval: 18.5, 41.2] Gg CH_4 $year^{-1}$. More than three-quarters of methane emissions we measured originated during steady-state-off. Using a 20-year timeframe for methane, annual methane emissions from all gas stoves in U.S. homes have a climate impact comparable to the annual carbon dioxide emissions of 500 000 cars. In addition to methane emissions, co-emitted health-damaging air pollutants such as nitrogen oxides (NO_x) are released into home air and can trigger respiratory diseases. In 32 homes, we measured NO_x (NO and NO_2) emissions and found them to be linearly related to the amount of natural gas burned ($r^2 = 0.76$; $p \ll 0.01$). Emissions averaged 21.7 [20.5, 22.9] ng NO_x J^{-1}, comprised of 7.8 [7.1, 8.4] ng NO_2 J^{-1} and 14.0 [12.8, 15.1] ng NO J^{-1}. Our data suggest that families who don't use their range hoods or who have poor ventilation can surpass the 1-h national standard of NO_2 (100 ppb) within a few minutes of stove usage, particularly in smaller kitchens.

KEYWORDS: *cooking, climate, combustion, pollutants, post-meter emissions, appliances, houses*

INTRODUCTION

Since 1750, methane (CH_4) has contributed about one-quarter of the world's radiative forcing,[1] and its concentration continues to rise.[2] Methane is a shorter-lived gas than carbon dioxide (CO_2) but is nevertheless 34−86 times more potent than carbon dioxide on 100 and 20 year timescales, respectively.[3]

Leaks of natural gas (>90% methane) across the ∼3 million miles of pipeline in the United States' supply chain[4] have been studied extensively.[5] However, comparatively little work has been done on emissions inside homes and buildings, so-called "post-meter" emissions. The United States Environmental Protection Agency (USEPA) Inventory of U.S. Greenhouse Gas Emissions and Sinks only documents leaks from residential gas meters and incomplete combustion from residential gas appliances, but more information is needed on methane leaks from transitory on−off phases and quiescent steady-state-off emissions, particularly from gas stoves.[6] Previous work found that appliances in Boston and Indianapolis—excluding pilot light emissions—were estimated to emit 0.038% of the natural gas they consumed.[7] A separate study in California found that whole-home post-meter residential emissions totaled 0.5% of residential natural gas consumption in the state.[8]

Natural gas is a popular fuel choice for home cooking. Nationally, over one-third of households (>40 million homes) cook with gas.[9] In some states, the proportion is substantially higher; over 60% of households in California cook with gas, for instance.[10] People interact more directly with their stove than with other gas appliances, increasing potential exposure to any

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https://www.enbridge.com/media-center/news/details?id=123711&lang=en

Lehigh Cement and Enbridge Agree to Advance a CO2 storage solution in Alberta

January 26, 2022

Momentum grows for Enbridge's proposed world-scale open access carbon storage hub in the Wabamun area, west of Edmonton, Alberta

CALGARY, AB, Jan. 26, 2022 /CNW/ - Lehigh Cement, a division of Lehigh Hanson Materials Limited (Lehigh) and Enbridge Inc. (Enbridge) (TSX: ENB) (NYSE: ENB) are pleased to announce a memorandum of understanding to collaborate on a carbon solution for Lehigh's cement manufacturing facility in Edmonton, Alberta.

Lehigh is developing North America's first full-scale carbon capture, utilization and storage (CCUS) solution for the cement industry at its Edmonton plant, with the goal of capturing approximately 780,000 tonnes of carbon dioxide (CO_2) annually. Captured emissions would be transported via pipeline and permanently sequestered by Enbridge. Subject to the award of carbon sequestration rights and regulatory approvals, the project could be in service as early as 2025.

With the support of Lehigh and Capital Power Corporation (Capital Power) with their local facilities, Enbridge will be applying to develop an open access carbon hub in the Wabamun area, west of Edmonton, Alberta, through the Government of Alberta's Request for Full Project Proposals process.

Combined, the emissions from Capital Power and Lehigh's planned carbon capture projects represent an opportunity to avoid nearly 4 million tonnes of atmospheric CO_2 emissions. Once built, the Open Access Wabamun Carbon Hub will be among the largest integrated CCUS projects in the world.

"At Lehigh Hanson, we believe that carbon capture and storage technology will play a key role in transforming the cement industry and building a more sustainable future," said Joerg Nixdorf, President of Lehigh Hanson's Canada Region. "We are excited about taking the next steps in our ambitious journey to achieving carbon neutrality across the cement and concrete value chain.

"Having a carbon hub solution in place by 2025 is essential for the successful implementation of the CCUS project at our Edmonton cement plant," Nixdorf added.

"Lehigh Cement's pioneering CCUS project is an exciting addition to our proposed Open Access Wabamun Carbon Hub, which is poised to support the decarbonization of multiple industries, including power generation, oil and gas, and now cement," said Colin Gruending, Enbridge Executive Vice President and President, Liquids Pipelines. "This collaboration demonstrates our focus on local, cost-effective, customer-focused carbon transportation and storage solutions that drive scale and competitiveness while minimizing infrastructure footprint to protect land, water and the environment."

"We applaud Lehigh and Enbridge in advancing plans for definitive climate action in Canada with this full chain CCUS initiative and we are proud to be a part of the carbon capture development at Lehigh's Edmonton cement plant," said Mark Demchuk, National Director, Strategy & Stakeholder Relations at the International CCS Knowledge Centre. "Collaborative CCUS solutions like this are a vital enabler of large-scale emissions reductions, across multiple industries, including cement production."

"The Cement Association of Canada (CAC) welcomes the announcement of an MOU between Lehigh Hanson and Enbridge for Lehigh's Carbon Capture Utilization and Storage project in Edmonton, Alberta. This is another positive step forward in the development of Lehigh Hanson's CCUS project, supporting an end-to-end solution for carbon capture and permanent storage," said Michael McSweeney, CAC President/CEO. "These types of partnerships on critical technologies like CCUS are how we will win the fight against climate change and demonstrate to Canadians and the world how our hard to abate industry will reach its net-zero ambition. We are so pleased to see this CCUS project moving forward."

https://www.nbim.no/en/the-fund/news-list/2022/very-good-results-in-2021/

Very good results in 2021

In 2021, the Government Pension Fund Global returned 14.5 percent, equivalent to 1,580 billion kroner.

27 January 2022

The return on the fund's equity investments was 20.8 percent, the return on the fixed-income investments was -1.9 percent, whereas investments in unlisted real estate returned 13.6 percent. The return on unlisted renewable energy infrastructure was 4.2 percent.

The fund's return was 0.74 percentage points higher than the return on the benchmark index, equivalent to 76 billion kroner.

"The good results are mainly due to very strong developments in the equity market throughout the year. There was good return in all sectors, but the investments in technology and financials performed particularly well. The investments in technology returned an impressive 30.2 percent", says CEO of Norges Bank Investment Management Nicolai Tangen.

Real estate also performed strongly in 2021, after a demanding year in 2020 due to the pandemic.

"The real estate sector has had a good recovery, with listed real estate companies having performed particularly well with a return of 26.8 percent", Tangen says.

The krone strengthened against several major currencies in course of the year. Currency movements contributed to a decrease in the fund's value of 25 billion kroner. In 2021, 129 billion kroner was withdrawn from the fund.

The fund had a value of 12,340 billion kroner as at 31 December 2021. 72.0 percent of the fund was invested in equities, 25.4 percent in fixed income, 2.5 percent in unlisted real estate, and 0.1 percent in unlisted renewable energy infrastructure.

Watch the press conference

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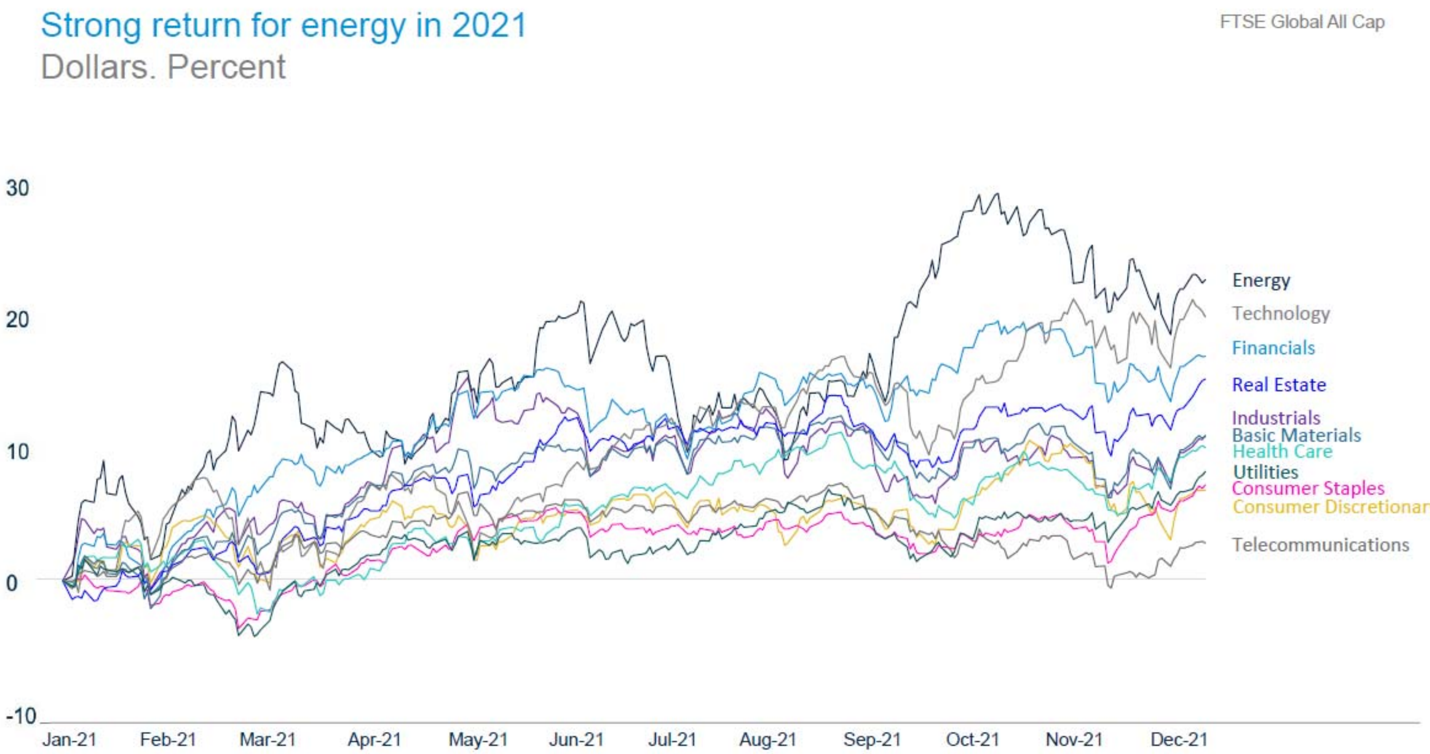
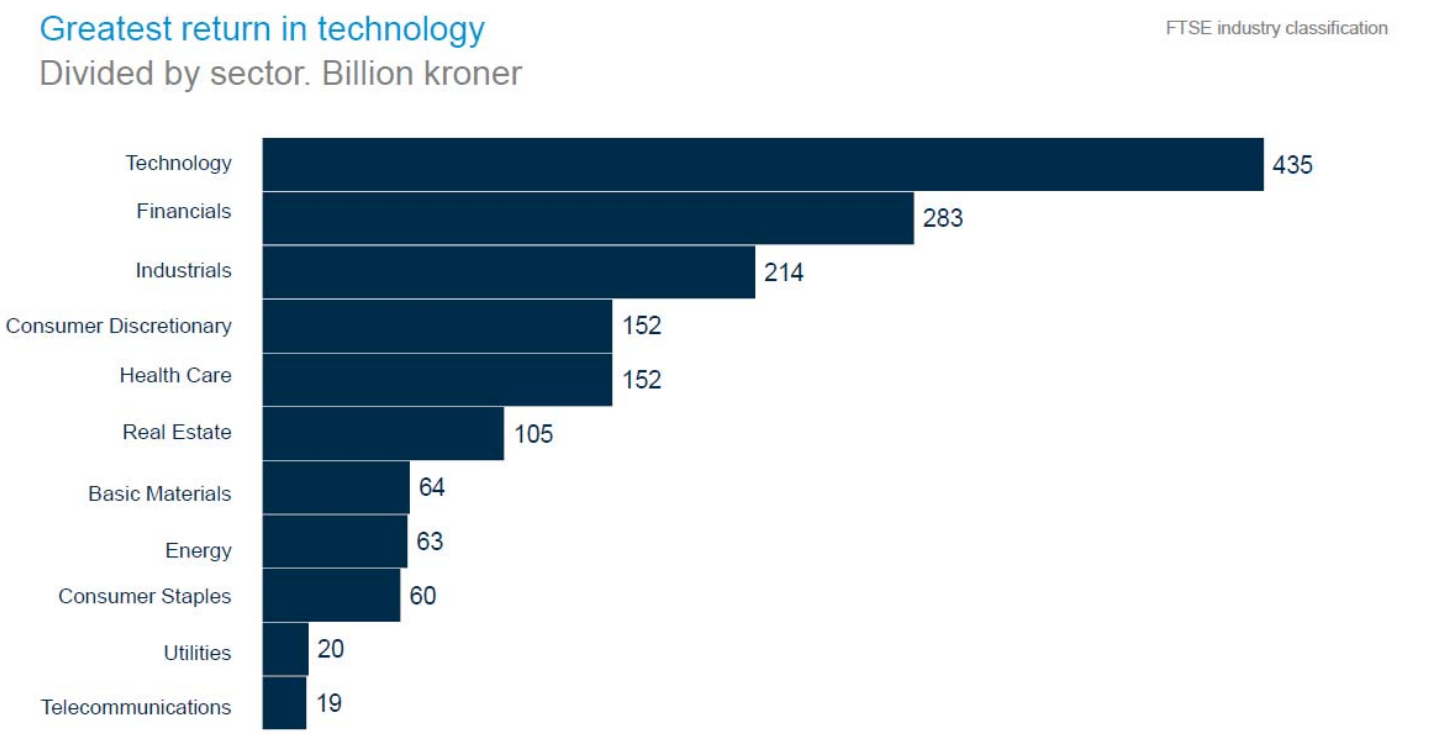
Norges Bank Investment Management
Government Pension Fund Global – Annual Results 2021 [LINK]





https://www.norges-bank.no/aktuelt/nyheter-og-hendelser/Foredrag-og-taler/2021/2021-12-21-borsum/

Ownership and climate risk in the GPFG - on the instruments for managing climate risk in the GPFG

Speech by Deputy Governor Øystein Børsum, 21 December 2021.

Actual performance may differ from published text

Introduction

Climate challenges are an engaging theme.

Figure: Emissions must be reduced

The world economy, as it operates today, is not sustainable. It must be, and then emissions must go down. It concerns us all - and not least our common fund. With a broadly diversified, global portfolio and a long horizon, we are in many ways burdened with the world economy.

Norges Bank is a financial investor. We will secure and create financial value for future generations. It is our task as manager of the fund. But how the assignment is carried out can also have an impact beyond the purely financial. Among other things, in the transition to a low-emission society. What our role should be - what our work should consist of - is what I want to talk about today.

This summer, an expert group submitted a report to the Ministry of Finance with recommendations on how climate risk should be managed in the fund. During the autumn, we at Norges Bank worked to assess the proposals and look at how they can be implemented.

A couple of days ago, the Executive Board sent its response to the Ministry of Finance. In the bank's management of climate risk, a lot is already being done, and we are outlining even more ambitious plans for the future. As a long-term and global investor with ownership interests in several thousand companies, we have a financial interest in the companies adapting to the risk and opportunities that climate change entails in a good way.

We propose that Norges Bank be a driving force for the companies we are invested in to adjust to net zero emissions over time - that the companies we invest in reflect the restructuring that the world has to go through.

The fund as an investor

Our characteristics as an investor

The climate risk in the fund is related to who we are as an investor and our overall investment strategy. In short: The fund is large, broadly diversified, long-term and close to the index.

Chart: Large, broadly diversified, long-term and index-linked

Of the fund's more than 12,000 billion, 70 per cent is invested in shares. With that, we are one of the world's largest shareholders. We are owners of 9000 companies in 70 countries.

And we are long-term. By using only the real return, the fund can in principle be perpetual.

The strategy is based somewhat simply on the following: If we are to achieve the best balance between expected return and risk, we must spread the investments widely and own a little of everything in the market. There is a solid professional basis for this approach.

How climate risk is relevant to the fund

What does this way of managing the fund have to say for the fund's climate risk? By spreading the investments widely, we are protected against incidents that only affect individual companies or special sectors. But we can not protect ourselves from events or developments that affect everyone.

The fund is exposed to two types of climate risk - physical risk and transition risk.

Transition risk is about whether the *companies* we own will manage the transition to a low-emission economy. Here the challenge is very different across sectors and companies.

Chart: Transition risk and the fund

The fund's equity investments can be categorized according to transition risk as assessed by the research company MSCI today. The blue bars in the figure show shares of the fund's portfolio. The white bars show the emissions in the companies. The companies that have ended up in the category «restructuring» have high emissions and must therefore restructure significantly. They make up 14 percent of the equity portfolio. The rest are companies that are either considered to be neutrally positioned or are considered to make a positive contribution to a green transition. The latter are thus part of the solution. [1]

Physical risk is more directly linked to climate change. The easiest to think about are acute events such as extreme weather, but also more gradual changes such as warmer climates, droughts and increased sea levels can affect individual investments in both negative and positive directions.

In a scenario where the world does not succeed in the transition to a low-emission economy, the risk increases, also for the fund, because the consequences of major climate change will be felt everywhere. As owners of shares, bonds and real assets, we are invested in everything from real estate and infrastructure, forestry and the food industry to all kinds of production capital. All of these are investments that can be affected by changes in the environment, including heat waves, floods and fires. We own a little of everything.

For a large, long-term, global fund, there will be nowhere to hide.

Climate risk is a long-term and important risk that the fund must deal with.

What does a long-term goal of net zero emissions mean for the fund?

A key recommendation from the expert group is that Norges Bank's responsible management be given a long-term goal of working towards net zero emissions from the companies in which the fund is invested. Norges Bank supports this recommendation.

Some may interpret this as a plan to sell shares in companies with large emissions.

But that is not our approach, nor is it the expert group's proposal. Instead of selling ourselves out, we will through active ownership be a *driving force* for the companies to adapt. In order to influence, we must actually be owners.

And we believe that ownership work works.

It works because we are big. Norges Bank is among the ten largest owners in about half of the companies we are invested in, and we have experienced that the companies listen when we talk.

Responsible management - a chain of instruments

Figure: Responsible management - a chain of instruments

Responsible management is our foremost tool in the work with climate risk and climate-related investment opportunities. I will now consider some important parts of this work. We are already doing a lot, and now we want to do even more.

The work can be grouped into three: The work we do towards the markets, towards the companies and with the portfolio. Together, this constitutes a coherent chain of instruments. I can not take a full review of the work here, but will highlight some points.

Default setting

The first point, standard setting, is about standards for reporting and measuring companies' climate risk.

Good common standards are important. This enables us as managers to assess the companies' prospects, prioritize ownership work and make good investment decisions.

But not just us. Better reporting will make the financial markets more well-functioning and better able to allocate capital. International standards provide equal conditions across markets and set the list for all companies. We, and other major investors, have an important role to play in contributing to the development of these standards.

Among the particularly important initiatives we have supported are climate reporting from the Task Force on Climate-Related Financial Disclosures (TCFD). Such reporting has been voluntary, but we believe that it must now become a requirement. Another issue we are working on is a comprehensive standard for sustainability reporting in line with the recently launched International Sustainability Standards Board (ISSB).

We will also work for good standards for reporting on companies' indirect emissions in the value chain, so-called "framework 3". In many sectors, this is crucial for understanding the companies' climate risk. We will also work with other climate-related issues where international standards may be appropriate. The use of various forms of climate quotas can be an example of this.

Our work with the companies starts with setting clear expectations.

We have formulated our expectations in our own expectations documents. In the climate area, we already expect companies to have a climate strategy, set emission targets, report on developments and stress test their business models against different climate scenarios. Going forward, it is natural for us to emphasize the horizon towards zero emissions. This will provide a clearer direction for the exercise of ownership.

Exercise of ownership

The exercise of ownership will be central to the work to manage the fund's climate risk. Not least, the dialogue with the companies is important.

Figure: Climate is more often a theme in the dialogue

The dialogue with the companies follows our expectations. Last year we had about 3,000 meetings with the companies, and as you can see from this figure, sustainability is increasingly on the agenda.

Going forward, we will increase ownership activity on climate, both in scope and depth.

We will give particular priority to ownership activity towards the companies that have the largest emissions, towards those that have not published their own climate plans or have inadequate climate reporting. We will also strengthen the ownership activity aimed at the financial sector, which is indirectly exposed to climate risk through lending and investments.

The dialogue is adapted to the sector and situation. Steel and cement are an example. These companies currently have large emissions, but are also manufacturers of products we also need in a low-emission society. Therefore, the dialogue is precisely about transition plans, much about the technological measures and investments needed for change. We also address the need for industry standards and lobbying, which is a significant challenge.

Figure: Companies report better on climate

We see signs that the work is working. For example, when we analyze the reporting from 1,500 companies, we see that the companies we have been actively involved in have made greater progress in reporting on climate strategy than the other companies. Of course, we should not take all the credit for these advances. But there is progress.

In the future, we will report more about the dialogue with the companies, what they are about and changes we see. That it is visible is a tool in itself.

Reporting and voting

The dialogue with the companies will not succeed in all cases. We can then hold the boards responsible for their decisions through our voting. This year, we have, among other things, in six cases voted against renewed confidence in board members due to inadequate management of climate risk. This sounds small, but in the future we will work to use this tool to a greater extent than today.

We have started by announcing our voting five days before the actual voting. What we do is noticed.

Another alternative is to promote shareholder proposals, alone or together with others. In the past year, we have supported 19 shareholder proposals on climate. One of those who gained a majority led to a large international company initiating work on reporting on emissions in the value chain ("Box 3"). Going forward, we will also consider promoting our own shareholder proposals.

Risk-based divestments

A last resort, when the exercise of ownership does not succeed, is the sale. It will not be the case that we automatically sell out if the ownership work does not succeed. But in some cases it can be the result.

Norges Bank can sell out of a company on a financial basis. This is what we call risk-based divestments. These are companies that we believe handle climate risk in a very deficient way - and thus provide an increased financial risk. This is about avoiding companies that we believe do not have sustainable business models.

Figure: More than half of the sales are related to climate

Risk-based divestments are active decisions made by Norges Bank, which draw on the fund's framework for deviations from the benchmark index. In the period 2012-2020, we have made more than 300 such sales, and more than half have been linked to climate change.

We are ready to do more of this in the future.

As a continuation of risk-based divestments, we have also begun to systematically assess companies' sustainability risk before entering the fund's benchmark index.

The fund is managed close to the index. Risk-based divestments will therefore mainly be relevant for smaller companies. For larger companies, we have more limited room for maneuver, as such sales will to a greater extent draw on the framework for deviations from the benchmark index.

The behavioral criterion

Figure - Responsible management - a chain of instruments

This takes me over to the second form of divestiture, namely exclusion on ethical grounds. The fund's ethical guidelines contain both a product-based coal criterion and a behavior-based climate criterion.

The latter includes companies that are linked to serious environmental damage or to an unacceptable degree lead to greenhouse gas emissions.

The Council on Ethics advises observing or excluding a company based on this criterion. Based on their recommendations, the Executive Board of Norges Bank makes the final decision based on these recommendations. A decision on exclusion means that the company is excluded from both the portfolio and the benchmark index. It therefore does not draw on our framework for deviations.

It is our experience that the practice of this criterion is complex and that it requires broad insight and detailed information about companies' activities and plans.

Norges Bank expects that we will - in light of the work I have talked about today - gather further detailed information about the companies' climate risk and climate plans. We will share this information with the Council on Ethics.

Downsizing or exclusion is the last link in the chain of instruments, but far from the most important. We plan for Norges Bank to be a driving force for the companies in the portfolio to adjust to net zero emissions over time. Active ownership is the key tool.

End

Before I conclude, I would like to mention that we invest in companies that can contribute to solutions to the climate challenges, both through the environmental mandates and in the rest of equity management. We are now also in the process of building up a portfolio of high-quality wind and solar power plants.

The first environmental mandates were established in December 2009, and have had positive learning effects for several parts of the organization. As we write in the letter to the ministry, we will in future draw more on the competence of the managers of the environmental mandates in other parts of the administration.

Overall: Our ambition is for us to be a leader in responsible management. In collaboration with other large investors, we will contribute to the development of standards and methods for reporting. We will strengthen our dialogue with companies about climate both in scope and depth, and utilize the entire toolbox we have as an investor. We will influence companies to take the restructuring seriously. We expect concrete plans, not empty words or greenwashing! And not least - we must have a clear voice in our ownership work.

Footnote

[1] The calculations are based on the analysis company MSCI's classification of companies' transition risk. 80 per cent of the market value of the fund's equity portfolio ends up in the group of companies that are neutrally exposed to transition risk.

PUBLISHED December 21, 2021 9:00 AM

https://www.cppinvestments.com/public-media/headlines/2021/cpp-investments-highlights-importance-of-decarbonizing-hard-to-abate-sectors-in-addressing-climate-change

CPP Investments highlights importance of decarbonizing hard-to-abate sectors in addressing climate change

• CPP Investments releases position outlining investors' role in enabling an economy-wide evolution to a low-carbon future
• Introduces new investment approach that will identify, fund and support companies in their effort to decarbonize

Toronto, CANADA (December 15, 2021) – Helping essential, high-emitting businesses decarbonize is critical to addressing climate change, according to a recent perspective published by Canada Pension Plan Investment Board (CPP Investments). The perspective, "Investing to enable an economy-wide evolution to a low-carbon future," highlights the opportunity decarbonization presents for long-term investors, noting the need to address a particularly serious obstacle to decarbonization: strategic sectors that are essential, high-emitting and hard-to-abate.

The perspective also outlines CPP Investments' new investment approach which aims to identify, fund and support companies that are committed to creating value by lowering their emissions over time, consistent with CPP Investments' time horizon advantage.

"High-emitting companies that successfully navigate the economy-wide evolution to a low-carbon future will preserve and deliver embedded value for patient long-term investors like CPP Investments," said Deb Orida, Global Head of Real Assets & Chief Sustainability Officer. "This new investment approach complements the Fund's ongoing commitment to investing in companies that have the potential to develop innovative climate technologies around the world and furthers our existing capabilities in technologies that enable the energy evolution."

Strategic sectors that are essential, high emitting and hard-to-abate within this investment approach include agriculture, chemicals, cement, conventional power, oil and gas, steel and heavy transportation. The successful decarbonization of these sectors is not only essential to meet wider net-zero ambitions, but also to sustain economic growth, stability and a responsible transition. CPP Investments plans to work in partnership with like-minded companies, industry leaders, investors, and other interested parties to build out a dedicated investment approach to support current and future portfolio companies in their evolution.

CPP Investments also released a related perspective today focusing on an additional key element of sustainable investing, "Financing a greener future," highlighting green bonds as part of the Fund's approach to deploying capital for projects with environmental benefits. The paper outlines how for green bonds to go from a fast-growing niche to a mainstream offering, standards will have to grow out of a mix of evolving draft rules into something closer to the bond market's extant framework for governing how debt is rated, issued and evaluated for performance. The imperative is to improve green bond standards and practices quickly. Doing so can help the financial sector realize its enormous potential for guiding capital toward investments that support the transition to a low-carbon economy while also boosting returns. In 2018, CPP Investments was the world's first pension fund to issue green bonds and has floated six more issuances since.

For more information, the "*Investing to enable an economy-wide evolution to a low-carbon future*" perspective can be found on the CPP Investments website here. The "*Financing a greener future*" paper can be found here.

About CPP Investments

Canada Pension Plan Investment Board (CPP Investments™) is a professional investment management organization that manages the Fund in the best interest of the more than 20 million contributors and beneficiaries of the Canada Pension Plan. In order to build diversified portfolios of assets, investments are made around the world in public equities, private equities, real estate, infrastructure and fixed income.

Headquartered in Toronto, with offices in Hong Kong, London, Luxembourg, Mumbai, New York City, San Francisco, São Paulo and Sydney, CPP Investments is governed and managed independently of the Canada Pension Plan and at arm's length from governments. At September 30, 2021, the Fund totalled $541.5 billion. For more information, please visit www.cppinvestments.com or follow us on LinkedIn, Facebook or Twitter.

THE INVESTMENT FUNDS INSTITUTE OF CANADA | L'INSTITUT DES FONDS D'INVESTISSEMENT DU CANADA

IFIC Monthly Investment Fund Statistics – December 2021

Mutual Fund and Exchange-Traded Fund Assets and Sales

January 25, 2022 (Toronto) – The Investment Funds Institute of Canada (IFIC) today announced investment fund net sales and net assets for December 2021.

Mutual fund assets totalled $2.077 trillion at the end of December 2021. Assets increased by $42.4 billion or 2.1% compared to November 2021. Mutual funds recorded net sales of $0.9 billion in December 2021.

ETF assets totalled $347.4 billion at the end of December 2021. Assets increased by $11.5 billion or 3.4% compared to November 2021. ETFs recorded net sales of $5.6 billion in December 2021.

Mutual Fund Net Sales/Net Redemptions ($ Millions)*

Asset Class	Dec. 2021	Nov. 2021	Dec. 2020	2021	2020
Long-term Funds					
Balanced	1,537	4,357	2,987	62,975	854
Equity	407	2,534	3,371	37,008	6,725
Bond	(1,381)	629	1,659	14,352	15,345
Specialty	169	418	338	5,764	5,787
Total Long-term Funds	731	7,937	8,355	120,098	28,712
Total Money Market Funds	149	(503)	(1,182)	(7,449)	2,080
Total	879	7,434	7,173	112,649	30,792

Mutual Fund Net Assets ($ Billions)*

Asset Class	Dec. 2021	Nov. 2021	Dec. 2020
Long-term Funds			
Balanced	1,022.5	1,000.2	874.4
Equity	745.0	725.9	593.4
Bond	260.9	260.4	246.4
Specialty	21.9	21.5	34.9
Total Long-term Funds	2,050.2	2,008.0	1,749.1
Total Money Market Funds	26.3	26.2	34.4
Total	2,076.6	2,034.2	1,783.5

* Please see below for important information regarding this data.

ETF Net Sales/Net Redemptions ($ Millions)*

Asset Class	Dec. 2021	Nov. 2021	Dec. 2020	2021	2020
Long-term Funds					
Balanced	296	265	310	3,984	2,034
Equity	3,326	3,943	1,937	34,525	23,777
Bond	1,208	146	1,072	12,352	11,059
Specialty	520	862	(25)	8,498	1,805
Total Long-term Funds	5,350	5,216	3,294	59,359	38,675
Total Money Market Funds	276	(106)	568	(691)	2,782
Total	5,626	5,111	3,861	58,668	41,457

ETF Net Assets ($ Billions)*

Asset Class	Dec. 2021	Nov. 2021	Dec. 2020
Long-term Funds			
Balanced	12.1	11.7	7.2
Equity	225.5	215.6	158.4
Bond	89.6	87.8	79.3
Specialty	13.6	14.5	5.2
Total Long-term Funds	340.8	329.6	250.0
Total Money Market Funds	6.6	6.3	7.3
Total	347.4	335.9	257.3

* Please see below for important information regarding this data.

IFIC direct survey data (which accounts for approximately 91% of total mutual fund industry assets) is complemented by data from Investor Economics to provide comprehensive industry totals.

IFIC makes every effort to verify the accuracy, currency and completeness of the information; however, IFIC does not guarantee, warrant, represent or undertake that the information provided is correct, accurate or current.

*** Important Information Regarding Investment Fund Data:**

1. Mutual fund data is adjusted to remove double counting arising from mutual funds that invest in other mutual funds.
2. ETF data is not adjusted to remove double counting arising from ETFs that invest in other ETFs.
3. The Balanced Funds category includes funds that invest directly in a mix of stocks and bonds or obtain exposure through investing in other funds.
4. Mutual fund data reflects the investment activity of Canadian retail investors.
5. ETF data reflects the investment activity of Canadian retail and institutional investors.

About IFIC

The Investment Funds Institute of Canada is the voice of Canada's investment funds industry. IFIC brings together 150 organizations, including fund managers, distributors and industry service organizations, to foster a strong, stable investment sector where investors can realize their financial goals. By connecting Canada's savers to Canada's economy, our industry contributes significantly to Canadian economic growth and job creation. To learn more about IFIC, please visit www.ific.ca.

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https://www.cnn.com/2022/01/26/business/oscar-mayer-hot-dogs-velveeta-cheese-kraft-heinz/index.html

Exclusive: Oscar Mayer hot dogs and Velveeta cheese will get more expensive

By Nathaniel Meyersohn, CNN Business
Updated 11:38 AM ET, Wed January 26, 2022

New York (CNN Business) The makers of top food and consumer goods brands plan to raise prices in the spring, dashing shoppers' hopes for a quick drop in their grocery bills.

Kraft Heinz (KHC) said in a recent letter to its customers that it will raise prices in March on dozens of products, including Oscar Mayer cold cuts, hot dogs, sausages, bacon, Velveeta cheese, Maxwell House coffee, TGIF frozen chicken wings, Kool-Aid and Capri Sun drinks.

The increases range from 6.6% on 12oz Velveeta Fresh Packs to 30% on a three-pack of Oscar Mayer turkey bacon. Most cold cuts and beef hot dogs will go up around 10% and coffee around 5%. Some Kool-Aid and Capri Sun drink packs will increase by about 20%.

"As we enter 2022, inflation continues to dramatically impact the economy," Kraft Heinz said in a letter dated January 24 to at least one of its wholesale customers that was viewed by CNN Business. The wholesaler shared the letter on the condition of anonymity to protect the company's relationship with its suppliers.

Kraft Heinz is the latest consumer manufacturer to announce plans to boost prices early in the year. Last week, Procter & Gamble (PG) said that it was raising prices for its retail customers by an average of about 8% in February on Tide and Gain laundry detergents, Downy fabric softener and Bounce dryer sheets. Conagra (CAG), which makes such brands as Slim Jim, Marie Callender's and Birds Eye, recently said it will raise prices later this year as well.

If retailers decide to pass on any of the increased costs, these items will be more expensive for shoppers in stores. US consumer prices rose 7% annually in December, the steepest climb in 39 years.

Kraft Heinz has already raised prices on some of these same foods in recent months.

In October, the company said it would increase prices on Oscar Mayer cold cuts and hot dogs. In November, it said prices on Oscar Mayer beef, lean beef and Angus hot dogs, cheese dogs and other products would go up by around 9%.

But since those November hikes, Kraft Heinz said in the letter, it has faced "constrained supply, logistic bottlenecks and weather-driven crop losses." The company's costs have increased, including on raw ingredients and freight, leading it to bump prices yet again.

The US producer price index, a gauge for prices manufacturers are paying, rose 9.7% annually in December.

A Kraft Heinz spokesperson said the company was raising prices on the products experiencing the greatest cost pressures, adding that "pricing is not the only thing we're doing to combat inflation."

The company is adding larger package sizes and more affordable price points on some items, the spokeperson said.

Higher prices for groceries are putting pressure on many Americans' household budgets, forcing some to change how they shop for food and essentials.

Some shoppers are responding by trimming the number of products they're buying and trading down to less-expensive, private-label brands, according to businesses, market data, public surveys and interviews with customers. Others are switching to cheaper stores.

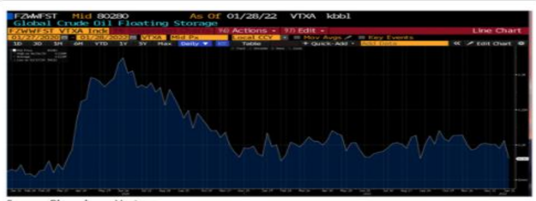
Dan Tsubouchi @Energy_Tidbits · 1h

great morning view in #Canmore on the Canadian Rockies. looking east over the Bow River.

1 6

Dan Tsubouchi @Energy_Tidbits · 17h

#Vortexa crude #Oil floating storage for 01/28 est 80.28 mmb, big -25.77 WoW decline vs 106.05 mmb at 01/21. Will want to watch to see if revised up this week as 80 mmb is a big outlier to last two mths ~100 mmb. Thx @Vortexa @TheTerminal #OOTT



Source: Bloomberg, Vortexa

Jan 29, 3pm MT Estimate

FZWWFST VTXA Index

01/27/2020 - 01/28/2022

	Date	FZWWFST VT... Mid Px
Fr	01/28/2022	80280
Fr	01/21/2022	106.046k
Fr	01/14/2022	94949
Fr	01/07/2022	100.626k
Fr	12/31/2021	100.49k
Fr	12/24/2021	102.329k
Fr	12/17/2021	100.961k
Fr	12/10/2021	94808
Fr	12/03/2021	92470
Fr	11/26/2021	100.775k
Fr	11/19/2021	113.997k

Jan 22, 2pm MT Estimate

FZWWFST VTXA Index

01/20/2020 - 01/21/2022

	Date	FZWWFST VT... Mid Px
Fr	01/21/2022	105.34k
Fr	01/14/2022	92319
Fr	01/07/2022	99648
Fr	12/31/2021	99274
Fr	12/24/2021	99329
Fr	12/17/2021	97642
Fr	12/10/2021	94770
Fr	12/03/2021	91781
Fr	11/26/2021	100.434k
Fr	11/19/2021	112.382k
Fr	11/12/2021	111.712k

Source: Bloomberg, Vortexa

5 7

SAF

Dan Tsubouchi @Energy_Tidbits · Jan 29

Did #Biden #VonderLeyen have a #MacronMoment? #FossilFuels commitment now also incl "and carefully managing the transition from fossil fuels to clean energy". carefully managing = we need to slow down #EnergyTransition or energy crisis for 2020s. Positive for #Oil #NatGas. #OOTT

https://www.whitehouse.gov/briefing-room/statements-releases/2022/01/28/joint-statement-by-president-biden-and-president-von-der-leyen-on-u-s-eu-cooperation-on-energy-security/

Joint Statement by President Biden and President von der Leyen on U.S.-EU Cooperation on Energy Security

JANUARY 28, 2022-STATEMENTS AND RELEASES

We are jointly committed to Europe's energy security and sustainability and to accelerating the global transition to clean energy. We also share the objective of ensuring the energy security of Ukraine and the progressive integration of Ukraine with the EU gas and electricity markets.

The EU and the United States cooperate closely on energy policy, decarbonization and security of supply in the U.S.-EU Energy Council. The EU's and the United States' commitments to meet the goals of the Paris Agreement, through clean energy, in particular renewables, energy efficiency, and technologies, provide a path to energy security and reduced dependence on fossil fuels. The current challenges to European security underscore our commitment to accelerating and carefully managing the transition from fossil fuels to clean energy.

Over the last decade, the EU has invested in diversification of supply through infrastructure and reinforcement of its internal energy networks, increasing the resilience and flexibility of EU energy markets. The European Commission will intensify work with Member States for security of supply, within transparent and competitive gas markets in a manner compatible with long-term climate goals and reaching net-zero emissions by 2050.

While that process intensifies during this critical decade, we are committed to working closely together to overcome today's challenges of security of supply and high prices in energy markets.

We commit to intensifying our strategic energy cooperation for security of supply and will work together to make available reliable, and affordable energy supplies to citizens and businesses in the EU and its neighborhood.

The United States and the EU are working jointly towards continued, sufficient, and timely supply of natural gas to the EU from diverse sources across the globe to avoid supply shocks, including those that could result from a further Russian invasion of Ukraine. The United States is already the largest supplier of liquefied natural gas (LNG) to the EU. We are collaborating with governments and market operators on supply of additional volumes of natural gas to Europe from diverse sources across the globe. LNG in the short-term can enhance security of supply while we continue to enable the transition to net zero emissions. The European Commission will work for improved transparency and utilization of LNG terminals in the EU.

We intend to work together, in close collaboration with EU Member States, on LNG supplies for security of supply and contingency planning. We will also exchange views on the role of storage in security of supply.

More broadly, we call on all major energy producer countries to join us in ensuring world energy markets are stable and well-supplied. This work has already started, and we will take it forward at the meeting of the U.S.-EU Energy Council on February 7.

Dan Tsubouchi @Energy_Tidbits · Dec 9, 2021

Time for #2022Predictions. My #1 is more #EnergyTransition #NetZero leaders come out of closet, have a #MacronMoment ie. have "transition" not self inflicted shortage so 2021 energy crisis isn't every year. A return to #EnergySecurity = #Oil #NatGas #LNG strong thru 2030. #OOTT twitter.com/Energy_Tidbits...

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Dan Tsubouchi @Energy_Tidbits · Jan 28

#JCPOA. "we're in the ballpark of a possible deal" says @brett_mcgurk. @StateDeptSpox doesn't shoot it down. more Iran & VEN #Oil exports may be last play for #Biden to keep oil prices down going into mid-terms. Thx @JacobMagid. #OOTT

https://www.timesofisrael.com/liveblog-january-27-2022/

US in 'ballpark' of possible deal with Iran over nukes, senior official says

A senior White House official says the US and Iran are "in the ballpark of a possible [nuclear] deal" in Vienna.

"We're in the ballpark of a possible deal. But again, I'm not going to put odds on this. There's [also] a very real chance that these talks could collapse very soon," White House National Security Council coordinator for the Middle East Brett McGurk says during an event hosted by the Carnegie Endowment for International Peace.

https://www.state.gov/briefings/department-press-briefing-january-27-2022/

Department Press Briefing – January 27, 2022

NED PRICE, DEPARTMENT SPOKESPERSON

JANUARY 27, 2022

QUESTION: Ned, I have two questions, one on Iran. White House NSC Coordinator Brett McGurk said today that they are in the ballpark (inaudible) possible deal to return to the 2015 nuclear agreement. Can you elaborate on that? When do we expect the deal with Iran? Is it imminent? It will take time?

MR PRICE: Michel, you've heard us say this before: We are engaged indirectly in negotiations in Vienna because of a couple things. We believe that a mutual return to compliance with the JCPOA is – remains as of this moment the best means by which to reinstall those permanent, verifiable restrictions on Iran's nuclear program; and second, we're engaged in this process because we believe a mutual return to compliance is still possible. We believe the window of opportunity remains open.

Now, that window is closing. It is becoming narrower and narrower. I don't want to characterize precisely where we are beyond what you've heard us say during the course of this round, and that is to say that there has been some progress achieved. But if we are to get there, that progress needs to outpace the speed with which Tehran's nuclear program has moved forward, has advanced. So we need to see progress be more than modest. We need to see it be more than incremental. We need to see that progress continue and quicken if we are going to get there in time to effect a mutual return to compliance with the JCPOA.

1 1 6

Dan Tsubouchi @Energy_Tidbits · Jan 28

as usual. get the extra value add insights from @ericnuttall. everyone is now talking his bull #Oil stocks story for 2022 but he reminds that, even within a top return sector, there are ways within that sector to get the best returns. #OOTT

> **Eric Nuttall** @ericnuttall · Jan 27
>
> Curious how the Ninepoint Energy Fund is positioned for 2022 and why we remain bullish on oil? Here is a 14 minute monologue that I recorded yesterday. ninepoint.com/commentary/com...
>
> Eric Nuttall - 2021 Review & 2022 Outlook
>
> Video Commentary - Ninepoint Energy Fund
>
> Print
>
> Subscribe

19

Dan Tsubouchi @Energy_Tidbits · Jan 28

Peak GoM #Oil #NatGas supply is now assured. Looks like end of GoM #Oil #NatGas lease sales under #Biden. "documented serious deficiencies" "need to take the time to make significant & long overdue programmatic reforms". Also will these reforms impact more than lease sales? #OOTT

> **Melissa Schwartz** @MSchwartz3 · Jan 27
>
> Statement from @Interior regarding the U.S. District Court of DC's decision regarding Lease Sale 257:
>
> "As the Department has stated previously, to comply with the injunction imposed in the District Court of Louisiana litigation we were compelled to proceed with Lease Sale 257 based on the previous administration's environmental analysis and its decision to approve the lease sale. We are reviewing the Court's decision concerning deficiencies in that record.
>
> "Our public lands and waters must be protected for generations to come. We have documented serious deficiencies in the federal oil and gas program. Especially in the face of the climate crisis, we need to take the time to make significant and long overdue programmatic reforms. Our work will be guided by the law, science and sound policy. That's why the President called for a pause on leasing in his Executive Order, and why we are appealing the decision enjoining implementation of the pause."

1 2 9

SAF

Dan Tsubouchi @Energy_Tidbits · Jan 28

Reminder why 2022 #Oil upside is still to come. #OPEC members Angola & Nigeria near term loadings are declining, not increasing to try to get to their quota. How much OPEC+ spare capacity will be left as demand returns to pre-Covid? Thx @Bill_Lehane. #OOTT

bullet.)
* Nigeria to lower Forcados crude loadings to 155k b/d in March, the lowest for any month since September 2020, according to a schedule seen by Bloomberg.
* Drops from 204k b/d for February
** March plan includes five shipments carrying 4.8m bbl, down from six cargoes totaling 5.7m bbl in February
* READ (Jan. 5): OPEC Output Boost Severely Limited as African Members Struggle
* Antan loadings at 31k b/d for March, first exports since December
* No shipments expected of Okwori crude for a third month in March
* See DATA LOAD for data library of crude loading schedules

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Fred Pals, Christopher Sell
To view this story in Bloomberg click here:
https://blinks.bloomberg.com/news/stories/R6EUMLT1UM0Y

Angola to Cut Oil Exports to 1.05M B/D in March: Final Plan
2022-01-26 11:31:44.948 GMT

By Bill Lehane
(Bloomberg) -- Angola plans to reduce oil exports in March to 1.05m b/d, the lowest level since November, according to a final loading schedule seen by Bloomberg.
* Drops from 1.1m b/d for February
* March plan includes 34 cargoes carrying a combined volume of 32.65m bbl
** NOTE: The final schedule removes a 1m-bbl cargo of Plutonio that was listed in the preliminary schedule of 35 shipments, released earlier this month

To contact the reporter on this story:
Bill Lehane in London at blehane@bloomberg.net
To contact the editors responsible for this story:

9 18

SAF

Dan Tsubouchi @Energy_Tidbits · Jan 27

concern on Florida citrus crop, higher grocery bills. But whenever i hear orange juice futures +29% YTD , can't help think of the 1983 classic @dan_aykroyd #EddieMurphy Trading Places.

Breaking Weather by AccuWeather @breakingweather · Jan 27

Forecasters say there is a serious concern for citrus and berry crops in Florida amid the hard freeze forecast to set in Saturday night. bit.ly/3AF8fsj

2 9

Dan Tsubouchi @Energy_Tidbits · Jan 27

#Energy was top performing sector for return for Norway wealth fund. Unfortunately, fund didn't have a big energy position. A common underperformance for most generalist institutional investors. #OOTT #NatGas #Oil

nbim.no/contentassets/...

Dan Tsubouchi @Energy_Tidbits · Jan 27

Norway wealth fund highlights its equities returned 20.8% in 2021 especially technology & financials stocks, tech an impressive 30.2%. Details not yet posted. Guess they just don't want to give credit to #Oil #NatGas stocks returns? Equinor shares were ...

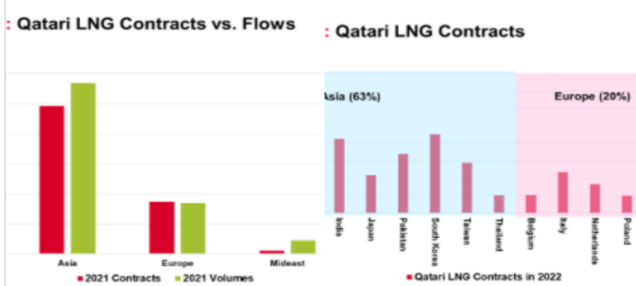
1 4 11

Dan Tsubouchi @Energy_Tidbits · Jan 27

Excellent breakdown of Qatar #LNG contracts incl how much portfolio LNG might be available to help Europe. Thx @ira_joseph #OOTT

Ira Joseph @ira_joseph · Jan 26

A couple of charts in support. Qatar largely sends #LNG where it's contracted & portfolios provide swing. In 2021, portfolions swung largely to Asia. In 2022, the contract structure is similar, so buyers & sellers will have to agree (read benefit) from wholesale swings in flows. twitter.com/ntsafos/status...



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Dan Tsubouchi @Energy_Tidbits · Jan 27

Norway wealth fund highlights its equities returned 20.8% in 2021 especially technology & financials stocks, tech an impressive 30.2%. Details not yet posted. Guess they just don't want to give credit to #Oil #NatGas stocks returns? Equinor shares were +60% in 2021? #OOTT

https://www.nbim.no/en/the-fund/news-list/2022/very-good-results-in-2021/

Very good results in 2021

In 2021, the Government Pension Fund Global returned 14.5 percent, equivalent to 1,580 billion kroner.

27 January 2022

The return on the fund's equity investments was 20.8 percent, the return on the fixed-income investments was -1.9 percent, whereas investments in unlisted real estate returned 13.6 percent. The return on unlisted renewable energy infrastructure was 4.2 percent.

The fund's return was 0.74 percentage points higher than the return on the benchmark index, equivalent to 76 billion kroner.

"The good results are mainly due to very strong developments in the equity market throughout the year. There was good return in all sectors, but the investments in technology and financials performed particularly well. The investments in technology returned an impressive 30.2 percent", says CEO of Norges Bank Investment Management Nicolai Tangen.

Real estate also performed strongly in 2021, after a demanding year in 2020 due to the pandemic.

"The real estate sector has had a good recovery, with listed real estate companies having performed particularly well with a return of 26.8 percent", Tangen says.

The krone strengthened against several major currencies in course of the year. Currency movements contributed to a decrease in the fund's value of 25 billion kroner. In 2021, 129 billion kroner was withdrawn from the fund.

The fund had a value of 12,340 billion kroner as at 31 December 2021. 72.0 percent of the fund was invested in equities, 25.4 percent in fixed income, 2.5 percent in unlisted real estate, and 0.1 percent in unlisted renewable energy infrastructure.

Watch the press conference

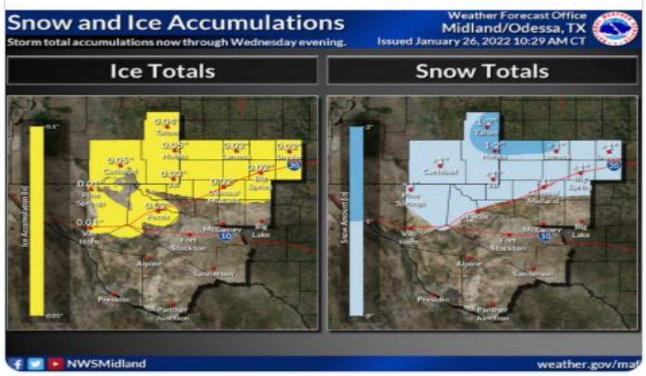
2 2 8

Dan Tsubouchi @Energy_Tidbits · Jan 26

Probably should expect some operational delays, rig/frac spread moves delays, some freeze offs with below freezing overnight and snow in parts of the Permian. #OOTT

NWS Midland @NWSMidland · Jan 26

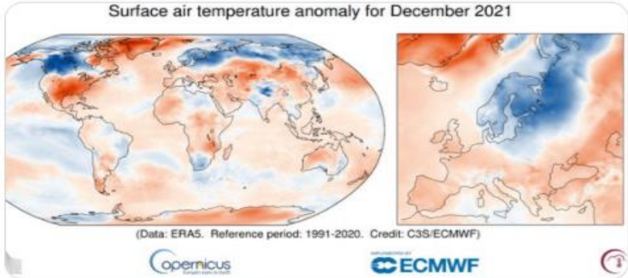
Here's a look at the expected ice & snow accumulations through this afternoon and evening. Potential light ice accumulations now extend through much of the Permian Basin with about 1 inch of snow for Hobbs and Tatum. #txwx #nmwx



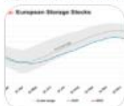
1 6

Dan Tsubouchi @Energy_Tidbits · Jan 26

imagine how low EU storage would be if Dec hadn't been hot in EU & Asia to reduce #NatGas consumption. With less needed in Asia, #LNG cargos could be redirected to EU. Warm Dec saved EU from gas shortage, but not expensive ~$25/mcf gas price. Thx @JHuckstepp for graph. #OOTT



James Huckstepp @JHuckstepp · Jan 25

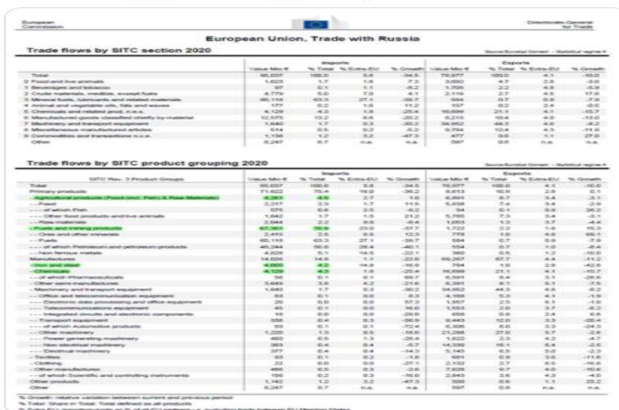


European gas stocks remain at record lows for time of year, in spite of the recent LNG influx. This leaves little buffer to cover any other demand spikes (below normal temps..) or supply disruptions over the coming months

2 · 6

Dan Tsubouchi @Energy_Tidbits · Jan 26

listening to this, can't help wonder on 2023/24 post mortem on #Biden maximum pressure on RUS. will there be less EU dependence on RUS for #NatGas #Oil #Metals #Steel #Chemicals #Agriculture and just higher replacement supply costs? or supply shortage? #OOTT



Press TV @PressTV · Jan 26

Iran state-affiliated media

The maximum pressure campaign against Iran was an abject failure. Everything that it promised, the opposite ended up coming true, says US State Department Spokesman Ned Price.

2 · 2

Dan Tsubouchi @Energy_Tidbits · Jan 26

For those not near their laptop. @EIAgov weekly #Oil #Gasoline #Distillates inventory data as of Jan 21 just out. Prior to release, WTI was $87.10. #OOTT.

ir.eia.gov/wpsr/overview....

Inventory Jan 21: EIA, Bloomberg Survey Expectations,

s)	EIA	Expectations
	2.38	1.00
	1.30	1.90
	-2.80	-1.18
	0.88	1.72

mmercial so builds in impact of 1.2 mmb draw from SPR for

l in the data, Cushing had a draw of 1.82 mmb for Jan 21 we

loomberg

AF Group

3

Dan Tsubouchi @Energy_Tidbits · Jan 26

"Cutting emissions is not aimed at curbing productivity or no emissions at all Xi said" & "gradual exit of traditional energy sources should be based on the safe and reliable substitution of new energy sources". Fits China priority is energy security for economy #OOTT #NatGas

Dan Tsubouchi @Energy_Tidbits · Oct 8, 2021

Must read, bullish for #NatGas #Coal #Oil this winter with China priority to ensure energy security for economy. Incl priority for coal generation, "actively promote the construction of coal, natural gas, crude oil reserves and storage capacity", and more. #OOTT

1 2 3

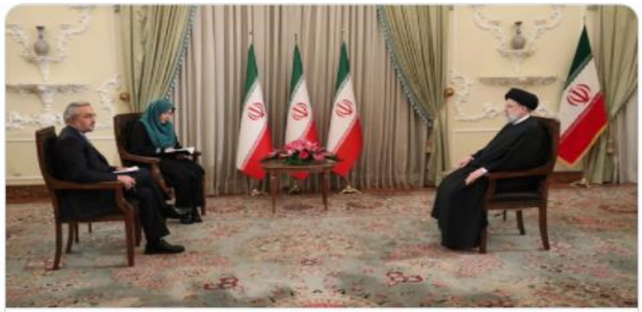
Dan Tsubouchi @Energy_Tidbits · Jan 26

Nail biter in @AustralianOpen Time to switch away from business news. 🇨🇦 🇨🇦 @felixtennis is 1-1 in the @AustralianOpen 5th set vs #2 ranked Medvedev. match is now 4 hrs long.

2 4

Dan Tsubouchi @Energy_Tidbits · Jan 25

Iran's response to US running out of time for #JCPOA revival. "If the other party [US] removes the sanctions, there will be a possibility to revive the pact" says Iran President Raeisi. 2 wks til 43rd anniversary of Iran revolution success 02/11/79. #OOTT



presstv.ir

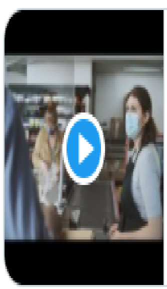
Iran will consider direct talks after US removes all sanctions: Raeisi

President Raeisi says the United States should first remove its oppressive sanctions against the Iranian nation before speaking of ...

2 2

Dan Tsubouchi @Energy_Tidbits · Jan 25

A 30 second commercial that should get you thinking for much longer. Unfortunately, with our aging population, this will be something that will inevitably impact families and friends. Kudos to who came up with this messaging.



youtube.com

How to interact with someone living with dementia...

Do you know how best to talk to or support someone living with dementia? This video highlight...

Dan Tsubouchi @Energy_Tidbits · Jan 25

Japan to provide subsidy to oil wholesalers to reduce retail #Gasoline prices. Remember Japan/@IEA Nov 9 joint statement, decarbonization must have a "pragmatic time frame". #OOTT #EnergyTransition arabnews.jp/en/business/ar...

> Dan Tsubouchi @Energy_Tidbits · Dec 2, 2021
>
> Today's Japan "go slow" getting rid of #Oil #NatGas fits Japan's Nov 9 on acceleration of decarbonization that must have "the importance of measures with pragmatic time frame". Japan is having a "Macron Moment". See Nov 9 tweet twitter.com/Energy_Tidbits... #OOTT
>
> https://www.mofa.go.jp/press/release/press1e_000227.html
>
> **Video conference between Ms. Ono, Director General of Economic Affairs Bureau, Ministry of Foreign Affairs of Japan, and Dr. Birol, Executive Director of the International Energy Agency (IEA)**
>
> e-mail
>
> November 9, 2021
>
> Japanese
>
> On November 9, Ms. ONO Hikariko, Director General of Economic Affairs Bureau, held a videoconference with Dr. Fatih Birol, Executive Director of the IEA.
>
> 1. At the outset, Ms. Ono expressed concern over the rapid surge in crude oil prices, which could hamper the global economic recovery from COVID-19. She stated that Japan is engaged in dialogues with oil-producing countries and would like to work closely with the IEA, which plays a central role in stabilizing the energy market.
> 2. In his response, Dr. Birol mentioned that he is closely watching the energy market including oil, and expressed the IEA's willingness to cooperate with member countries and oil-producing countries to work for stabilization of market. He also shared with Ms. Ono the IEA's analysis of the future energy market following the results of the OPEC Plus Ministerial Meeting held on November 4, 2021. He pointed out that the gap between supply and demand will continue to be tight in the short term, however, the supply and demand balance will improve around the turn of the year and the market will gradually regain stability.
>   Furthermore, he underscored the need for additional investment to meet future demand, explaining that the demand for oil and natural gas will not drastically decrease even through our path towards transition to renewable energy. The two sides agreed to further strengthen cooperation to enhance energy security, including that of oil. Dr. Birol expressed his wish to visit Japan to exchange views with Japanese counterparts.
> 3. The two sides also exchanged views on acceleration of decarbonization efforts following COP26, and shared the importance on measures with pragmatic time frame based on individual circumstances that each countries face including its renewable energy potentials, while it is important to expand investment on renewable energy to achieve carbon neutral. In addition, the two sides frankly exchanged their views on Japan's funded initiative with the IEA for clean energy transition in resource producing countries, as well as on the Ministerial meeting scheduled to be held in February 2022.

2 2

Dan Tsubouchi @Energy_Tidbits · Jan 24

"Tehran could sell some of the roughly 80 to 90 million barrels it holds in storage, many of them located in its main market of Asia". Good @business reminder these #Oil storage barrels will quickly hit market with #JCPOA return. Thx @PaulWallace123 gsmith52@bloomberg.net #OOTT

> Bloomberg @business · Jan 24
>
> The Iranian nuclear talks could hardly be more critical for oil traders. Here's how the market might react to different outcomes. trib.al/DOW13Pq

2 9

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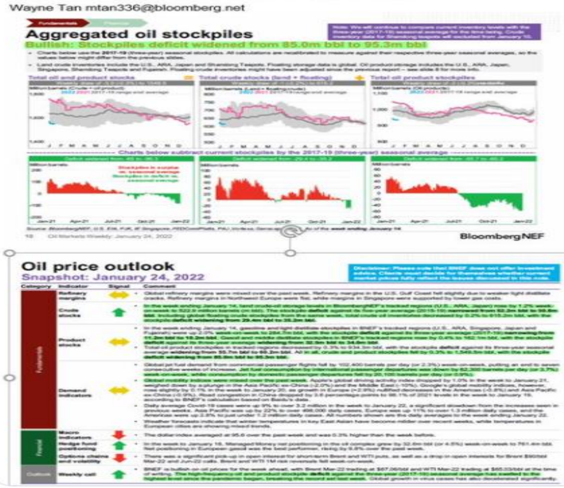
Dan Tsubouchi @Energy_Tidbits · Jan 24

"Aggregated oil stockpiles. Bullish: Stockpiles deficit widened frm 85.0m bbl to 95.3m bbl" says @BloombergNEF Oil Price Indicators Weekly. Excellent weekly 40-slide #Oil supply/demand recap for those with @TheTerminal. Thx @WayneTanMing #OOTT

Excerpt BloombergNEF Oil Pirce Indicators Weekly Jan 24, 2022

Wayne Tan mtan336@bloomberg.net



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SAF GROUP

Dan Tsubouchi @Energy_Tidbits · Jan 24

#Oil looks good for 2020s as industry spends to meet 2022 increasing demand & not rest of 2020s @Halliburton CEO, asset owners eager to reverse base production declines from yrs of underinvestment. operators focus on shorter cycle production to meet increasing oil demand. #OOTT

Halliburton Q4 call 7am MT on Jan 24, 2022

Items in "*italics*" are SAF Group created Transcript

Excerpts from Halliburton CEO Jeff Miller prepared remarks intro comments

7:15am MT. Miller "*despite typical first quarter seasonality, we are starting 2022 a lot higher than we entered 2021. I expect our customers international spend to increase by mid teens this year. we anticipate projects in the Middle East, Russia and Latin America to attract the most investment with activity increases in Africa and Europe limited to a few markets. Asset owners are eager to reverse base production declines caused by multiple years of underinvestment. we expect that operators will focus on shorter cycle production opportunities to meet increasing oil demand*"

7:21am MT. Miller "*there is no doubt the much anticipated multi year upcycle is now underway. North America production growth remains capped by operators capital discipline, while meaningful international production growth is challenged by years of underinvestment. Energy demand has proven its resilience fueled by pent up economic growth and a global desire to return to normalcy. This is a fantastic set of conditions for Halliburton. In a strong commodity price environment with limited production growth options, operators turn to short cycle barrels and increase spend around the wellbore.*"

Prepared by SAF Group https://safgroup.ca/news-insights/

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SAF

Dan Tsubouchi @Energy_Tidbits · Jan 24

only was able to capture the last of canada geese landing on the Elbow River in #Calgary. enjoying having open water again from the much warmer than normal temperatures in the last week

2

SAF

Dan Tsubouchi @Energy_Tidbits · Jan 24

Accelerating #Oil #NatGas multi-year upcycle! “I am excited about the accelerating multi-year upcycle. I expect the macro industry environment to remain supportive & the international & North America markets to continue their simultaneous growth" says @Halliburton . #OOTT

Halliburton Announces Fourth Quarter 2021 Results and Increases Dividend

PDF Version

- Reported net income of $0.92 per diluted share
- Adjusted net income of $0.36 per diluted share
- Cash flow from operating activities of $682 million and free cash flow of $478 million
- First quarter dividend of $0.12 per share

HOUSTON--(BUSINESS WIRE)--Jan. 24, 2022-- Halliburton Company (NYSE: HAL) announced today net income of $824 million, or $0.92 per diluted share, for the fourth quarter of 2021. This compares to net income for the third quarter of 2021 of $236 million, or $0.26 per diluted share. Adjusted net income for the fourth quarter of 2021, excluding tax adjustments, was $320 million, or $0.36 per diluted share. This compares to adjusted net income for the third quarter of 2021, excluding special items, of $248 million, or $0.28 per diluted share. Halliburton's total revenue for the fourth quarter of 2021 was $4.3 billion compared to revenue of $3.9 billion in the third quarter of 2021. Reported operating income was $550 million in the fourth quarter of 2021 compared to reported operating income of $446 million in the third quarter of 2021. Reported operating income of $550 million in the fourth quarter of 2021 increased 20% compared to adjusted operating income of $458 million in the third quarter of 2021, excluding special items.

Total revenue for the full year of 2021 was $15.3 billion, an increase of $850 million, or 6% from 2020. Reported operating income for 2021 was $1.8 billion, compared to reported operating loss of $2.4 billion and adjusted operating income of $1.4 billion for 2020, excluding impairments and other charges.

"I am pleased with our solid execution in the fourth quarter and for the full year. Both operating divisions experienced revenue growth in the international and North America markets. Our Completion and Production division delivered solid mid-teens margins, and our Drilling and Evaluation division margins surprised to the upside," commented Jeff Miller, Chairman, President and CEO.

"Today's announcements of the dividend increase and debt retirement demonstrate my confidence in our business, customers, employees, and value proposition.

"I am excited about the accelerating multi-year upcycle. I expect the macro industry environment to remain supportive and the international and North America markets to continue their simultaneous growth.

"Halliburton uniquely benefits from this constructive environment. Our value proposition works, we have the right strategies for both international and North America markets, we are leaders in digital and automation, and we drive capital efficiency while advancing a sustainable energy future. I fully expect that Halliburton will accelerate cash flow generation, strengthen our balance sheet, and increase cash returns to shareholders in this upcycle," concluded Miller.

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Dan Tsubouchi @Energy_Tidbits · Jan 23

Brent #Oil +$0.81 tonight as of 8:48pm MT. UAE reportedly intercepted two #Houthi ballistic missiles. first reports came out around 6:20pm MT. #OOTT

> **ticker NEWS** @tickerNEWSco · Jan 23
>
> 
>
>
> #BREAKING #UPDATE Air traffic over Abu Dhabi to a halt, flights suspended
>
> United Arab Emirates air defenses engaging in multiple targets over #AbuDhabi with explosions reported...

1 2

Dan Tsubouchi @Energy_Tidbits · Jan 23

Our weekly SAF Jan 23, 2022 Energy Tidbits memo is posted on our SAF Group website. This 52-pg energy research memo expands upon & covers more items than tweeted this week. See news/insights section of SAF website #Oil #OOTT #LNG #NatGas #EnergyTransition safgroup.ca/news-insights/

SAF GROUP

Energy Tidbits

Jan 23, 2022

Produced by: Dan Tsubouchi

BLK CEO Need to Rapidly Admit We Will Not Survive With the Society We are Accustomed Without Hydrocarbons Right now

Welcome to new Energy Tidbits memo readers. We are continuing to add new readers to our Energy Tidbits memo, energy blogs and tweets. The focus and concept for the memo was set in 1999 with input from PMs, who were looking for research (both positive and negative items) that helped them shape their investment thesis to the energy space, and not just focusing on daily trading. Our priority was and still is to not just report on events, but also try to interpret and point out implications therefrom. The best example is our review of investor days, conferences and earnings calls focusing on sector developments that are relevant to the sector and not just a specific company results. Our target is to write on 48 to 50 weekends per year and to post by noon mountain time on Sunday.

This week's memo highlights:

1. BlackRock CEO Fink "*we will not survive with the society we are accustomed without hydrocarbons right now, we need to rapidly admit that*" (Click Here)
2. Shell CEO: EU natural gas consumption is unchanged but produces 20% less, there are only long term solutions (Click Here)
3. Baker Hughes confident, and bias to high end, for 13-20 bcf/d of LNG FIDs in next 2-3 years. (Click Here)
4. UAE THAAD missile defense wasn't able to stop all Houthi long range missiles and drones. (Click Here)
5. CAPP forecasts Cdn oil and gas spending +22% to $32.8b in 2022. (Click Here)
6. Please follow us on Twitter at [LINK] for breaking news that ultimately ends up in the weekly Energy Tidbits memo that doesn't get posted until Sunday noon MT.
7. For new readers to our Energy Tidbits and our blogs, you will need to sign up at our blog sign up to receive future Energy Tidbits memos. The sign up is available at [LINK].

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