Energy Tidbits

Will New Shell CEO Sawan Move in Near Term on FID for LNG Canada's Brownfield 1.8 bcf/d Phase 2? We Think So.

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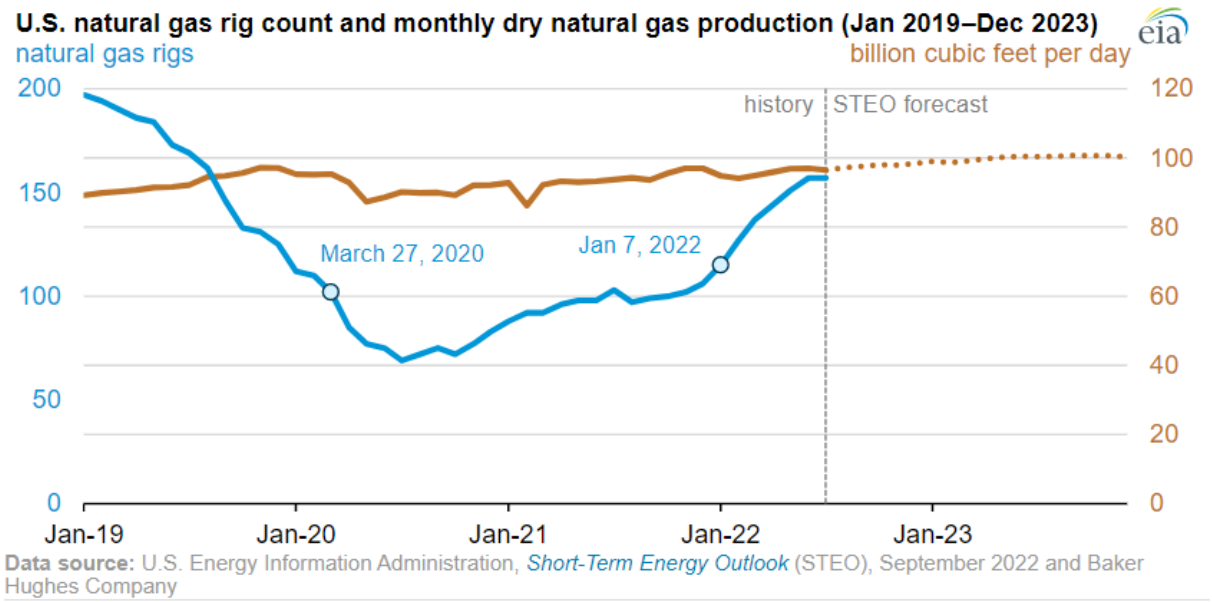
https://www.eia.gov/todayinenergy/detail.php?id=53859

SEPTEMBER 15, 2022

More natural gas rigs are now operating in the United States than before the pandemic

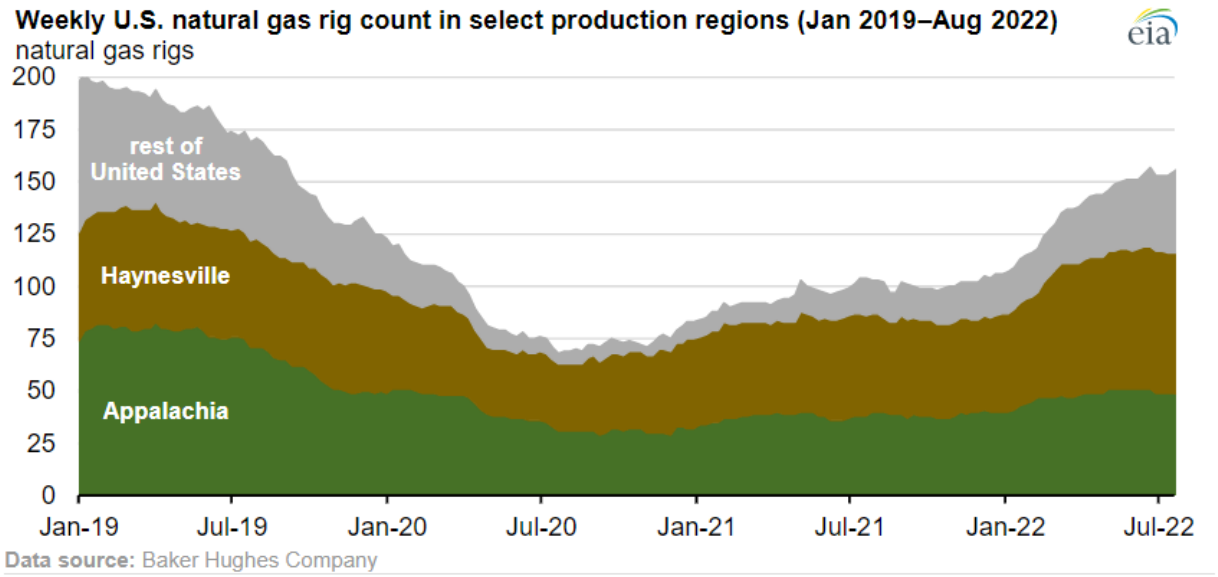


U.S. natural gas producers are operating more drilling rigs now than at the beginning of the COVID-19 pandemic in early 2020. Before the pandemic, the number of operating rigs in the United States had generally been declining. On January 31, 2020—when the U.S. Department of Health and Human Services first declared a public health emergency related to COVID-19—the Baker Hughes Company reported that 112 natural gas rigs were operating in the United States. The number of natural gas-directed rigs continued to fall in the first half of 2020, reaching a low of 68 rigs on July 24, 2020, the fewest in Baker Hughes's historical data, dating back to 1987. Since then, the natural gas rig count has generally been increasing, returning to pre-pandemic levels in January 2022. On September 9, Baker Hughes reported that 166 natural gas rigs were operating in the United States, 54 more than at the outset of the pandemic in the United States.

As natural gas drilling increases in the United States, we expect that production will grow as well. Our September *Short-Term Energy Outlook* (STEO) estimates that dry natural gas production averaged 97.6 billion cubic feet per day (Bcf/d) in the United States during August 2022. We expect U.S. dry natural gas production to increase throughout the STEO forecast period (2022–23), averaging 100.5 Bcf/d during December 2023.

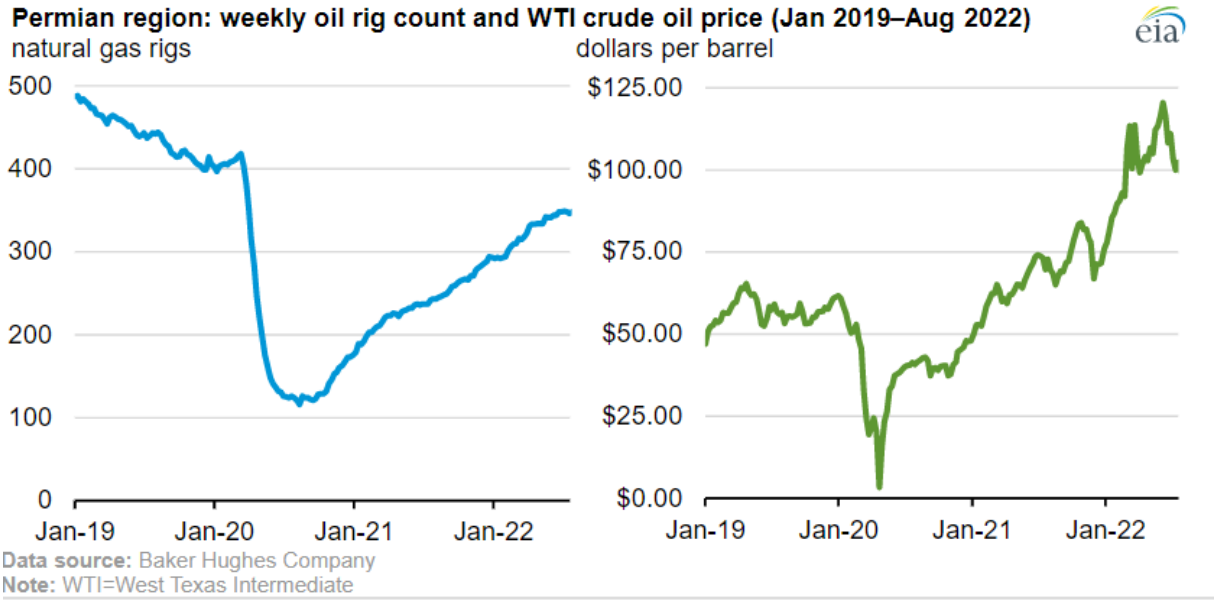
Our *Drilling Productivity Report* (DPR) measures historical natural gas production in selected onshore regions, including the Appalachia, Haynesville, and Permian regions, where most of the natural gas activity is concentrated. To develop estimates of overall changes in production for each region, the DPR uses recent rig activity data, but it also explicitly considers:

- Recent information on rig productivity
- Average oil and natural gas production rates from new wells during their first full month of operation
- Estimated changes in production from existing wells



Most of the growth in natural gas-directed rigs in the United States has been in the Haynesville region, which spans Texas and New Mexico. The rig count in Haynesville increased by more than 50% between January 2020 and August 2022. Despite relatively high natural gas prices, drilling in Haynesville remains economical. Haynesville's well productivity and proximity to the U.S. Gulf Coast liquefied natural gas (LNG) export terminals and to major industrial natural gas consumers draws operators to the region.

Rig activity in the Appalachia region of Pennsylvania and West Virginia is close to returning to the 51 operating rigs reported as of January 31, 2020; it stood at 48 natural gas-directed rigs as of July 29, 2022. Improved well productivity, pipeline buildouts, and increased takeaway capacity have aided the long-term trend of production growth in Appalachia over the past 10 years; however, regional transportation capacity limits may have begun to constrain drilling activity in the region.



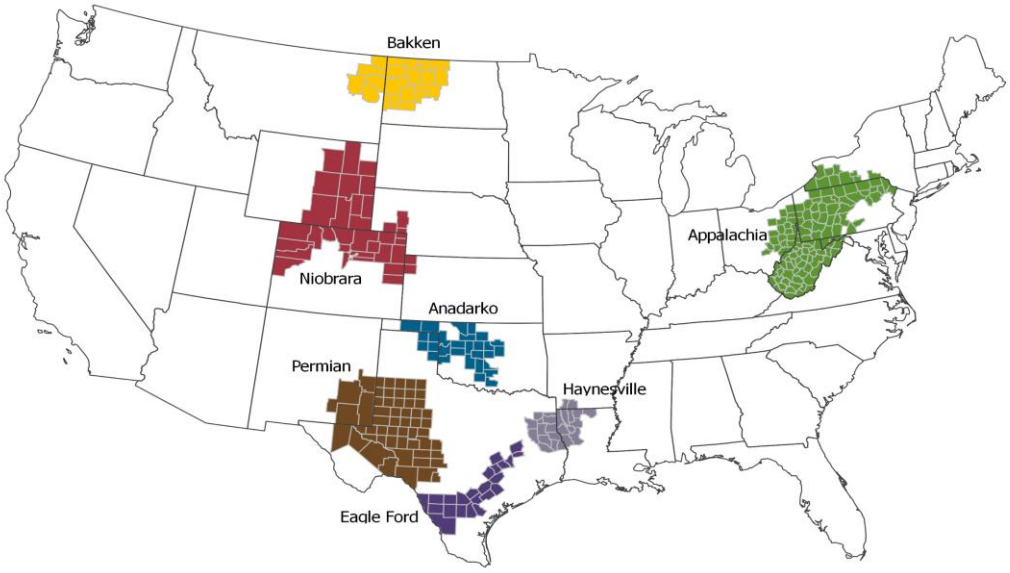
In the Permian region, spanning West Texas and New Mexico, most natural gas production is associated gas produced from oil wells. Permian producers respond to fluctuations in the crude oil price when planning their rig deployment. Crude oil prices and oil-directed rigs both declined in 2020 amid peak COVID-19 mitigation efforts. In 2021, the West Texas Intermediate (WTI) crude oil price increased steadily, averaging $68 per barrel (b) for the year, compared with $39/b in 2020. WTI prices continued to increase in 2022, averaging more than $100 per barrel in the first half of the year. The number of oil-directed rigs in the region has also been generally rising since the 2020 lows, but the rig count is still 15% below the January 31, 2020, pre-pandemic count of 406 rigs.

Principal contributor: Naser Ameen

Independent Statistics & Analysis
U.S. Energy Information Administration
September 2022

Drilling Productivity Report

For key tight oil and shale gas regions



Note:

The DPR rig productivity metric *new-well oil/gas production per rig* can become unstable during periods of rapid decreases or increases in the number of active rigs and well completions. The metric uses a fixed ratio of estimated total production from new wells divided by the region's monthly rig count, lagged by two months. The metric does not represent new-well oil/natural gas production per newly completed well.

The DPR metric *legacy oil/gas production change* can become unstable during periods of rapid decreases or increases in the volume of well production curtailments or shut-ins. This effect has been observed during winter weather freeze-offs, extreme flooding events, and the 2020 global oil demand contraction. The DPR methodology involves applying smoothing techniques to most of the data series because of inherent noise in the data.

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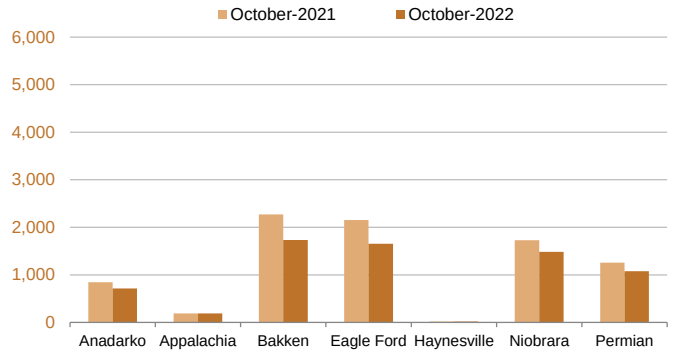
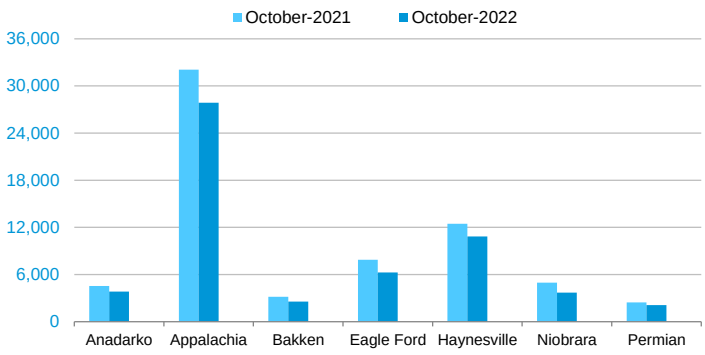
drilling data through August
projected production through October

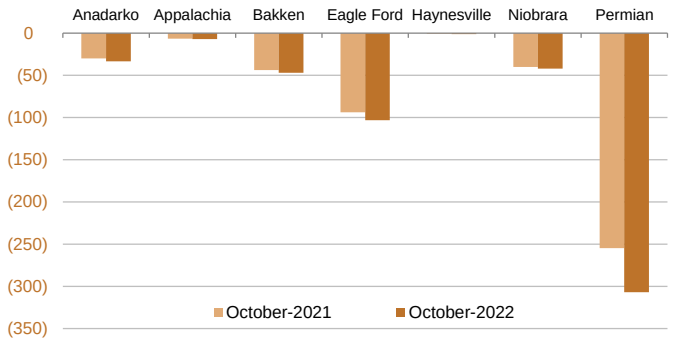
New-well oil production per rig
barrels/day



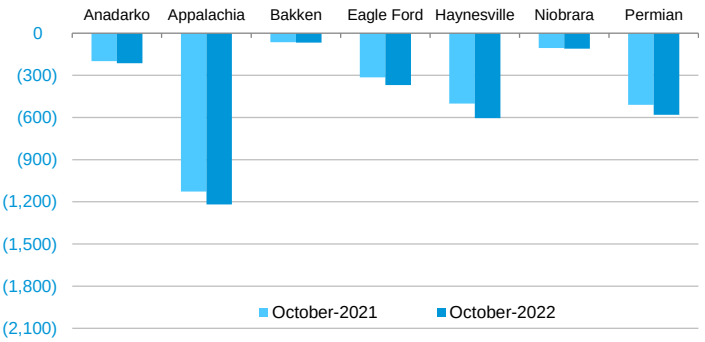
New-well gas production per rig
thousand cubic feet/day



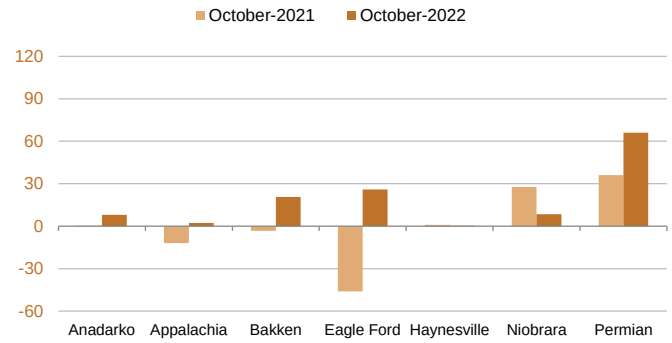
Legacy oil production change
thousand barrels/day



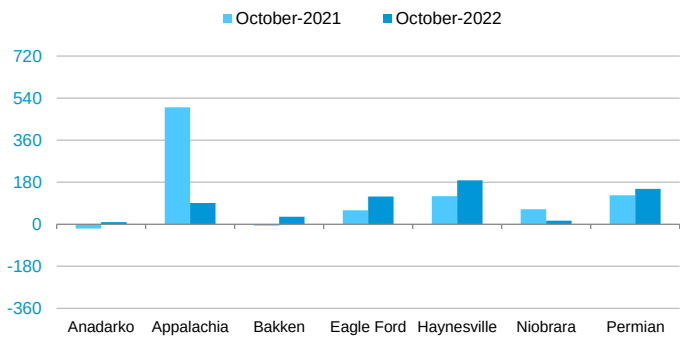
Legacy gas production change
million cubic feet/day



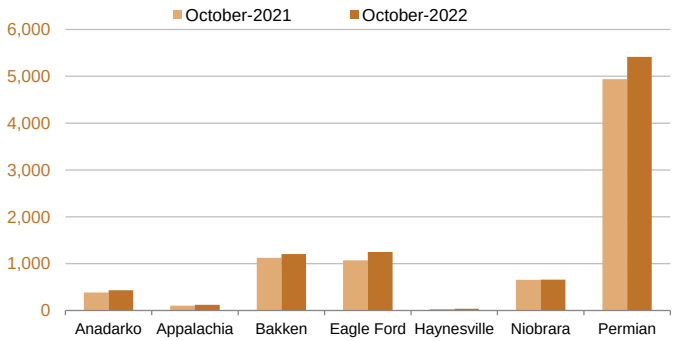
Indicated monthly change in oil production (Oct vs. Sep)
thousand barrels/day



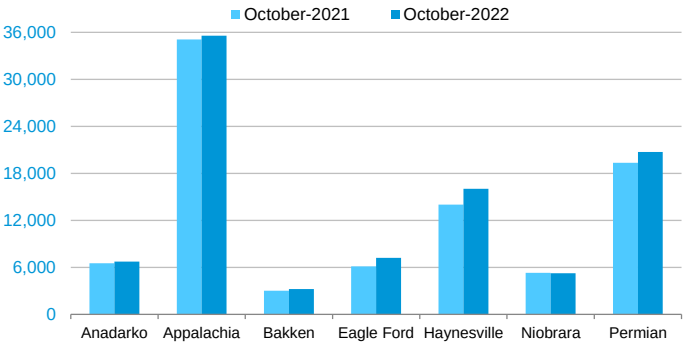
Indicated monthly change in gas production (Oct vs. Sep)
million cubic feet/day



Oil production
thousand barrels/day



Natural gas production
million cubic feet/day



Anadarko Region

Drilling Productivity Report

September 2022

drilling data through August
projected production through October

Oil +2
barrels/day
month over month

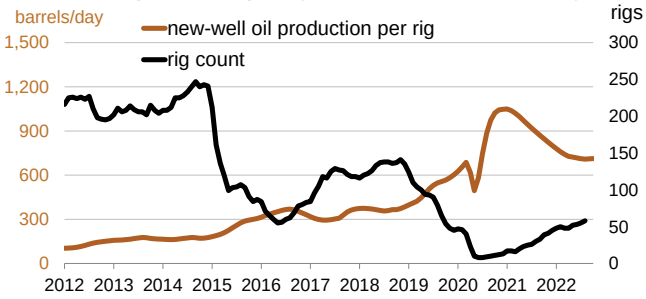
713 *October*
711 *September*
barrels/day

Monthly additions from one average rig

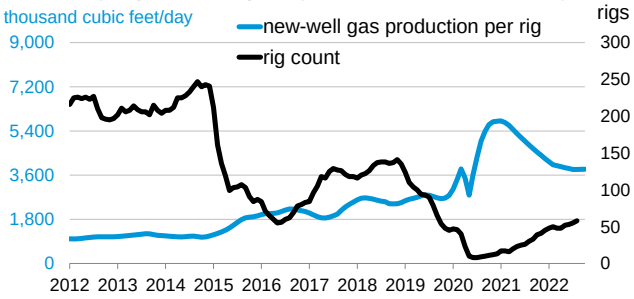
October **3,843**
September **3,835**
thousand cubic feet/day

Gas +8
thousand cubic feet/day
month over month

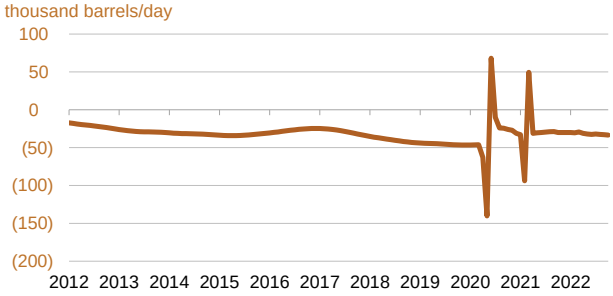
Anadarko Region
New-well oil production per rig



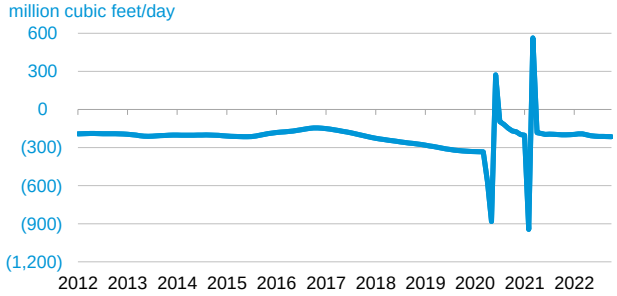
Anadarko Region
New-well gas production per rig



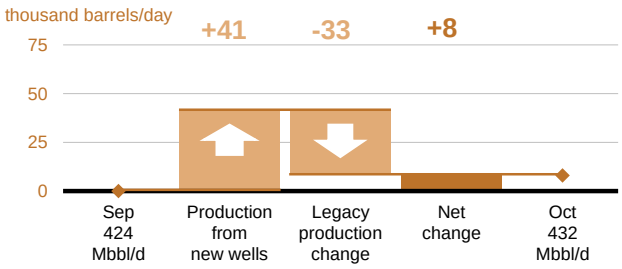
Anadarko Region
Legacy oil production change



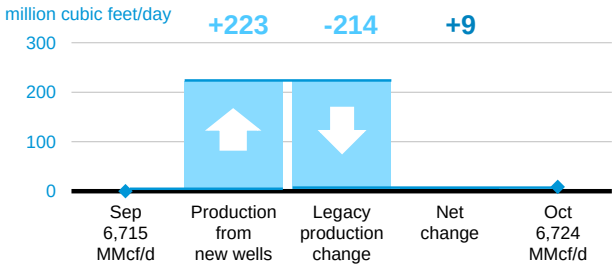
Anadarko Region
Legacy gas production change



Anadarko Region
Indicated change in oil production (Oct vs. Sep)

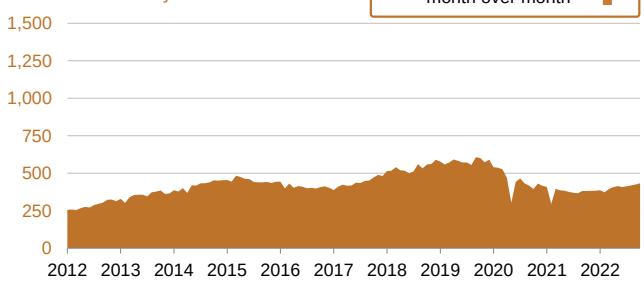


Anadarko Region
Indicated change in natural gas production (Oct vs. Sep)



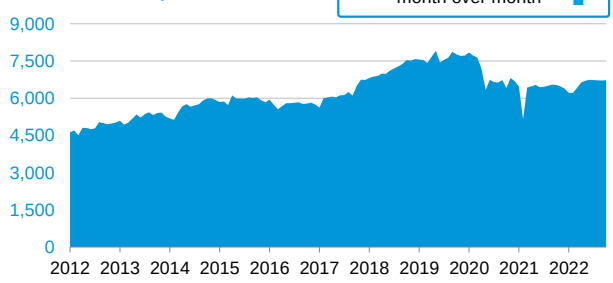
Anadarko Region
Oil production

Oil +8
thousand barrels/day
month over month



Anadarko Region
Natural gas production

Gas +9
million cubic feet/day
month over month



Appalachia Region
Drilling Productivity Report

September 2022

drilling data through August
projected production through October

Oil 0
barrels/day
month over month

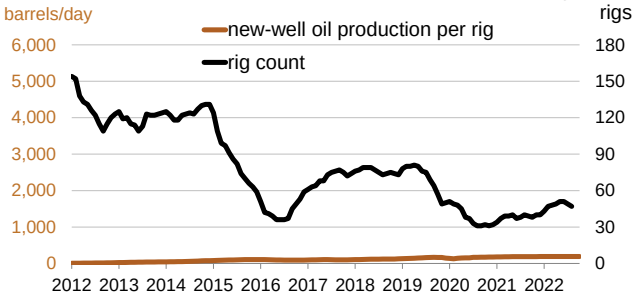
191 *October*
191 *September*
barrels/day

Monthly additions from one average rig

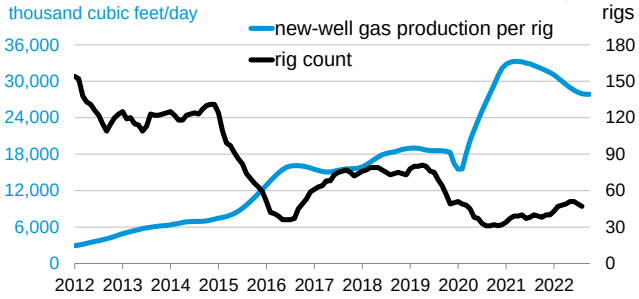
October **27,869**
September **27,855**
thousand cubic feet/day

Gas +14
thousand cubic feet/day
month over month

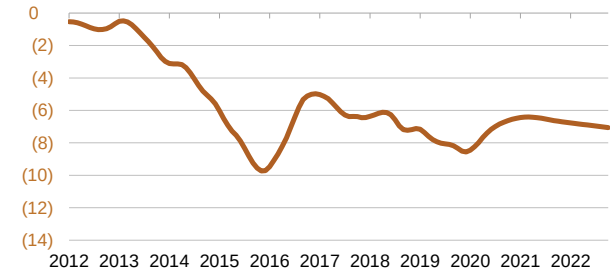
Appalachia Region
New-well oil production per rig



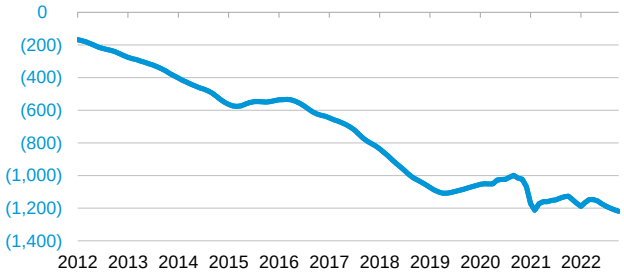
Appalachia Region
New-well gas production per rig



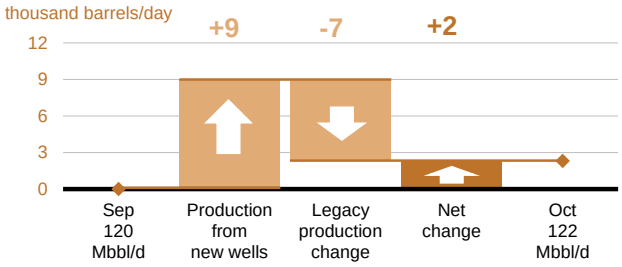
Appalachia Region
Legacy oil production change



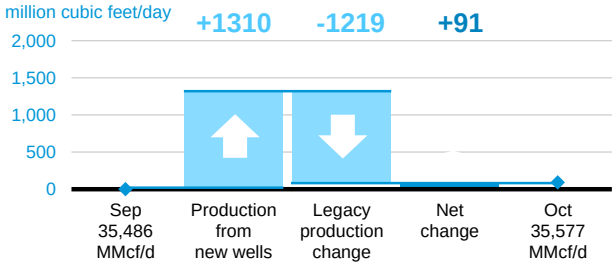
Appalachia Region
Legacy gas production change



Appalachia Region
Indicated change in oil production (Oct vs. Sep)

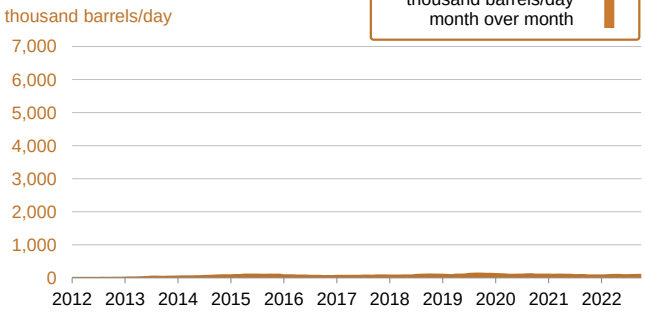


Appalachia Region
Indicated change in natural gas production (Oct vs. Sep)



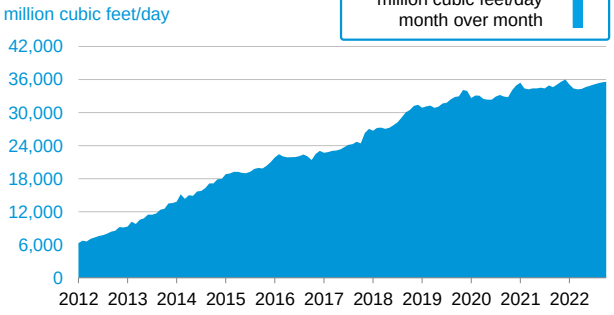
Appalachia Region
Oil production

Oil +2
thousand barrels/day
month over month



Appalachia Region
Natural gas production

Gas +91
million cubic feet/day
month over month



Bakken Region

Drilling Productivity Report

September 2022

drilling data through August
projected production through October

Oil +3
barrels/day
month over month

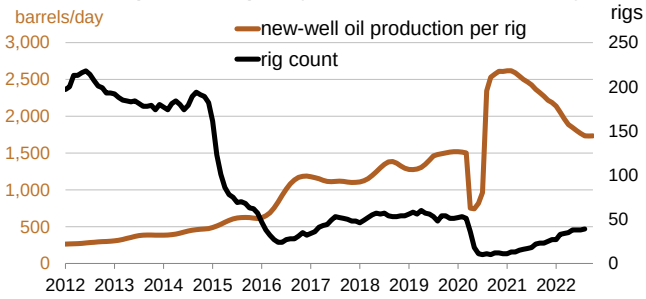
1,735 *October*
1,732 *September*
barrels/day

Monthly additions from one average rig

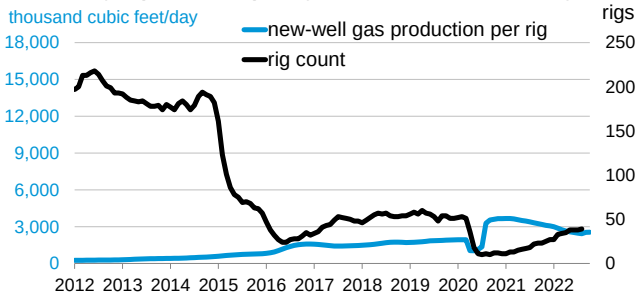
October **2,552**
September **2,537**
thousand cubic feet/day

Gas +15
thousand cubic feet/day
month over month

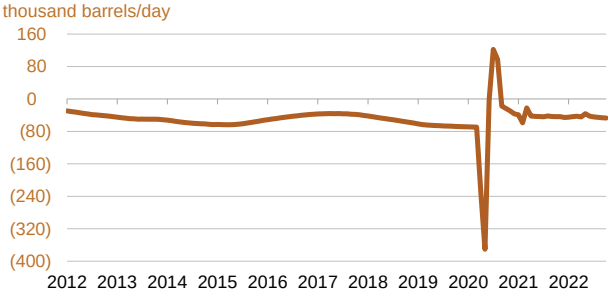
Bakken Region
New-well oil production per rig



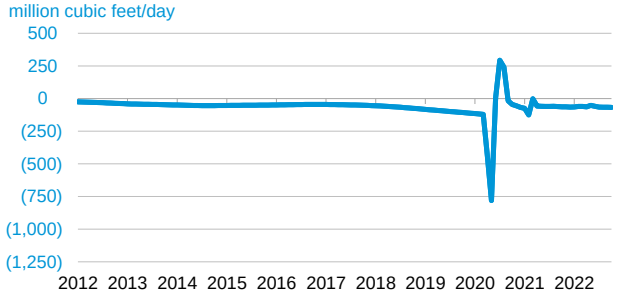
Bakken Region
New-well gas production per rig



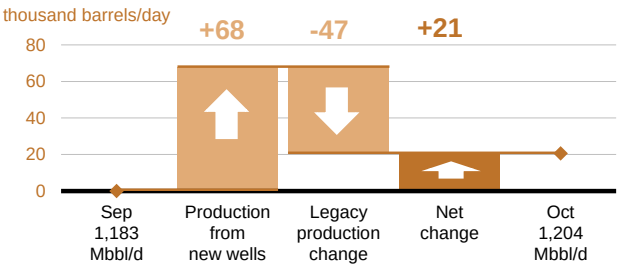
Bakken Region
Legacy oil production change



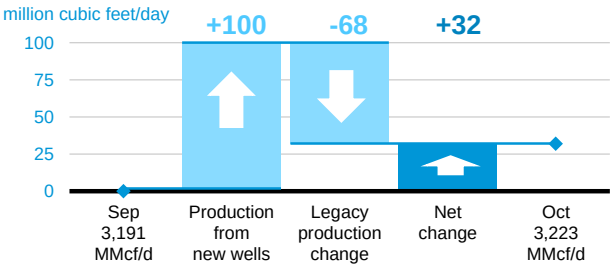
Bakken Region
Legacy gas production change



Bakken Region
Indicated change in oil production (Oct vs. Sep)

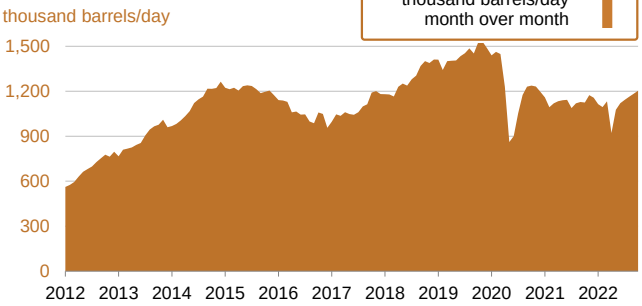


Bakken Region
Indicated change in natural gas production (Oct vs. Sep)



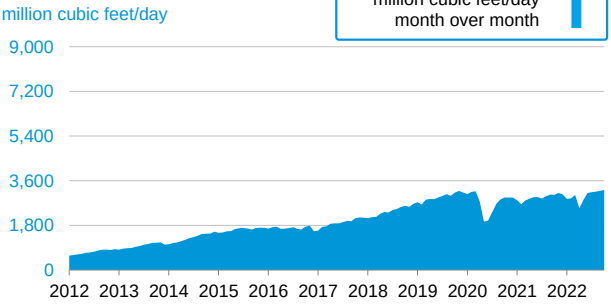
Bakken Region
Oil production

Oil +21
thousand barrels/day
month over month



Bakken Region
Natural gas production

Gas +32
million cubic feet/day
month over month



Eagle Ford Region

Drilling Productivity Report

September 2022

drilling data through August
projected production through October

Oil -34 barrels/day month over month

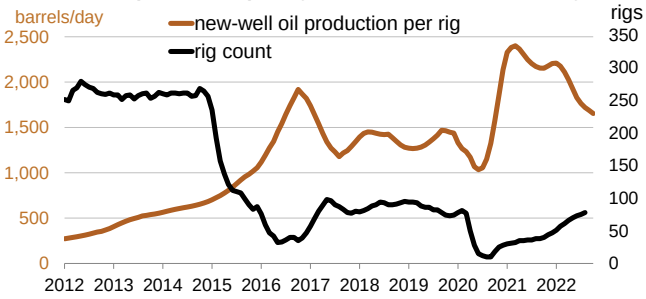
1,654 *October*
1,688 *September*
barrels/day

Monthly additions from one average rig

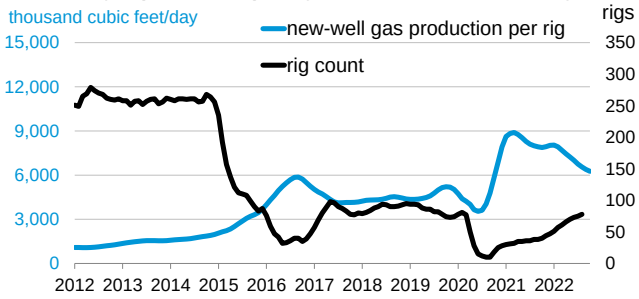
October **6,258**
September **6,386**
thousand cubic feet/day

Gas -128 thousand cubic feet/day month over month

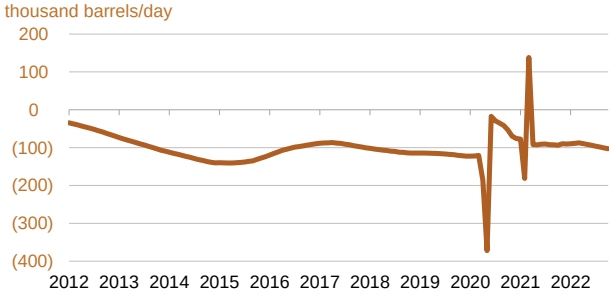
Eagle Ford Region
New-well oil production per rig



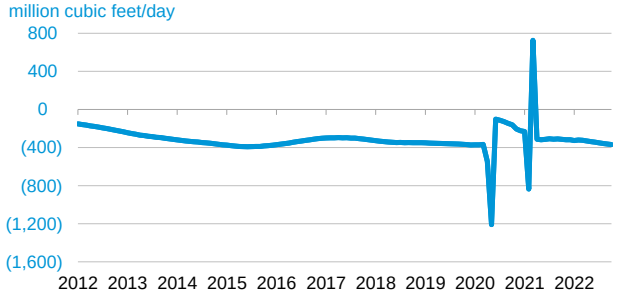
Eagle Ford Region
New-well gas production per rig



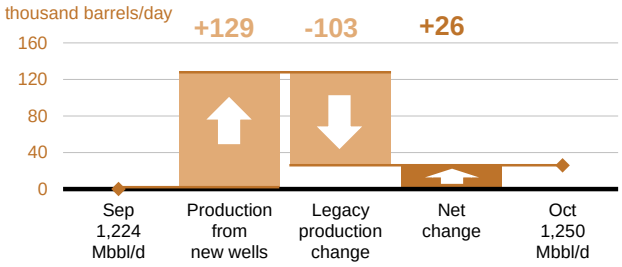
Eagle Ford Region
Legacy oil production change



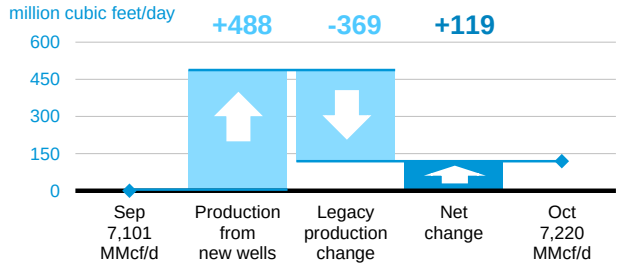
Eagle Ford Region
Legacy gas production change



Eagle Ford Region
Indicated change in oil production (Oct vs. Sep)

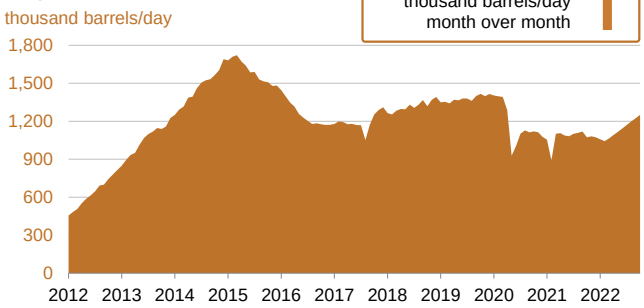


Eagle Ford Region
Indicated change in natural gas production (Oct vs. Sep)



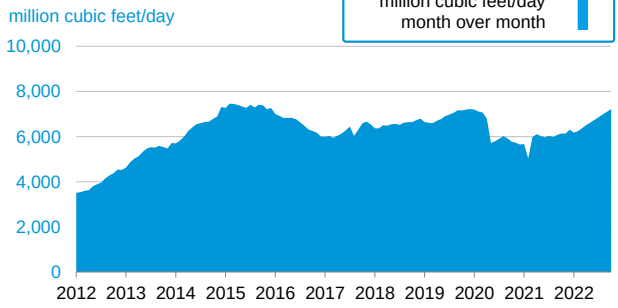
Eagle Ford Region
Oil production

Oil +26 thousand barrels/day month over month



Eagle Ford Region
Natural gas production

Gas +119 million cubic feet/day month over month



Haynesville Region

Drilling Productivity Report

September 2022

drilling data through August
projected production through October

Oil 0 barrels/day month over month

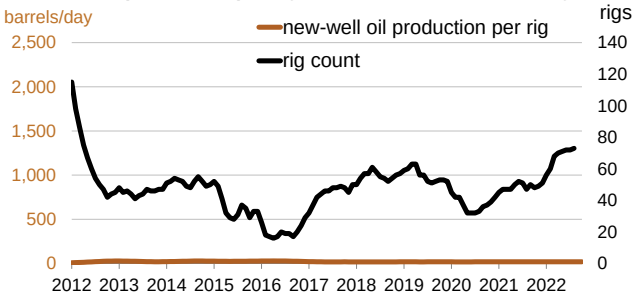
20 October 20 September barrels/day

Monthly additions from one average rig

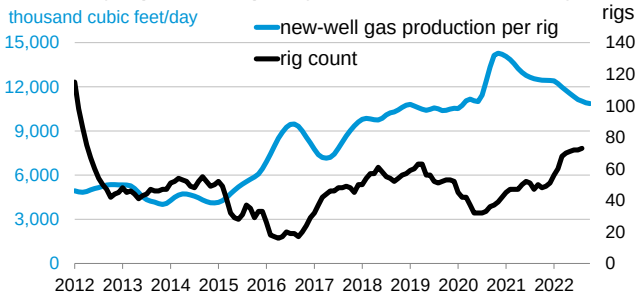
October **10,858**
September **10,912**
thousand cubic feet/day

Gas -54 thousand cubic feet/day month over month

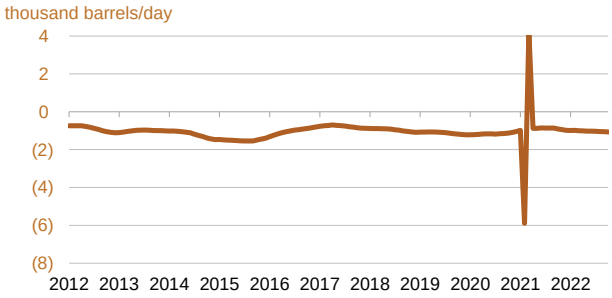
Haynesville Region
New-well oil production per rig



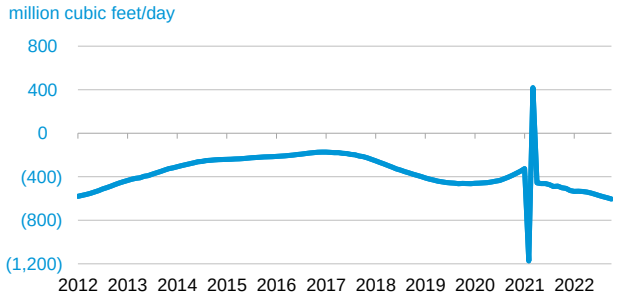
Haynesville Region
New-well gas production per rig



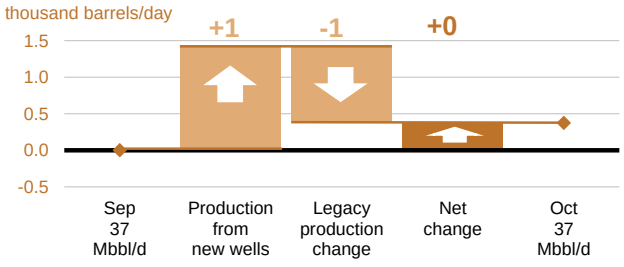
Haynesville Region
Legacy oil production change



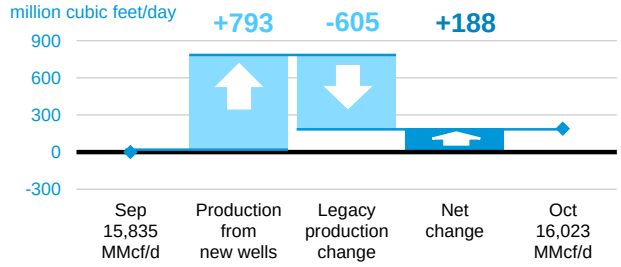
Haynesville Region
Legacy gas production change



Haynesville Region
Indicated change in oil production (Oct vs. Sep)

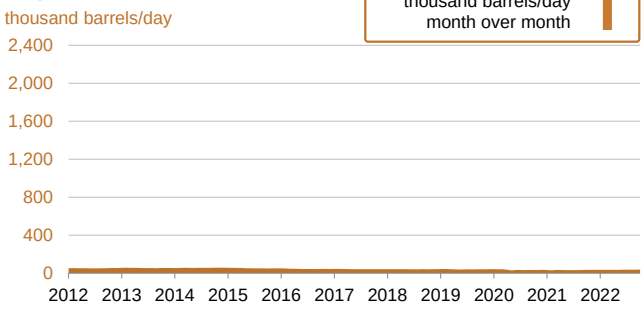


Haynesville Region
Indicated change in natural gas production (Oct vs. Sep)



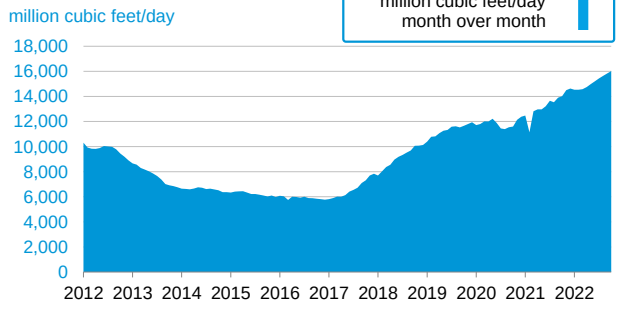
Haynesville Region
Oil production

Oil +0 thousand barrels/day month over month



Haynesville Region
Natural gas production

Gas +188 million cubic feet/day month over month



Niobrara Region

Drilling Productivity Report

September 2022

drilling data through August
projected production through October

Oil -15
barrels/day
month over month

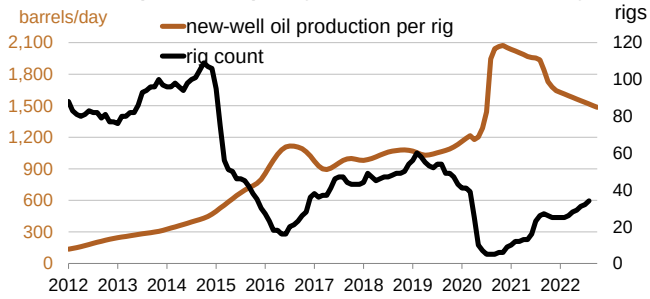
1,485 *October*
1,500 *September*
barrels/day

Monthly additions from one average rig

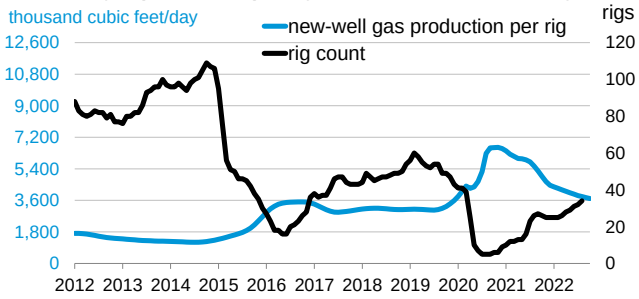
October **3,703**
September **3,759**
thousand cubic feet/day

Gas -56
thousand cubic feet/day
month over month

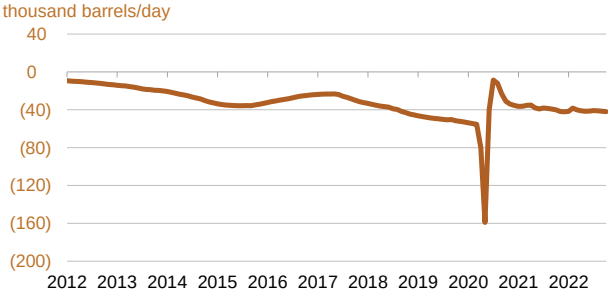
Niobrara Region
New-well oil production per rig



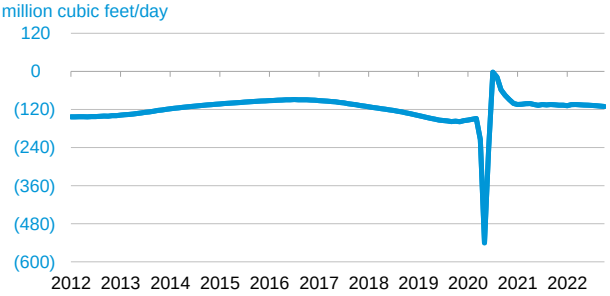
Niobrara Region
New-well gas production per rig



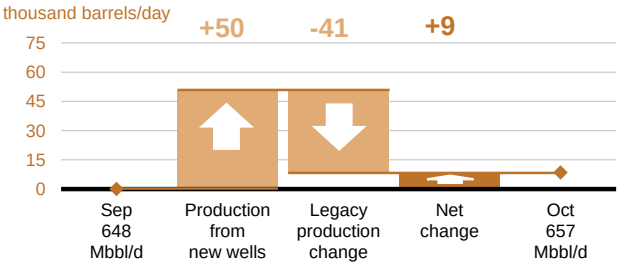
Niobrara Region
Legacy oil production change



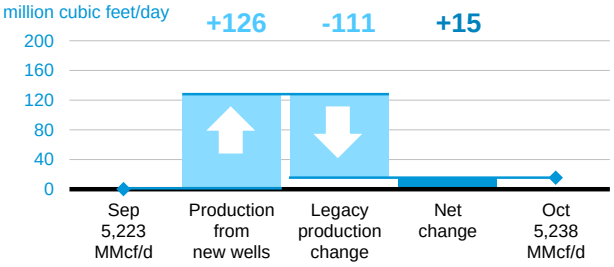
Niobrara Region
Legacy gas production change



Niobrara Region
Indicated change in oil production (Oct vs. Sep)

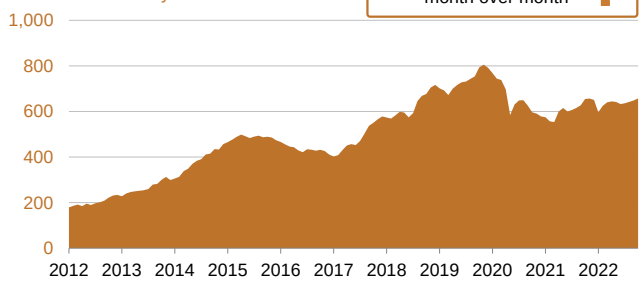


Niobrara Region
Indicated change in natural gas production (Oct vs. Sep)



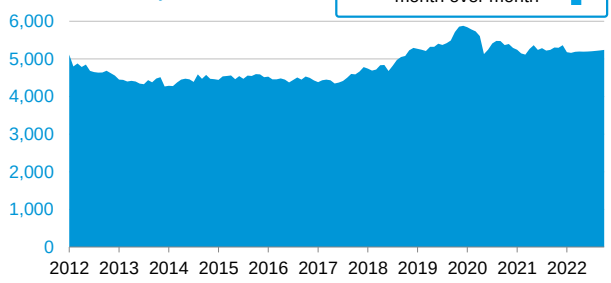
Niobrara Region
Oil production

Oil +9
thousand barrels/day
month over month



Niobrara Region
Natural gas production

Gas +15
million cubic feet/day
month over month



Permian Region
Drilling Productivity Report

September 2022
drilling data through August
projected production through October

Oil -5
barrels/day
month over month

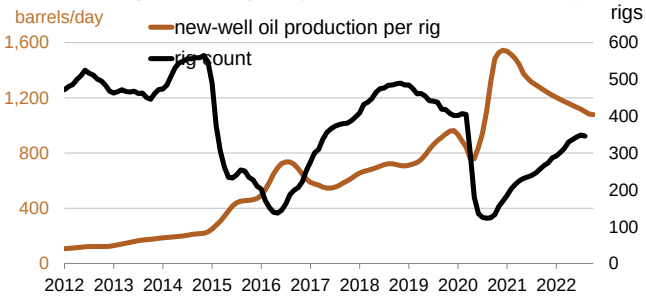
1,078 *October*
1,083 *September*
barrels/day

Monthly additions from one average rig

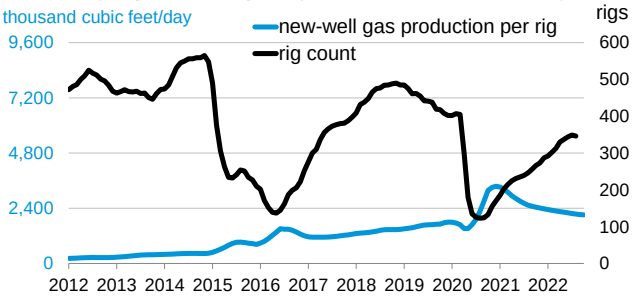
October **2,116**
September **2,127**
thousand cubic feet/day

Gas -11
thousand cubic feet/day
month over month

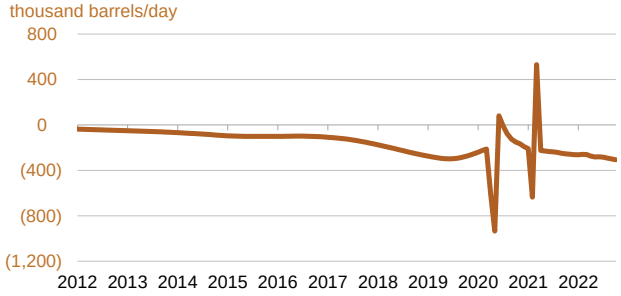
Permian Region
New-well oil production per rig



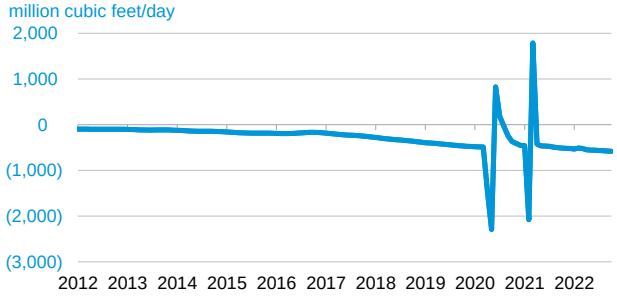
Permian Region
New-well gas production per rig



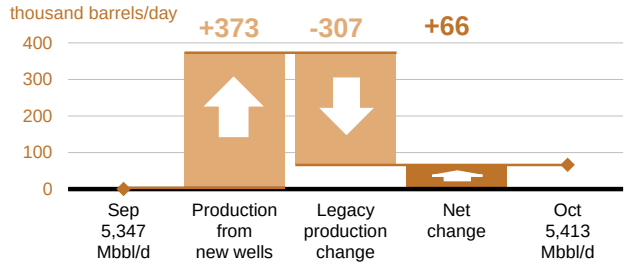
Permian Region
Legacy oil production change



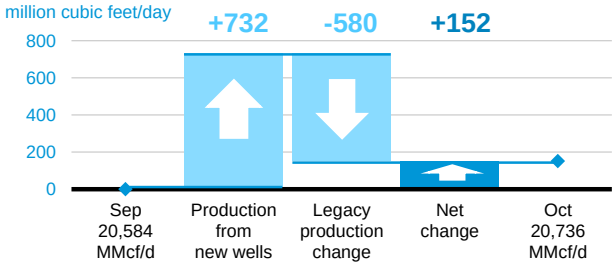
Permian Region
Legacy gas production change



Permian Region
Indicated change in oil production (Oct vs. Sep)

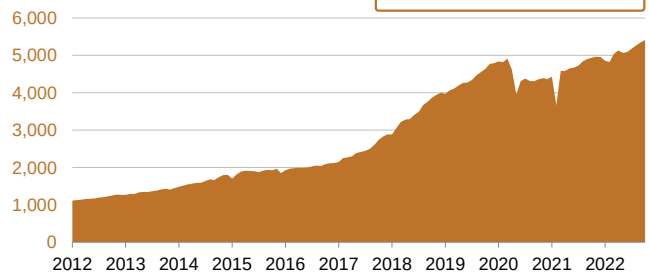


Permian Region
Indicated change in natural gas production (Oct vs. Sep)



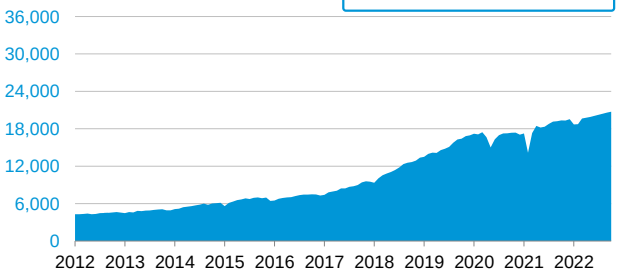
Permian Region
Oil production
thousand barrels/day

Oil +66
thousand barrels/day
month over month



Permian Region
Natural gas production
million cubic feet/day

Gas +152
million cubic feet/day
month over month



The Drilling Productivity Report uses recent data on the total number of drilling rigs in operation along with estimates of drilling productivity and estimated changes in production from existing oil and natural gas wells to provide estimated changes in oil[1] and natural gas[2] production for seven key regions. EIA's approach does not distinguish between oil-directed rigs and gas-directed rigs because once a well is completed it may produce both oil and gas; more than half of the wells do that.

Monthly additions from one average rig
Monthly additions from one average rig represent EIA's estimate of an average rig's[3] contribution to production of oil and natural gas from new wells.[4] The estimation of new-well production per rig uses several months of recent historical data on total production from new wells for each field divided by the region's monthly rig count, lagged by two months.[5] Current- and next-month values are listed on the top header. The month-over-month change is listed alongside, with +/- signs and color-coded arrows to highlight the growth or decline in oil (brown) or natural gas (blue).

New-well oil/gas production per rig
Charts present historical estimated monthly additions from one average rig coupled with the number of total drilling rigs as reported by Baker Hughes.

Legacy oil and natural gas production change
Charts present EIA's estimates of total oil and gas production changes from all the wells other than the new wells. The trend is dominated by the well depletion rates, but other circumstances can influence the direction of the change. For example, well freeze-offs or hurricanes can cause production to significantly decline in any given month, resulting in a production increase the next month when production simply returns to normal levels.

Projected change in monthly oil/gas production
Charts present the combined effects of new-well production and changes to legacy production. Total new-well production is offset by the anticipated change in legacy production to derive the net change in production. The estimated change in production does not reflect external circumstances that can affect the actual rates, such as infrastructure constraints, bad weather, or shut-ins based on environmental or economic issues.

Oil/gas production
Charts present all oil and natural gas production from both new and legacy wells since 2007. This production is based on all wells reported to the state oil and gas agencies. Where state data are not immediately available, EIA estimates the production based on estimated changes in new-well oil/gas production and the corresponding legacy change.

Footnotes:
1. Oil production represents both crude and condensate production from all formations in the region. Production is not limited to tight formations. The regions are defined by all selected counties, which include areas outside of tight oil formations.
2. Gas production represents gross (before processing) gas production from all formations in the region. Production is not limited to shale formations. The regions are defined by all selected counties, which include areas outside of shale formations.
3. The monthly average rig count used in this report is calculated from weekly data on total oil and gas rigs reported by Baker Hughes.
4. A new well is defined as one that began producing for the first time in the previous month. Each well belongs to the new-well category for only one month. Reworked and recompleted wells are excluded from the calculation.
5. Rig count data lag production data because EIA has observed that the best predictor of the number of new wells beginning production in a given month is the count of rigs in operation two months earlier.

The data used in the preparation of this report come from the following sources. EIA is solely responsible for the analysis, calculations, and conclusions.

Drilling Info (http://www.drillinginfo.com) Source of production, permit, and spud data for counties associated with this report. Source of real-time rig location to estimate new wells spudded and completed throughout the United States.

Baker Hughes (http://www.bakerhughes.com) Source of rig and well counts by county, state, and basin.

North Dakota Oil and Gas Division (https://www.dmr.nd.gov/oilgas) Source of well production, permit, and completion data in the counties associated with this report in North Dakota

Railroad Commission of Texas (http://www.rrc.state.tx.us) Source of well production, permit, and completion data in the counties associated with this report in Texas

Pennsylvania Department of Environmental Protection (https://www.paoilandgasreporting.state.pa.us/publicreports/Modules/Welcome/Welcome.aspx) Source of well production, permit, and completion data in the counties associated with this report in Pennsylvania

West Virginia Department of Environmental Protection (http://www.dep.wv.gov/oil-and-gas/Pages/default.aspx) Source of well production, permit, and completion data in the counties associated with this report in West Virginia

Colorado Oil and Gas Conservation Commission (http://cogcc.state.co.us) Source of well production, permit, and completion data in the counties associated with this report in Colorado

Wyoming Oil and Conservation Commission (http://wogcc.state.wy.us) Source of well production, permit, and completion data in the counties associated with this report in Wyoming

Louisiana Department of Natural Resources (http://dnr.louisiana.gov) Source of well production, permit, and completion data in the counties associated with this report in Louisiana

Ohio Department of Natural Resources (http://oilandgas.ohiodnr.gov) Source of well production, permit, and completion data in the counties associated with this report in Ohio

Oklahoma Corporation Commission (http://www.occeweb.com/og/oghome.htm) Source of well production, permit, and completion data in the counties associated with this report in Oklahoma

Summary

Overview of Activity for July 2022

- **Top five countries of destination, representing 58.4% of total U.S. LNG exports in July 2022**
  - France (53.4 Bcf), Netherlands (34.9 Bcf), Spain (34.4 Bcf), South Korea (34.3 Bcf), and Japan (18.2 Bcf)
- **300.2 Bcf of exports in July 2022**
  - 0.1% decrease from June 2022
  - 0.1% more than July 2021
- **100 cargos shipped in July 2022**
  - Sabine Pass (40), Cameron (28), Corpus Christi (19), Cove Point (10), Elba (3), and Freeport (0)
  - 96 cargos in June 2022
  - 97 cargos in July 2021

1a. Table of Exports of Domestically-Produced LNG Delivered by Region (Cumulative from February 2016 through July 2022)

Region	Number of Countries Receiving Per Region	Volume Exported (Bcf)	Percentage Receipts of Total Volume Exported (%)	Number of Cargos*
East Asia and Pacific	8	4,133.5	34.3%	1197
Europe and Central Asia	13	4,698.4	39.0%	1458
Latin America and the Caribbean**	13	2,089.7	17.3%	744
Middle East and North Africa	5	359.9	3.0%	105
South Asia	3	771.4	6.4%	230
Sub-Saharan Africa	0	0.0	0.0%	0
Total LNG Exports	**42**	**12,052.8**	**100.0%**	**3,734**

*Split cargos counted as both individual cargos and countries

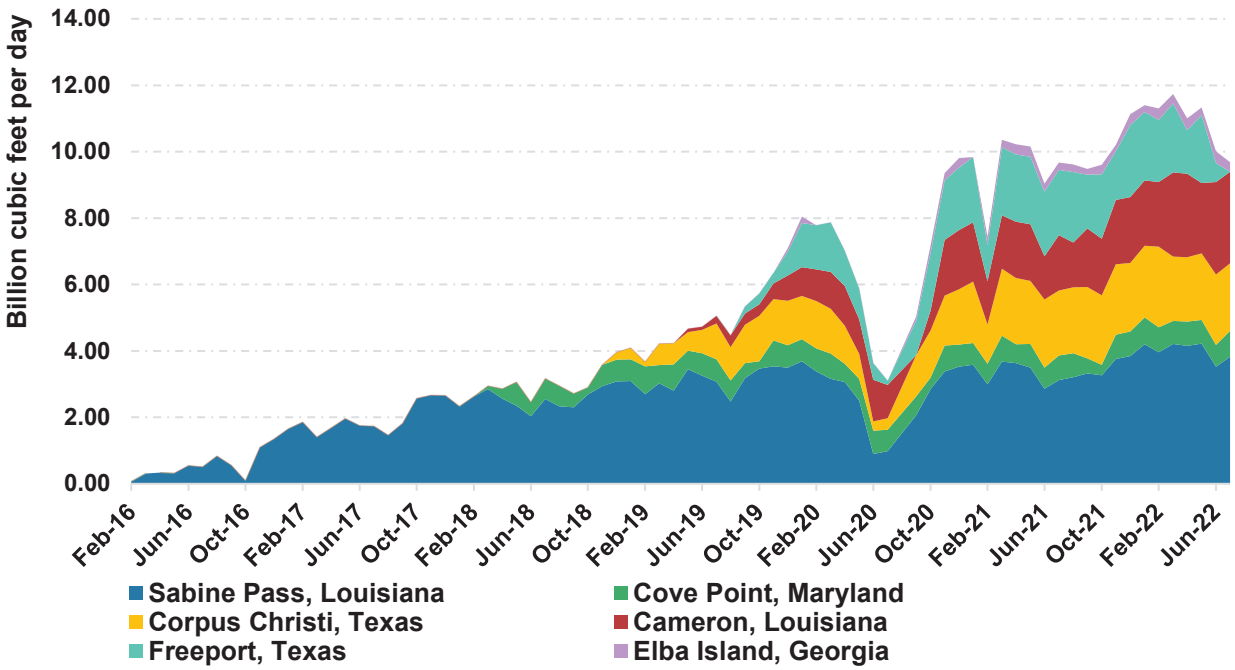
**Number of cargos does not include the shipments by ISO container

1b. Shipments of Domestically-Produced LNG Delivered – by Country
(Cumulative from February 2016 through July 2022)

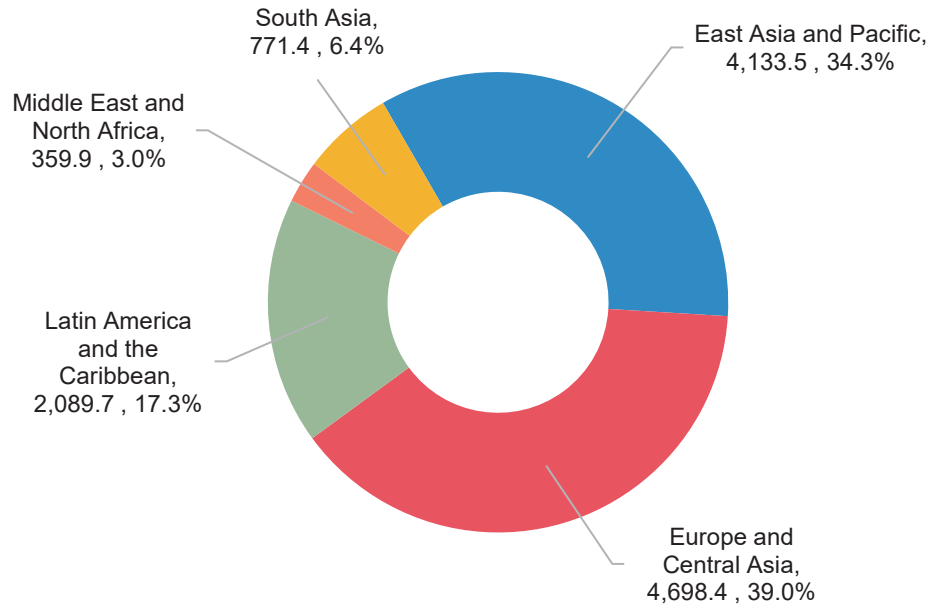
	Country of Destination	Region	Number of Cargos	Volume (Bcf of Natural Gas)	Percentage of Total U.S LNG Exports (%)
1.	South Korea*	East Asia and Pacific	457	1,591.7	13.2%
2.	Japan*	East Asia and Pacific	336	1,159.8	9.6%
3.	Spain*	Europe and Central Asia	290	916.8	7.6%
4.	China*	East Asia and Pacific	267	914.9	7.6%
5.	France*	Europe and Central Asia	230	746.4	6.2%
6.	United Kingdom*	Europe and Central Asia	209	724.5	6.0%
7.	Brazil*	Latin America and the Caribbean	213	594.3	4.9%
8.	India*	South Asia	171	578.0	4.8%
9.	Netherlands*	Europe and Central Asia	170	555.9	4.6%
10.	Mexico*	Latin America and the Caribbean	163	546.3	4.5%
11.	Turkey*	Europe and Central Asia	159	527.1	4.4%
12.	Chile*	Latin America and the Caribbean	131	416.0	3.5%
13.	Taiwan*	East Asia and Pacific	79	283.1	2.3%
14.	Italy*	Europe and Central Asia	85	278.3	2.3%
15.	Argentina*	Latin America and the Caribbean	109	263.0	2.2%
16.	Portugal*	Europe and Central Asia	73	231.7	1.9%
17.	Poland*	Europe and Central Asia	65	220.6	1.8%
18.	Greece*	Europe and Central Asia	65	156.4	1.3%
19.	Dominican Republic*	Latin America and the Caribbean	60	141.1	1.2%
20.	Kuwait	Middle East and North Africa	40	139.6	1.2%
21.	Pakistan*	South Asia	40	128.9	1.1%
22.	Jordan*	Middle East and North Africa	36	124.2	1.0%
23.	Lithuania	Europe and Central Asia	39	122.1	1.0%
24.	Belgium*	Europe and Central Asia	36	118.5	1.0%
25.	Singapore*	East Asia and Pacific	31	100.7	0.8%
26.	Croatia	Europe and Central Asia	28	85.5	0.7%
27.	Thailand*	East Asia and Pacific	19	75.6	0.6%
28.	Bangladesh*	South Asia	19	64.5	0.5%
29.	Jamaica*	Latin America and the Caribbean	25	57.3	0.5%
30.	United Arab Emirates	Middle East and North Africa	15	51.1	0.4%
31.	Panama*	Latin America and the Caribbean	27	47.9	0.4%
32.	Israel*	Middle East and North Africa	9	28.0	0.2%
33.	Colombia*	Latin America and the Caribbean	16	19.9	0.2%
34.	Egypt*	Middle East and North Africa	5	16.9	0.1%
35.	Malta*	Europe and Central Asia	9	14.6	0.1%
36.	Indonesia*	East Asia and Pacific	7	4.0	0.0%
37.	Malaysia	East Asia and Pacific	1	3.7	0.0%
	Total Exports by Vessel		**3,734**	**12,048.9**	
38.	Barbados	Latin America and the Caribbean	304	1.3	0.0%
39.	Bahamas	Latin America and the Caribbean	581	1.3	0.0%
	Jamaica	Latin America and the Caribbean	93	1.0	0.0%
40.	Haiti	Latin America and the Caribbean	122	0.4	0.0%
41.	Antigua and Barbuda	Latin America and the Caribbean	24	0.0	0.0%
42.	Nicaragua	Latin America and the Caribbean	1	0.0	0.0%
	Total Exports by ISO		**1100**	**4.0**	
	Total Exports by Vessel and ISO		**4,834**	**12,052.8**	

Note:
Volume and Number of Cargos are the cumulative totals of each individual Country of Destination by Region starting from February 2016.
Jamaica has received U.S. LNG exports by both vessel and ISO container. The volumes are totaled separately
* Split cargos counted as both individual cargos and countries.
Vessel = LNG Exports by Vessel and ISO container = LNG Exports by Vessel in ISO Containers.
Does not include re-exports of previously-imported LNG. See table 2c for re-exports data.
Totals may not equal sum of components because of independent rounding.

1c. Domestically-Produced LNG Exported by Terminal
(February 2016 through July 2022)



1d. Domestically-Produced LNG Exported by Region
(Cumulative from February 2016 through July 2022)
(Bcf, %)



Delfin Midstream and Devon Energy Enter into LNG Export Partnership

Parties agree to strategic Pre-FID Investment by Devon in Delfin and Heads of Agreement representing at least 1.0, and up to 2.0, million tonnes per annum of liquefaction capacity

Houston, September 5, 2022 – Delfin Midstream Inc ("Delfin") and Devon Energy Corporation (NYSE: DVN) (together with certain of its operating subsidiaries, collectively, "Devon") today announced that they have entered into a liquefied natural gas (LNG) export partnership that includes an executed Heads of Agreement ("HOA") for long-term liquefaction capacity and a pre-Financial Investment Decision (FID) strategic investment by Devon in Delfin.

The HOA provides the framework for finalizing a definitive long-term tolling agreement representing 1.0 million tons per annum (MTPA) of liquefaction capacity in Delfin's first Floating LNG vessel, with the ability to add an additional 1.0 MTPA in Delfin's first or a future Floating LNG vessel. In addition to providing Devon up to 2.0 MTPA of total liquefaction capacity on a long-term basis, the HOA also provides opportunity for additional future equity investments in Delfin by Devon. Devon's 2022 guidance will remain unchanged.

"We are delighted to execute this agreement with Devon, representing a truly strategic partnership between a U.S. producer and a liquefaction provider," said Dudley Poston, Delfin CEO. "We believe our unique liquefaction solution provides significant structural flexibility that allows producers to maximize the value of their natural gas, while providing a much-needed source of additional supply to the world LNG marketplace."

"Our decision to invest in Delfin was the result of a thorough process intended to create additional pricing diversification for our natural gas portfolio and deliver a sustainable and capital efficient return for our shareholders," said Rick Muncrief, Devon's President and CEO. "Devon has a strong track record of finding best-in-class midstream and downstream solutions for our production and we are excited to partner with Delfin to meet the need for safe, clean and reliable energy."

Following its recent announcement of a binding SPA with Vitol and a HOA with Centrica, this announcement represents Delfin's third major agreement in the past two months. Delfin is also in numerous advanced discussions on additional binding SPAs, HOAs and tolling agreements similar to those previously announced.

As a modular project requiring only 2.0 to 2.5 MTPA of long-term contracts to begin construction, and with all necessary permits in hand, Delfin is on schedule to make FID on its first Floating LNG vessel by the end of this year.

Latham & Watkins LLP is serving as legal advisor to Delfin. Kirkland & Ellis LLP is serving as legal advisor to Devon.

About Delfin

Delfin is a leading LNG export infrastructure development company utilizing low-cost Floating LNG technology solutions. Delfin is the parent company of Delfin LNG LLC ("Delfin LNG") and Avocet LNG LLC. Delfin LNG is a brownfield Deepwater Port requiring minimal additional infrastructure investment to support up to four FLNG Vessels producing up to 13 million tonnes of LNG per annum. Delfin purchased the UTOS pipeline, the largest natural gas pipeline in the Gulf of Mexico. Delfin LNG received a positive Record of Decision from MARAD and approval from the Department of Energy for

long-term exports of LNG to countries that do not have a Free Trade Agreement with the United States. Further information is available at www.delfinmidstream.com.

About Devon Energy Corporation

Devon Energy is a leading oil and gas producer in the U.S. with a premier multi-basin portfolio headlined by a world-class acreage position in the Delaware Basin. Devon's disciplined cash-return business model is designed to achieve strong returns, generate free cash flow and return capital to shareholders, while focusing on safe and sustainable operations. For more information, please visit www.devonenergy.com.

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FORWARD LOOKING STATEMENTS

This press release contains forward-looking statements within the meaning of the federal securities laws. Such statements are subject to a number of assumptions, risks and uncertainties, many of which are beyond the control of Devon and Delfin. These risks include, but are not limited to: the risk Delfin does not make FID on its First Floating LNG Vessel by the end of the year or at all; the risk the parties are not able to finalize definitive documentation based on the terms of the HOA or otherwise; the extent to which Devon realizes improved or diversified pricing exposure or any of the other anticipated benefits from the arrangement; and the other risks identified in Devon's 2021 Annual Report on Form 10-K and its other filings with the Securities and Exchange Commission. Investors are cautioned that any such statements are not guarantees of future performance and that actual results or developments may differ materially from those projected in the forward-looking statements. The forward-looking statements in this press release are made as of the date hereof, and Devon and Delfin do not undertake any obligation to update the forward-looking statements as a result of new information, future events or otherwise.

Cheniere's Corpus Christi LNG Plant Meets Pollution Limits
2022-09-15 20:09:57.346 GMT

By Jennifer A. Dlouhy
(Bloomberg) -- Emissions from a Cheniere Energy Inc. natural gas export facility were within federal pollution limits, suggesting no need for significant equipment retrofits, the company said.
"Cheniere has submitted our initial testing results for our Corpus Christi LNG facility, showing that all of the turbines covered by the EPA rule are below the emissions threshold," company spokesman Eben Burnham-Snyder said.
The testing was conducted over six months after an Environmental Protection Agency policy change in March to require certain types of turbines to meet formaldehyde-emission limits. The devices -- including some 62 models used at Cheniere's Gulf Coast facilities -- had been exempted for roughly 18 years.
Testing is still under way at Cheniere's Sabine Pass facility in Louisiana, Burnham-Snyder said.
Cheniere and operators of some 220 combustion turbines across the US had until Sept. 5 to test equipment and comply with emission limits. In a research note earlier this week, Goldman Sachs Group Inc. told clients that Cheniere's "potential environmental exposure related to the EPA's revised rules on hazardous air pollutants remains limited."

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https://www.shell.com/media/news-and-media-releases/2022/shell-ceo-ben-van-beurden-to-step-down-wael-sawan-appointed-as-his-successor.html

Shell Chief Executive Officer Ben van Beurden to step down, Wael Sawan appointed as his successor

Sep 15, 2022

Shell plc ("Shell") today announced that Ben van Beurden will step down as Chief Executive Officer (CEO) at the end of 2022, and that his successor will be Wael Sawan. Wael's appointment is effective January 1, 2023*, when he will also join Shell's Board of Directors. Ben van Beurden will continue working as adviser to the Board until June 30, 2023, after which he will leave the group.

Shell's Chair, Sir Andrew Mackenzie said: "Wael Sawan is an exceptional leader, with all the qualities needed to drive Shell safely and profitably through its next phase of transition and growth. His track record of commercial, operational and transformational success reflects not only his broad, deep experience and understanding of Shell and the energy sector, but also his strategic clarity. He combines these qualities with a passion for people, which enables him to get the best from those around him. The outcome of the Board's managed succession process resulted both in the appointment of an outstanding CEO and proved the strength and depth of Shell's leadership talent. I look forward to working with Wael as we accelerate the delivery of our strategy."

Wael Sawan said: "It's been a privilege to work alongside Ben and I'm honoured to take over the leadership of this great company from him. I'm looking forward to channelling the pioneering spirit and passion of our incredible people to rise to the immense challenges, and grasp the opportunities presented by the energy transition. We will be disciplined and value focused, as we work with our customers and partners to deliver the reliable, affordable and cleaner energy the world needs."

Commenting on Ben van Beurden, Sir Andrew said: "Ben can look back with great pride on an extraordinary 39-year Shell career, culminating in nine years as an exceptional CEO. During the last decade, he has been in the vanguard for the transition of Shell to a net-zero emissions energy business by 2050 and has become a leading industry voice on some of the most important issues affecting society.

"He leaves a financially strong and profitable company with a robust balance sheet, very strong cash generation capability and a compelling set of options for growth. These were all enabled by bold moves he has led, including the 2016 acquisition of BG and the transformational $30 billion divestment of non-core assets that followed. He took firm, decisive action to marshal the company through the global pandemic, seizing the opportunity for a major reset to ensure we emerged fitter, stronger and equipped to succeed in the energy transition. Powering Progress, Shell's detailed strategy to accelerate our profitable transition to a net-zero emissions energy business by 2050, was unveiled in February 2021 and was quickly followed by moves to simplify both our organisational and share structures. Ben's legacy will frame Shell's success for decades to come."

Ben van Beurden said: "It has been a privilege and an honour to have served Shell for nearly four decades and to lead the company for the past nine years. In my journey from LNG design engineer to CEO, I have been fortunate to work alongside so many talented people from diverse backgrounds – all committed to the company's goal of providing the world with the essential commodities of modern life. I am very proud of what we have achieved together. I have great confidence in Wael as my successor. He is a smart, principled and dynamic leader, who I know will continue to serve Shell with conviction and dedication. I wish him and his family all the best for the journey ahead."

Pursuant to Listing Rule 9.6.13(1) to (6) inclusive, there is no information to disclose regarding Wael Sawan.

Notes to Editors:

About Wael Sawan

Wael is currently the Director Integrated Gas, Renewables and Energy Solutions, and was previously the Director Upstream. He is based in The Hague and has been a member of Shell's Executive Committee (EC) for three years. Prior to joining EC, he was the Executive Vice President Deepwater and a member of the Upstream Leadership Team, and Executive Vice President Qatar and a member of the Integrated Gas Leadership Team. He has worked in Europe, Africa, Asia and the Americas during his 25-year Shell career, and has also held roles in Downstream Retail, and in various commercial and New Business Development projects. Wael was born in Beirut, Lebanon, and is a dual Lebanese-Canadian national. He grew up in Dubai and holds a Master's degree in Chemical Engineering from McGill University in Montreal and an MBA from Harvard Business School. He is married to Nicole and they have three sons.

Further details about Wael's career in Shell

About Ben van Beurden

Ben has been Shell CEO since January 1, 2014. Previously he was Downstream Director from January to September 2013 and Executive Vice President Chemicals from 2006 to 2012. Prior to this, he held a number of operational and commercial roles in both Upstream and Downstream, including Vice President Manufacturing Excellence. He joined Shell in 1983, after graduating with a Master's degree in Chemical Engineering from Delft University of Technology, the Netherlands. Ben is married to Stacey. He has four children.

Ben joined the Supervisory Board of Mercedes-Benz Group AG in April 2021.

Further details about Ben's career in Shell

Fact sheet

Fact sheet reflects slide 7 of the second quarter 2022 results - Quarterly slides pack available on **www.shell.com**

The information required to be disclosed under section 430(2B) of the Companies Act 2006 in relation to Ben van Beurden will be available on the Group's website in due course.

*The appointment is subject to approval by the Dutch Authority for the Financial Markets (AFM). This condition relates to Shell Asset Management Company B.V. (SAMCo), a subsidiary of Shell plc and the in-house asset manager for a number of pension funds; captive insurance companies; and a charity foundation, all related to the Shell Group. SAMCo is licensed and supervised by the AFM and, consequently, the prospective appointment of an executive director of Shell plc requires the AFM's approval.

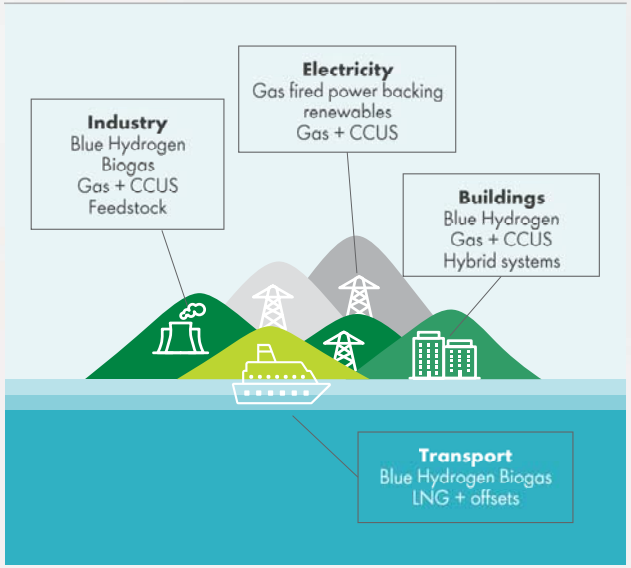
Cautionary Note

LNG OUTLOOK

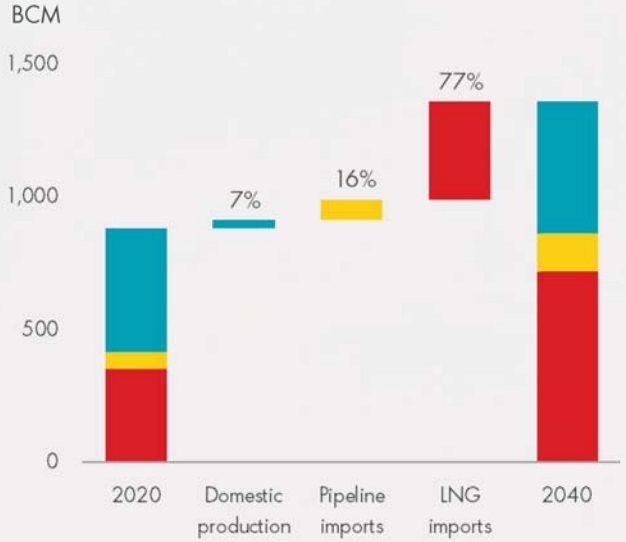
ENERGY SECURITY, EMISSIONS AND ECONOMIC GROWTH IN ASIA TO DRIVE FUTURE LNG DEMAND

- Gas has an important role in the journey to net-zero - as a partner to renewables for grid stability and an immediate option to lower emissions in hard-to-electrify energy demand sectors
- LNG needed for declining domestic gas production, coal to gas switching, substituting higher-emission energy sources, tackling air quality concerns – particularly in Asia

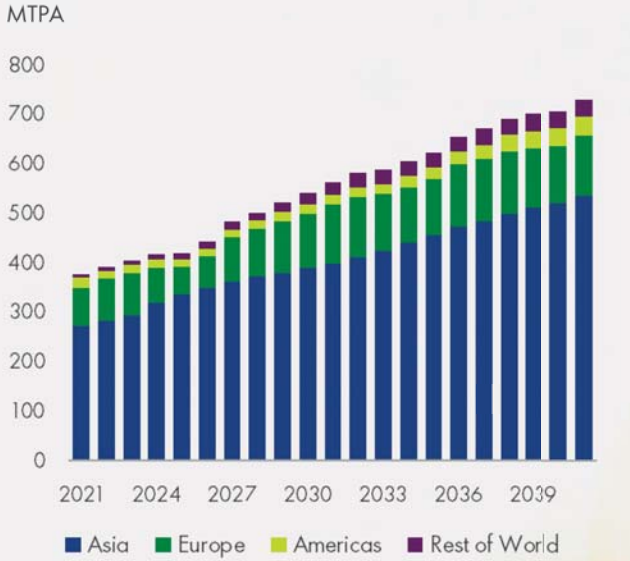
Use of gas in a decarbonised world



Asian gas demand by source



LNG imports by region



Source: Shell interpretation of Wood Mackenzie data

RUN THE BUSINESS

ACTIVELY ADDRESSING OPERATIONAL GREENHOUSE GAS EMISSIONS

Cutting operational emissions

- Pearl GTL, Qatar: significant emissions reductions already achieved, further reductions and other improvements planned through innovative catalysts
- QGC, Australia: reduced venting from dehydration units and improved efficiency on well workovers resulting in 2,500 tonnes lower methane emissions in 2021
- Real Time Production Optimisation saving fuel gas and improving efficiency across LNG sites

Managing GHG intensity

- Implementing carbon management framework for projects and operating assets
- The IG operated portfolio is well within the Group's 2025 target of ensuring methane emissions intensity is below 0.2%
- No routine flaring in IGs operated portfolio

Spearheading methane reduction initiatives

- Helping to deliver the Global Methane Pledge through oil and gas sector implementation working group
- Leading an industry working group to increase understanding of supply chain methane emissions data through detection and quantification field campaigns
- Joined industry project developing pioneering offshore North Sea drone-based methane emission quantification technology

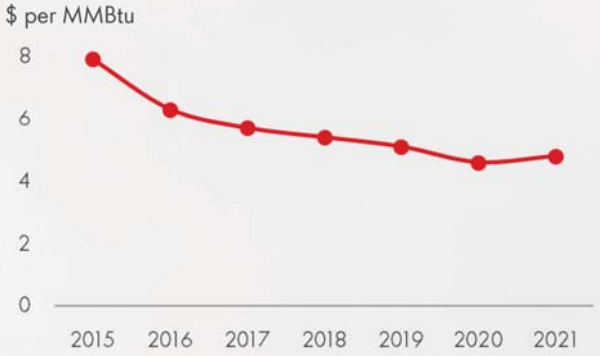
Picture credit: Flylogix

The improved efficiency on well workovers is relative to 2020.

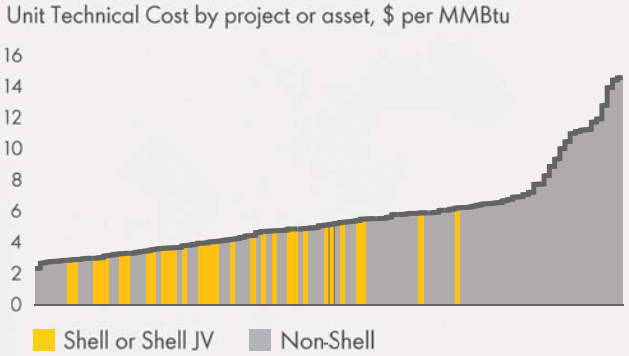
GROW THE BUSINESS

OPTIMISING CAPITAL TO CREATE VALUE

Unit technical cost reduced



Competitive project funnel



Robust project delivery

Structural decrease in cost

- UTC stable below target of $5/MMBtu set in 2015
- $4 billion per annum selective investment in competitive LNG assets, including backfill and expansion options
- Examples of competitive pre-FID projects: LNG Canada Expansion, Manatee

Commercially competitive

- Project funnel delivering LNG into Asia at total cost structure that is competitive in the industry
- We believe strong focus on scope 1 & 2 emissions reduction for new projects provides longer term competitive advantage and sustainability

Building new capacity

- LNG Canada will deliver 14 mtpa of supply into Asia. The LNG project is designed to have the lowest carbon intensity in the industry
- Nigeria LNG T7 will deliver 7.6 mtpa into Europe and Asia, with key supply from offshore assets
- Both projects to be onstream around the middle of the decade

Competitive funnel chart contains all projects and assets in the LNG industry. Non-Shell projects are a Shell interpretation of Wood Mackenzie data.

INTEGRATED GAS PORTFOLIO & MAJOR PROJECTS

KEY

- Liquefaction plants
- Liquefaction plants under construction
- Regasification terminals
- GTL
- On-stream gas projects

Project	Country	Shell share %	Peak production kboe/d	LNG capacity mtpa	Shell-operated
Under construction – Start-up 2022-2023					
Arrow - Surat Gas	Australia	50	backfill		
Colibri	Trinidad & Tobago	87	backfill		✓
Gorgon - Jansz	Australia	25	backfill		
QGC SW20+ Measure	Australia	62	backfill		✓
Oman Gas*	Oman	53	120		✓
Under construction – Start-up 2024+					
Gorgon - Jansz compression	Australia	25	backfill		
LNG Canada T1-2	Canada	40		14	
NLNG T7	Nigeria	26		7.6	
Pre-FID options					
Abadi	Indonesia	35	245	9.5	
East Med	Egypt	35	backfill		
LNG Canada Expansion	Canada	40		14	
Manatee	Trinidad & Tobago	100	backfill		✓
NWS - Browse	Australia	27	backfill		
Prelude - Crux	Australia	82	backfill		✓
Tanzania	Tanzania	25	[A]	15	✓

*FID of the project subject to the issuance of a Royal Decree by the government of the Sultanate of Oman confirming award of the Block 10 Concession Agreement.

Projects listed are a selection of our project portfolio. Peak production and LNG capacity are 100%. [A] to be confirmed.

INTEGRATED GAS

UPDATE SD21 TARGETS – PROGRESS MADE

Targets	Progress
~20% Opex reduction by 2022 vs 2019	Underlying 2021 IG Opex 15% lower than 2019
3 mtpa Develop new LNG markets by 2025	On track to deliver First LNG volumes supplied into Croatia
< $5/MMBtu Unit Technical Cost	Current project funnel average $4.8/ MMBtu
14% - 18% Average project IRR	Current project funnel average showing 14-18%

Targets	Progress
> 20% Market share in LNG bunkering sales by 2030	▪ 12 LNG fuelled crude and product tankers in operation, with a further 24 on order with expected delivery by end 2023 ▪ 5 bunker vessels in operation with a further 7 on order ▪ Completed over 700 global ship-to-ship bunkering at numerous ports in 10 countries ▪ First liquefied biomethane (BioLNG) bunkering trial in Rotterdam, together with CMA CGM
> 7 mtpa New LNG capacity onstream by the middle of the decade	Progress made on NLNG T7 and LNGC. 7.6 mtpa new capacity around middle of decade
GTL Uplift Aiming to grow value from GTL products	In Q3 2021 Pearl GTL achieved highest value uplift from GTL products on record

S**hell Integrated Business Deep Dive Feb 21, 2022 Wael Sawan.**

Items in "i*talics*" are SAF Group created transcript

Approx 9:18am MT. Analyst asks if the future equity percentage you have for the natural gas supply be less than the offtake percentage you have for the LNG? Wael, *".. typically, what I would say, as much as possible, having access across the entire value chain in as close of a percentage as you can, helps ensure that wherever value might rate at any point in time, you are capturing that value. So in general. Take our LNG Canada investment that you just referenced in the second question, we would look to be able to at least assure ourselves that we are not caught up by vagaries of one part of the market. let's say the gas supply, but we would want to have enough on the gas supply equity side to be able to make sure if gas prices go up there, we benefit from them while maybe disadvantaging the midstream or vice versa depending on where prices go. So we are not in the game of necessarily taking undue risk. we are in the game of creating integrated value chains that we can leverage as part of the broader portfolio*. "

Scotiabank asks on the media report of the infrastructure issue on LNG Canada? Wael " *on the issues around LNG Canada, a few things to say. Firstly, we're just, what is it 3 years, 3, 4 months since we have taken FID on that project. Just last oct we crossed the 50% completion on the site in Kitmat. Good progress and this was despite some real challenges with Covid. A lot of the modules coming from various yards in Asia being challenged. Credit to the team, I think some heroic efforts to be able to by and large continue to be on track. I think the challenge that you are referencing is more related to the pipeline – the Coastal GasLink pipeline. Multiple reasons for that which I won't get into in detail. This is a question better addressed to CGL themselves directly. But suffice it to say that we do have some concerns around the cost of the pipeline, we are having deep discussions with TCE, who oversee the pipeline and therefore tying to see how we can mitigate some of these cost increases. But so far, we see TCE getting back on the ball and making sure they are able to move at the pace that ensures that we have pipe before we have the plant. The last comment I will make on that pipeline. Some of you may have picked up the press the incredibly sad events of a couple days ago where we strongly, strongly condemn some of the violence that was shown. Thankfully, no one got hurt in Houston, British Columbia when a specific part of the pipeline around the Maurice River. 20 or so people attacked those who were earning a living at night and thankfully, they all came out well and safe. These events are unfortunate and I'm sure TCE and RCMP will be able to address the issue sufficiently*"

Sl 6. 8:36am MT. Sawan "*That brings me to the future. Our current integrated gas business is doing what we said we would do and is on the right trajectory. But we are not yet where we want to be. We have opportunities that we are pursuing to do even better, with our existing assets, but also to position our growth portfolio to one with even stronger returns with lower carbon emissions. Let me expand on that a bit more. For our capital spend, we need to be even more focused with a continued emphasis on value over volume. We have a capital budget of $4 to $5 billion a year in the short to medium term. We are making good progress on our two LNG capacity expansion projects under construction. In Canada, Canada LNG surpassed recently the 50% completion mark last October, after three years of construction. The project remains dedicated to have the first cargo by the middle of this decade*." He then speaks of Nigeria and that construction there is now firmly underway, and then says "*both these projects are competitively positioned for LNG growth markets in Asia. The same goes for most of our long term project funnel. We have several attractive expansion and backfill projects. A limited number of greenfield LNG projects and several promising low carbon new gaseous projects in early stages of development. For the pre-FID projects, we have an expected average internal rate of return of between 14% and 18%, and a unit technical cost below $5/mmbtu. With most of these projects clearly having lower costs than the average in the industry. These are good numbers, but you will understand that we strive to push the IRR to the higher end and to push the unit costs down even further. But the long term role of gas depends on efforts to abate emissions and develop cleaner pathways for gas. This is why we continually try to reduce the carbon intensity of our new projects. Take LNG Canada currently under construction. It will run on hydropower and is set to deliver the lowest carbon intensity in the entire industry."*

https://clubofmozambique.com/news/mozambique-president-wants-resumption-of-lng-projects-output-boost-224727/

Mozambique: President wants resumption of LNG projects, output boost

12:47 CAT | 14 Sep 2022

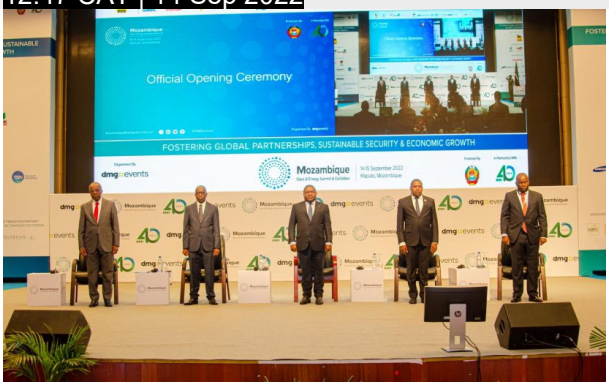


Photo : Domingo

Mozambique's president, Filipe Nyusi, called on Wednesday for oil companies to resume gas projects in Cabo Delgado, considering that there is more security than before the attack on Palma and global demand requires it.

"The success in combating terrorists in the Mocímboa da Praia – Palma axis, which includes roads and access to the port, provides a situation of greater stability" than before the attack on the town in March 2021, the head of state said at a conference on gas in Maputo.

On the other hand, the new context, particularly with the cut-off of gas supplies from Russia to Europe, allows Mozambique's supply to go "beyond the volumes to be produced" estimated by the initial studies of the projects.

"The rise in energy commodity prices appears favourable to the profitability of investments," he stressed, emphasising that the figures are well above the models used in 2019 to launch the Rovuma basin projects.

"In this context, we expect that development activities will be resumed by the concessionaires of area 1," the consortium led by TotalEnergies and which suspended the construction of the gas liquefaction plant due to deteriorating safety conditions.

Similarly, Nyusi advocated the final decision to invest in area 4, led by ENI and Exxon, "as soon" as possible.

The president said he would hold "more specialised meetings" with the sector to study "other support measures to maintain security".

"The terrorists are on the run", and the "Defence and Security Forces (FDS) are stabilising all affected districts", with local administration and public services returning, he added.

"Last week, there were more than 10,000 people in Palma," he added, inhabitants that "are also timidly beginning to return to Mocímboa da Praia," he concluded.

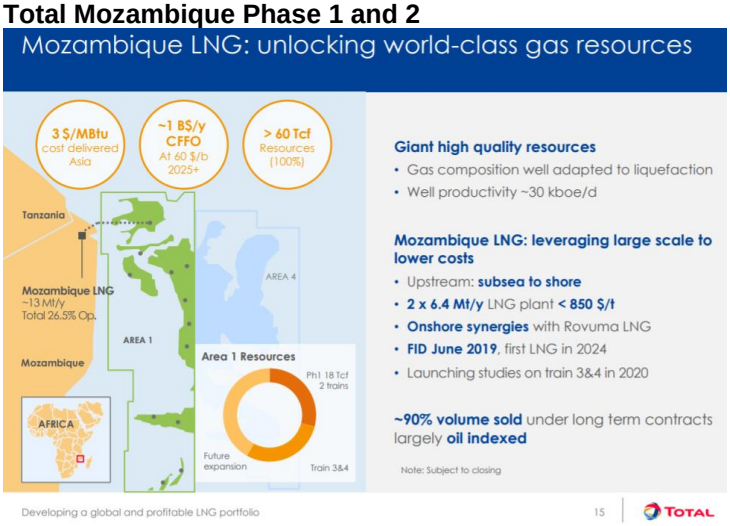
Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?

Posted Wednesday April 28, 2021. 9:00 MT

The next six months will determine the size and length of the new LNG supply gap that is hitting harder and faster than anyone expected six months ago. Optimists will say the Mozambique government will bring sustainable security and safety to the northern Cabo Delgado province and provide the confidence to Total to quickly get back to LNG development such that its LNG in-service delay is a matter of months and not years. We hope so for Mozambique's domestic situation, but will it be that easy for Total's board to quickly look thru what just happened? Total suspended LNG development for 3 months, restarted development on March 25, but then 3 days of violence led it to suspend development again on March 28, and announce force majeure on Monday April 26. Even if the optimists are right, Mozambique LNG is counted on for LNG supply and the major LNG supply project that are in LNG supply forecasts are now all delayed – Total Phase 1 of 1.7 bcf/d and its follow on Phase 2 of 1.3 bcf/d, and Exxon's Rozuma Phase 1 of 2.0 bcf/d. It is important to remember this 5.0 bcf/d of major LNG supply is being counted in LNG supply forecasts and starting in 2024. At a minimum, we think the more likely scenario is a delay of at least 2 years in this 5.0 bcf/d from the pre-Covid timelines. And this creates a much bigger and sooner LNG supply gap starting ~2025 and stronger outlook for LNG prices. Thermal coal in Asia will play a role in keeping a lid on LNG prices. But there will be the opportunity for LNG suppliers to at least review the potential for brownfield LNG projects to fill the growing supply gap. The thought of increasing capex was a non-starter six months ago, but there is a much stronger outlook for global oil and gas prices. Oil and gas companies are pivoting from cutting capex to small increases in 2021 capex and expecting for higher capex in 2022. We believe this sets the stage for looking at potential FID of brownfield LNG projects before the end of 2021 to be included in 2022 capex budgets. Mozambique is causing an LNG supply gap that someone will try to fill. And if brownfield LNG is needed, what about Shell looking at 1.8 bcf/d brownfield LNG Canada Phase 2? Cdn natural gas producers hope so as this would mean more Cdn natural gas will be tied to Asian LNG markets and not competing in the US against Henry Hub.

Total declares force majeure on Mozambique LNG, Yesterday, Total announced [LINK] "*Considering the evolution of the security situation in the north of the Cabo Delgado province in Mozambique, Total confirms the withdrawal of all Mozambique LNG project personnel from the Afungi site. This situation leads Total, as operator of Mozambique LNG project, to declare force majeure. Total expresses its solidarity with the government and people of Mozambique and wishes that the actions carried out by the government of Mozambique and its regional and international partners will enable the restoration of security and stability in Cabo Delgado province in a sustained manner".* Total is working Phase 1 is ~1.7 bcf/d (Train 1 + 2, 6.45 mtpa/train) and was originally expected to being LNG deliveries in 2024. There was no specific timeline for Phase 2 of 1.3 bcf/d (Train 3 + 4, 5.0 mtpa/train), but was expected to follow Phase 1 in short order to keep capital costs under control with a continuous construction process with a potential onstream shortly after 2026.

Total Mozambique Phase 1 and 2



Source: Total Investor Day September 24, 2019

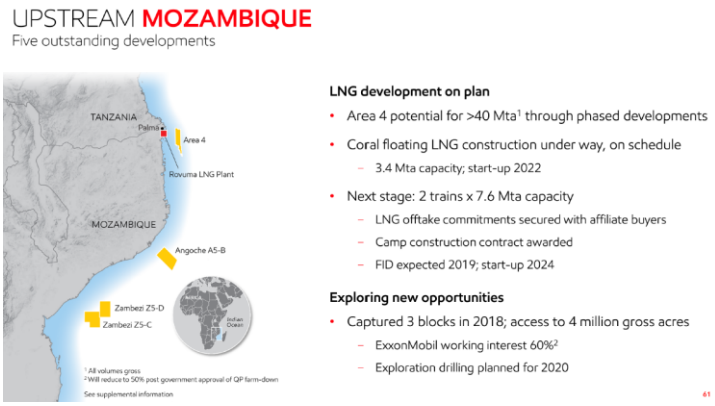
Total's Mozambique force majeure is no surprise, especially the need to the restoration of security and stability "in a sustained manner". Yesterday, Total announced [LINK] "*Considering the evolution of the security".* No one should be surprised by the force majeure or the sustained manner caveat. SAF Group posts a weekly Energy Tidbits research memo [LINK], wherein we have, in multiple weekly memos, that Total had shut down development in December for 3 months due to the violent 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. Local violence/attacks shut development down in Dec, the situation gets settled enough for Total to restart in March, only to be shut down 3 days thereafter. No one should be surprised especially with Total's need to see security and stability "in a sustained manner".

Does anyone really think Total will risk another quick 2-3 month restart or even in 2021? The Mozambique government will be working hard to convince Total to restart soon. We just find it hard to believe Total board will risk a replay of March 24-27 in 2021. Unfortunately, Mozambique has had internal conflict for years. It reached a milestone to the positive in August 2019. Our SAF Group August 11, 2019 Energy Tidbits memo [LINK] highlighted the signing of a peace pact between Mozambique President Nyusi and leader of the Renamo opposition Momade. This was the official end to a 2013 thru 2016 conflict following a failure to hold up the prior peace pact. At that time, FT reported [LINK] "Mr Nyusi has said that "*the government and Renamo will come together and hunt" rebels who fail to disarm. The government has struggled to stem the separate insurgency in the north, which has killed or displaced hundreds near the gas-rich areas during the past two years. While the roots of the conflict remain murky, it is linked to a local Islamist group and appears to be drawing on disaffection over sharing gas investment benefits, say analysts*." This is just a reminder this is not a new issue. LNG is a game changer to Mozambique's economic future. It is, but also has been, a government priority to have the security and safety for Total and Exxon to move on their LNG developments. Its hard to believe the Mozambique government will be able to quickly convince Total and Exxon boards that they can be comfortable there is a sustained security/safety situation and they can send their people back in to develop the LNG. Total's board would allow any resumption of development before year end 2021. The last thing Total wants is a replay of March 24-27. The first question is how long will it take before the Total board is convinced its safe to restart. Could you imagine them doing a replay of what just happened? Wait three months, restart development and have to stop again right away? We have to believe that could lead the Total board to believe it is unfixable for years. We just don't think they are to prepared to risk that decision in 3 months. Its why we have to think there isn't a restart approval until at least in 2022 at the earliest ie. why we think the likely scenario is a delay of 2-3 years, and not a matter of months.

Mozambique's security issues pushes back 5.0 bcf/d of new LNG supply at least a couple years. The global LNG issue is that 5 bcf/d of new Mozambique LNG supply (apart from the Eni Coral FLNG of 0.45 bcf/d) won't start up in 2024 and

continuing thru the 2020s. And we believe all LNG forecasts included this 5.0 bcf/d to be in service in the 2020s as Mozambique had been considered the best positioned LNG supply to access Asia after Australia and Papua New Guinea. (i) Eni Coral Sul (Rovuma Basin) FLNG of 0.45 bcf/d planned in service in 2022. [LINK] This is an offshore floating LNG vessel that is still expected to be in service in 2022. (ii) Total Phase 1 to add 1.7 bcf/d with an in service originally planned for 2024. We expect the in service data to be pushed back to at least 2026 assuming Total gives a development restart approval in Dec 2021. In theory, this would only be a 1 year loss of time. However, Total has let services go, the project will be idle for 9 months, it isn't clear if the need to get people out quickly let them do a complete put the project on hold, and how many people will be on site maintaining the status of the development during the force majeure. Also what new procedures and safety will be put in place for a restart. These all mean there will be added time needed to get the project back to where it was when force majeure was declared ie. why we think a 12 month time delay will be more like an 18 month project delay. (iii) Exxon's Rozuma Phase 1 LNG will add 2.0 bcf/d and, pre-Covid, was expected to be in service in 2025. We believe the delays related to security and safety at Total are also going to impact Exxon. We find it highly unlikely the Exxon board would take a different security and safety decision than Total. 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 in 2024. 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 the expectation was that FID would now be in 2022 (3 years later than original timeline0 and that would push first LNG likely to 2027. (iv) 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 2 years, so will Phase 2 so more likely 2028/2029.. (v) Total Phase 1 + 2 and Exxon Rozuma Phase 1 total 5.0 bcf/d and would have been (and still are) in all LNG supply forecasts for the 2020s. (vi) We aren't certain if the LNG supply forecasts include Exxon Rozuma Phase 2 ,which would be an additional 2.0 bcf/d on top of the 5.0 bcf/d noted above. Exxon Rozuma has always been expected to be at least 2 Phases. This has been the plan since the Anadarko days given the 85 tcf size of the resource on Exxon's Area 4. There was no firm in service data for Phase 2, but it was expected they would also closely follow Phase 1 to maintain services. We expect that original timeline would have been 2026/2027 and that would not be pushed back to 2029/2030. (vii) It doesn't matter if its only 5 bcf/ of Mozambique that is delayed 2 to 3 years, it will cause a bigger LNG supply gap and sooner. The issue for LNG markets is this is taking projects that are in development effectively out of the queue for some period.

Exxon Mozambique LNG



Source: Exxon Investor Day March 6, 2019

Won't LNG and natural gas get hit by Biden's push for carbon free electricity? Yes, in the US. For the last 9 months, we have warned on Biden's climate change plan that were his election platform and now form his administration's energy transition map. We posted our July 28, 2020 blog "*Biden To Put US On "Irreversible Path to Achieve Net-Zero Emissions, Economy-Wide" Is a Major Negative To US Natural Gas in 2020s* "[LINK] on Biden's platform "*The Biden Plan to Build a Modern, Sustainable Infrastructure and an Equitable Clean Energy Future*" [LINK]. Biden's new American Jobs Plan

[LINK] lines up with his campaign platform including to put the US "*on the path to achieving 100 percent carbon-free electricity by 2035*.". Our July 28, 2020 blog noted that it would require replacing ~60% of US electricity generation with more renewable and it could eliminate ~40% (33.5 bcf/d) of 2019 US natural gas consumption. If Biden is 25% successful by 2030, it would replace ~6.3 bcf/d of natural gas demand. It would be a negative to US natural gas and force more US natural gas to export markets. The wildcard when does US natural gas start to decline if producers are faced with the reality of natural gas being phased out for electricity. The other hope is that when Biden says "carbon-free", its not what ends up in the details of any formal policy statement ie. carbon electricity will be allowed with Biden's push for CCS.

Will Cdn natural gas be similarly hit by if Trudeau move to "emissions free" and not "net zero emissions" electricity? Yes and No. Our SAF Group April 25, 2021 Energy Tidbits memo [LINK] was titled ""*Bad News For Natural Gas, Trudeau's Electricity Goal is Now 100% "Emissions Free" And Not "Net Zero Emissions*". On Thursday, PM Trudeau spoke at Biden's global climate summit [LINK] and looks like he slipped in a new view on electricity than was in last Monday's budget and his Dec climate plan. Trudeau said "*In Canada, we've worked hard to get to over 80% emissions-free electricity, and we're not going to stop until we get to 100%."* Speeches, especially ones made on a global stage are checked carefully so this had to be deliberate. Trudeau said "*emissions free*" and not net zero emissions electricity. It seems like this language is carefully written to exclude any fossil fuels as they are not emissions free even if they are linked to CCS. Recall in Liberals big Dec 2020 climate announcement [LINK], Liberals said ""*Work with provinces, utilities and other partners to ensure that Canada's electricity generation achieves net-zero emissions before 2050*." There is no way Trudeau changed the language unless he meant to do so. And this is a major change as it would seem to indicate his plan to eliminate all fossil fuels used for electricity. If so this would be a negative to Cdn natural gas that would be stuck within Western Canada and/or continuing to push into the US when Biden is trying to switch to carbon free electricity. We recognize that there is still some ambiguity in what will be the details of policy and the Liberals aren't changing to no carbon sourced electricity at all. Let's hope so. But let's also be careful that politicians don't change language without a reason or at least with a view to setting up for some future hit. Plus Trudeau had a big warning in that same speech saying "*we will make it law to respect our new 2030 target and achieve net-zero emissions by 2050*". They plan to make it the law that Canada has to be on track for the Liberals 2030 emissions targets. This means that the future messaging will be that the Liberals have no choice but to take harder future emissions actions as it is the law. They will be just obeying the law as they will be obligated to obey the law. Everyone knows the messaging will be we have to do more get to Net Zero, that in itself will inevitably mean it will be the law if he actually does move to eliminate any carbon based electricity. So yes it's a negative, that is unless more Cdn natural gas can be exported via LNG to Asia. We believe this would be a plus to be priced against global LNG instead of Henry Hub.

Biden's global climate summit reminded there is too much risk to skip over natural gas as the transition fuel. Apart from the US and Canada, we haven't seen a sea shift to eliminating natural gas for power generation, especially from energy import dependent countries. There is a strong belief that hydrogen and battery storage will one day be able to scale up at a competitive cost to lead to the acceleration away from fossil fuels. But that time isn't yet here, at least not for energy import dependent countries. One of the key themes from last week's leader's speeches at the Biden global climate summit – to get to Net Zero, the world is assuming there wilt be technological advances/discoveries that aren't here today and that have the potential to immediately ramp up in scale. IEA Executive Director Faith Birol was blunt in his message [LINK] saying "*Right now, the data does not match the rhetoric – and the gap is getting wider*." And "*IEA analysis shows that about half the reductions to get to net zero emissions in 2050 will need to come from technologies that are not yet ready for market. This calls for massive leaps in innovation. Innovation across batteries, hydrogen, synthetic fuels, carbon capture and many other technologies.* US Special Envoy for Climate John Kerry said a similar point that half of the emissions reductions will have to come from technologies that we don't yet have at scale. UK PM Johnson [LINK] didn't say it specifically, but points to this same issue saying "*To do these things we've got to be constantly original and optimistic about new technology and new solutions whether that's crops that are super-resistant to drought or more accurate weather forecasts like those we hope to see from the UK's new Met Office 1.2bn supercomputer that we're investing in*." It may well be that the US and other self sufficient energy countries are comfortable going on the basis of assuming technology developments will occur on a timely basis. But, its clear that countries like China, India, South Korea and others are not prepared to do so. And not prepared to have the confidence to rid themselves of coal power generation. This is why there hasn't been any material change in the LNG demand outlook

We expect the IEA's blunt message that the gap is getting wider will be reinforced on May 18. We have had a consistent view on the energy transition for the past few years. We believe it is going to happen, but it will take longer, be a bumpy road and cost more than expected. This is why we believe the demise of oil and natural gas won't be as easy and fast as hoped for by the climate change side. The IEA's blunt warning on the gap widening should not be a surprise as they warned on this in June 2020. Birol's climate speech also highlighted that the IEA will release on May 18 its roadmap for how the global energy sector can reach net zero by 2050. Our SAF Group June 11, 2020 blog "*Will The Demise Of Oil Take Longer, Just Like Coal? IEA and Shell Highlight Delays/Gaps To A Smooth Clean Energy Transition*" [LINK] feature the IEA's June 2020 warning that the critical energy technologies needed to reduce emissions are nowhere near where they need to be. In that blog, we said "there was an excellent illustration of the many significant areas, or major pieces of the puzzle, involved in an energy transition by the IEA last week. The IEA also noted the progress of each of the major pieces and the overall conclusion is that the vast majority of the pieces are behind or well behind where they should be to meet a smooth timely energy transition. It is important to note that these are just what the IEA calls the "*critical energy technologies*" and does not get into the wide range of other considerations needed to support the energy transition. The IEA divides these "critical energy technologies "into major groupings and then ranked the progress of each of these pieces in its report "*Tracking Clean Energy Progress"* [LINK] by on track, more efforts needed, or not on track". Our blog included the below IEA June 2020 chart.

IEA's Progress Ranking For "Critical Energy Technologies" For Clean Energy Transition

Power	Renewable Power	Geothermal
	Solar PV	Ocean Power
	Onshore Wind	Nuclear Power
	Offshore Wind	Natural Gas-Fired Power
	Hydropower	Coal-Fired Power
	Bioenergy Power Generation	CCUS in Power
	Concentrating Solar Power	
Fuel Supply	Methane Emissions from O&G	Flaring Emissions
Industry	Chemicals	Pulp and Paper
	Iron and Steel	Aluminum
	Cement	CCUS in Industry and Transformation
Transport	Electric Vehicles	Transport Biofuels
	Rail	Aviation
	Fuel Consumption of Cars and Vans	International Shipping
	Trucks and Busses	
Buildings	Building Envelopes	Lighting
	Heating	Appliances and Equipment
	Heat Pumps	Data Centres and Data Transmission Networks
	Cooling	
Energy Integration	Energy Storage	Demand Response
	Hydrogen	Direct Air Capture
	Smart Grids	

Source: IEA

On Track More Efforts Needed Not on Track

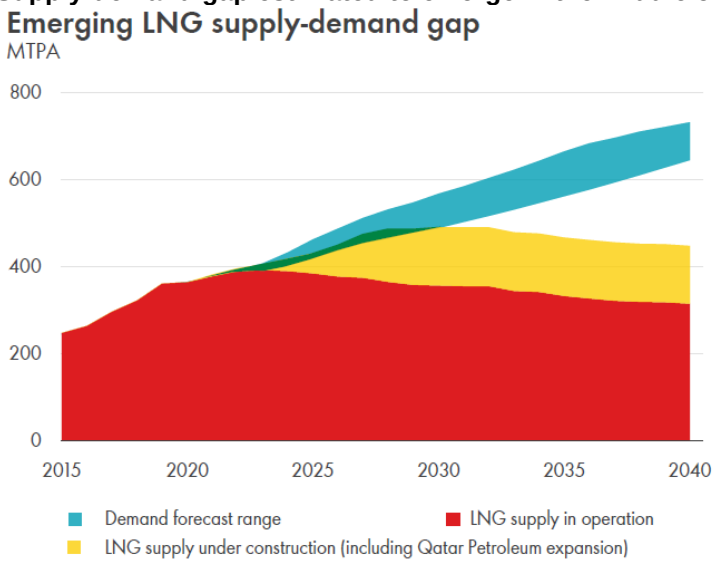
Source: IEA Tracking Clean Energy Progress, June 2020

We are referencing Shell's long term outlook for LNG We recognize there are many different forecasts for LNG, but are referencing Shell' LNG Outlook 2021 from Feb 25, 2021 for a few reasons. (i) Shell's view on LNG is the key view for when and what decision will be made for LNG Canada Phase 2. (ii) Shell is one of the global leaders in LNG supply and trading. (iii) Shell provides on the record LNG outlooks every year so there is the ability to compare and make sure the outlook fits the story. It does. (iv) Shell, like other supermajors, has had to make big capex cuts post pandemic and that certainly wouldn't put any bias to the need for more capex.

Shell's March 2021 long term outlook for LNG demand was basically unchanged vs 2020 and leads to a LNG supply gap in mid 2020s Shell does not provide the detailed numbers in their Feb 25, 2021 LNG forecast. We would assume they

would have reflected some delay, perhaps 1 year, at Mozambique but would be surprised if they put a 2-3 year delay in for the 5 bcf/d from Total Phase 1 +2 and Exxon Rozuma Phase 1. Compared to their LNG Outlook 2020, it looks like there was no change for their estimate of global natural gas demand growth to 2040, which looked relatively unchanged at approx. 5,000 bcm/yr or 484 bcf/d. Similarly, long term LNG demand looked unchanged to 2040 of ~700 mm tonnes (92 bcf/d) vs 360 mm tonnes (47 bcf/d) in 2020. In the 2021 outlook, Shell highlighted that the pandemic delayed project construction timelines and that the "*lasting impact expected on LNG supply not demand"*. And that Shell sees a LNG "*supply-demand gap estimated to emerge in the middle of the current decade as demand rebounds*". Comparing to 2020, it looks like the supply-demand gap is sooner.

Supply-demand gap estimated to emerge in the middle of the current decade



Source: Shell LNG Outlook 2021, Feb 25, 2021

Mozambique delays are redefining the LNG markets for the 2020s: Delaying 5 bcf/d of Mozambique new LNG supply 2-3 years means a much bigger supply gap starting in 2025.. Even if the optimists are right, there are now delays to all major Mozambique LNG supply from LNG supply forecasts. We don't have the detail, but we believe all LNG forecasts, including Shell's LNG Outlook 2021, would have included Total's Phase 1 and Phase 2 and Exxon Rozuma Phase 1. As noted earlier, we believe that the likely impact of the Mozambique security concerns is that these forecasts would likely have to push back 1.7 bcf/d from Total Phase 1 to at least 2026, 2.0 bcf/d Exxon Rozuma Phase 1 to at least 2027, and 1.3 bcf/d Total Phase 2 to at least 2028/2029 with the real risk these get pushed back even further. 5.0 bcf/d is equal to 38 mtpa. These delays would mean there is an increasing LNG supply gap in 2025 and increasingly significantly thereafter. And even if a new greenfield LNG project is FID's right away, it wouldn't be able to step in to replace Total Phase 1 prior startup timing for 2024 or likely the market at all until at least 2027. Its why the decision on filling the gap will fall on brownfield LNG projects.

And does this bigger, nearer supply gap force LNG players to look at what brownfield LNG projects they could advance? A greenfield LNG project would likely take at least until 2027 to be in operations. Its why we believe the Mozambique delays will effectively force major LNG players to look to see if there are brownfield LNG projects they should look to advance. Prior to the just passed winter, no one would think Shell or other major LNG players would be considering any new LNG FIDs in 2021. All the big companies are in capital reduction mode and debt reduction mode. But Brent oil is now solidly over $60 and LNG prices hit record levels in Jan 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. We would not expect any major LNG players to move to FID right away. But we see them watching to see if 2021 plays out to still support this increasing LNG supply gap. 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 5 months. The question facing Shell and others, 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 than expected a few months ago. We expect these decisions to be looked at before the end of 2021. LNG prices will be stronger, but we expect the limiting cap in Asia will be that thermal coal will be used to mitigate some LNG price pressure.

Back to Shell, does increasing LNG supply gap provide the opportunity to at least consider a LNG Canada Phase 2 FID over the next 9 months? 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 6 months ago. No one has been or is talking about this Mozambique impact and how it will at least force major LNG players to look at if they should FID new brownfield LNG projects to take advantage of this increasing supply gap. 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. No one is talking about the need for these new brownfield LNG projects, but, unless Total gets back developing Mozambique and keeps the delay to a matter of months, 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. A LNG Canada Phase 2 FID would be a big plus for Cdn natural gas. It would allow another ~1.8 bcf/d of Cdn natural gas to be priced against Asian LNG prices and not against 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 may be in Africa, but, unless sustained peace and security is attained, it is 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 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 to 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.

https://clubofmozambique.com/news/flng-protection-south-korea-sending-patrol-vessel-to-rovuma-basin-mozambique-224739/

FLNG protection: South Korea sending patrol vessel to Rovuma basin, Mozambique

3:17 CAT | 14 Sep 2022

Photo: Notícias

The South Korean government will shortly send a patrol vessel to Mozambique to protect the Coral Sul floating liquefied natural gas (FLNG) platform in the Rovuma basin.

The news was announced in Nairobi by Byoung-Gug Choung, the special envoy of South Korea's President Yoon Suk-yeol, after a meeting with President Filipe Nyusi on the side-lines of the inauguration of President-elect William Ruto of Kenya.

Speaking to Mozambican journalists, Byoung-Gug Choung explained that the patrol vessel would also facilitate the maintenance and the operation of the FLNG platform.

The floating platform, manufactured in South Korea and which arrived in Mozambique in January this year, is the most modern in the world in terms of liquefied natural gas production. It is also the first floating LNG facility ever deployed in the deep waters off the African continent, and the only one in the world to extract gas from such a depth.

The Coral Sul FLNG is 432 metres long and 66 metres wide, weighs around 220,000 tons, and has the capacity to accommodate up to 350 people in its eight-story living-quarter module. The facility is located at a water-depth of around 2,000 metres, and is kept in position by 20 mooring lines weighing a total of 9,000 tons.

Coral Sul FLNG has a gas liquefaction capacity of 3.4 million tons per year (MTPA), and will put in production 450 billion cubic metres of gas from the giant Coral reservoir, located in the offshore Rovuma Basin.

Source: Notícias / Additional info on Coral South: Eni

Germany to Implement Power Price Cap With “Great Speed”
2022-09-13 09:04:12.16 GMT

By Michael Nienaber
(Bloomberg) -- Germany will implement a power price cap quickly to help consumers and companies cope with soaring electricity costs, Chancellor Olaf Scholz said, adding that Berlin is also looking into ways how to push down heating and gas prices.

“We will now push this through with great speed, so that we can relieve the burden on consumers as well as on companies when it comes to electricity prices,” Scholz said in a speech at a BDA employers association conference in Berlin.

“We have to change the market design so that it can work as a market again and does not produce high costs in a way which is not justified by production,” Scholz said. “We will make sure that we can do the same for the heating and gas market, that is of course a different challenge.”

Scholz hinted, however, that a general cap on natural gas might not be the best way forward as such a measure could lead to reduced supply from the world market.

“With gas, for example, we are talking about supplies from friendly Norway, from the United States, from many other countries in the world, they are supplying us and they charge prices for this,” Scholz added.

“We will take further measures to get those prices down from the source and make them competitive and affordable again for the German industry,” Scholz said. The government plans to discuss possible instruments with experts from industry, trade unions and universities.

The European Union is also considering intervening in the energy markets to rein in energy costs and provide liquidity to a market that was brought into chaos after Russia curbed supplies to Europe amid its war in Ukraine. The controversial idea of trying to cap gas prices was postponed for more talks and measures are expected to be revealed on Wednesday.

Energy prices in Europe have been declining, in part, because of the prospect that the region will try to control markets. Benchmark gas futures declined more than 20% this month so far.

The introduction of price caps is seen as a negative intervention by some analysts. Price caps could jeopardize security of supplies, since in the competitive global market, energy flows go in the direction of those who pay the most. Capping gas prices could result in volume shortages, worsening the crisis, Timera Energy said in a report on Monday.

--With assistance from Vanessa Dezem.

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NORTH Dakota | Mineral Resources
Be Legendary.™

Release Date: 9/15/2022
Director Lynn Helms

Director's Cut
July 2022 Production

Oil Production

June 32,903,502 barrels = 1,096,783 barrels/day (final)
(New Mexico) **44,731,420 barrels = 1,491,047 barrels/day (+1.3%)**

July 33,155,038 barrels = 1,069,517 barrels/day **(-2.5%)** **(RF + 7.0%)**
1,027,456 barrels/day or 96% from Bakken and Three Forks
42,061 barrels/day or 4% from legacy pools

1,519,037 all-time North Dakota high Nov 2019

Revised Revenue Forecast **= 1,200,000→1,100,000→1,000,000 barrels/day**

Crude Price[1] ($/barrel)

	North Dakota Light Sweet	WTI	ND Market estimate
June	111.35	114.34	111.20 **(RF +122%)**
July	98.12	99.39	97.20 **(RF +94%)**
Today	85.50	88.48	86.99 **(Est. RF +74%)**
All-time high (6/2008)	$125.62	$134.02	$126.75

Revised Revenue Forecast **= $50.00**

Gas Production & Capture

June Production 91,883,343 MCF = 3,062,778 MCF/day
Gas Captured: 94% 86,534,190 MCF = 2,791,425 MCF/day

July Production 96,172,149 MCF = 3,102,327 MCF/day **(+1.3%)**
Gas Captured: 94% 90,254,028 MCF = 3,008,468 MCF/day
3,145,172 MCF/day all-time high production Nov 2019
3,008,468 MCF/day NEW all-time high capture July 2022

Fort Berthold Reservation Activity

	Total	Fee Land	Trust Land
Oil Production (barrels/day)	202,689	75,310	127,379
Drilling Rigs	4	2	2
Active Wells	2,632	644	1,988
Waiting on completion	20		
Approved Drilling Permits	272	38	234
Potential Future Wells	3,907	1,110	2,797

[1] Pricing References: WTI: EIA and CME Group; ND Light Sweet: Flint Hills Resources

Rigs & Wells

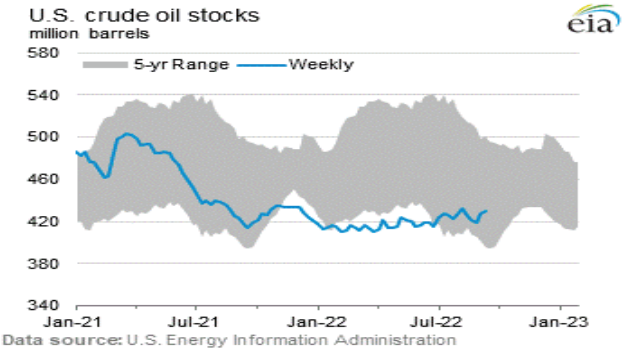
	June	July	August	Today
Rigs	42	45	46	45 New Mexico – 109 Federal Surface 0 All-time high – 218 (5/29/2012)
Permitted	77 drilling 0 seismic	53 drilling 0 seismic	102 drilling 0 seismic All-time high – 370 (10/2012)	-
Completed	27 (Preliminary)	74 (Preliminary)	66 (Preliminary) Revenue Forecast **30→40→<u>50</u>→60** **(RF+32%)**	-
Inactive[2]	1,750	1,655	-	-
Waiting on Completion[3]	483	465	-	-
Producing	17,298	17,369 (Preliminary) *NEW All-time high 17,369 (7/2022)* *15,108 (87%) from unconventional Bakken – Three Forks* *2,261 (13%) from legacy conventional pools*	-	-

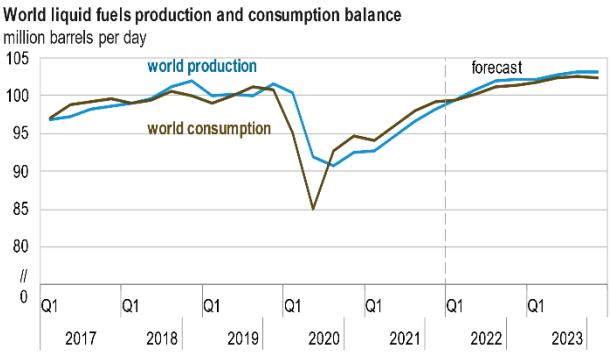
Drilling and Completions Activity & Crude Oil Markets

The drilling rig count has stalled in the mid-forties with slow increase expected over the next 2 years.

The number of active completion crews increased to 17 this week.

OPEC+ published production increases are as follows: July-August +648,000 August-August +648,000 August-September +101,000 (cancelled this week). Russia sanctions have exacerbated an already tight market. Lower transportation fuels and crude oil demand are resulting in a US crude oil stock build.





[2] Includes all well types on IA and AB statuses: **IA** = Inactive shut in >3 months and <12 months; **AB** = Abandoned (Shut in >12 months)

[3] The number of wells waiting on completions is an estimate on the part of the director based on idle well count and a typical five-year average. Neither the State of North Dakota, nor any agency officer, or employee of the State of North Dakota warrants the accuracy or reliability of this product and shall not be held responsible for any losses caused by this product. Portions of the information may be incorrect or out of date. Any person or entity that relies on any information obtained from this product does so at his or her own risk.

Crude oil transportation capacity including rail deliveries to coastal refineries is adequate, but could be disrupted due to:

- US Appeals Court for the ninth circuit upholding of a lower court ruling protecting the Swinomish Indian Tribal Community's right to sue to enforce an agreement that restricts the number of trains that can cross its reservation in northwest Washington state.
- DAPL Civil Action No. 16-1534 continues, but the courts have now ruled that DAPL can continue normal operations until the USACOE EIS is completed.
- Potential railroad worker strike – reported that a tentative deal has been reached.

Drilling activity is expected to slowly increase with operators maintaining a permit inventory of approximately 12 months. A survey of operators by JPT revealed the following:

"The surge in the cost of services and supplies pushed the average oil price needed to justify drilling a new oil well in the Mid-Continent to $65/bbl, according to a survey of industry experts by the Federal Reserve Bank of Kansas City released on 8 July.

When they were asked what it would take to get them to substantially increase drilling, they put the number at $98/bbl, which was higher than the closing price for the WTI price in futures trading on 14 July."

Gas Capture

US natural gas storage is 12% below the five-year average. Both US and world crude oil inventories remain below normal. US strategic petroleum reserve is at the lowest level since 1984.

The price of natural gas delivered to Northern Border at Watford City has returned to an elevated level of $8.05/MCF today for a current oil to gas price ratio of 11 to 1. The state-wide gas flared volume from June to July increased 12,602 MCFD to 190,906 MCF per day, the statewide percent flared increased to 6.0% while Bakken capture percentage was decreased to 94%. The historical high flared percent was 36% in 09/2011.

Gas capture details are as follows:

Statewide	94%
Statewide Bakken	94%
Non-FBIR Bakken	94%
FBIR Bakken	94%
Trust FBIR Bakken	95%
Fee FBIR	87%
Big Bend	80%
Deep Water Creek Bay	81%
Twin Buttes	71%
Charlson	76%

The Commission established the following gas capture goals:

74%	October 1, 2014 - December 31, 2014
77%	January 1, 2015 - March 31, 2016
80%	April 1, 2016 - October 31, 2016
85%	November 1, 2016 - October 31, 2018
88%	November 1, 2018 - October 31, 2020
91%	November 1, 2020

Seismic

There are currently 0 active oil and gas seismic surveys.

Active Surveys	Recording	NDIC Reclamation Projects	Remediating	Suspended	Permitted
0	1	0	0	5	1

Agency Updates

BLM on 1/20/21 DOI issued order 3395 implementing a 60 day suspension of Federal Register publications; issuing, revising, or amending Resource Management Plans; granting rights of way and easements; approving or amending plans of operation; appointing, hiring or promoting personnel; leasing; and permits to drill. On 1/27/21 President Biden issued an executive order that mandates a "pause" on new oil and gas leasing on federal lands, onshore and offshore, "to the extent consistent with applicable law," while a comprehensive review of oil and gas permitting and leasing is conducted by the Interior Department. There is no time limit on the review, which means the president's moratorium on new leasing is indefinite. The order does not restrict energy activities on lands the government holds in trust for Native American tribes.

What is the percentage of federal lands in ND?

Mineral ownership in ND is 85% private, 9% federal (4% Indian lands and 5% federal public lands), and 6% state. 66% of ND spacing units contain no federal public or Indian minerals, 24% contain federal public minerals, 9% contain Indian minerals,1% contain both.

How many potential wells could be delayed or not drilled by a Biden administration ban on drilling permits and hydraulic fracturing on federal lands?

A spatial query found 3,443 undrilled wells in spacing units that would penetrate federal minerals, 2,902 undrilled wells in spacing units would penetrate BIA Trust minerals (700 tribal minerals and 2,202 allotted minerals), and the total number of wells potentially impacted is 6,345. The minimum number of future Bakken wells is 24,000 so the 3,443 wells on federal public lands = 14%, and the 2,902 wells on trust lands = 12%.

What is the potential federal royalty loss from a Biden administration ban on drilling permits and hydraulic fracturing on federal lands?

A recent study from University of Wyoming estimated the ND loss as follows: 2021-2025 $76 million, 2026-2030 $113 million, 2031-2035 $160 million, and 2036-2040 $221 million for a total of $570 million over 15 years. Please note that 50% of the royalties on federal public lands go to the state and 50% of the state share goes to the county where the oil was produced.

On 7/7/21 North Dakota sued the Department of Interior (DOI), Secretary of Interior Debra Haaland, Bureau of Land Management (BLM), Director of the BLM Nada Culver, and Director of the Montana-Dakotas BLM John Mehlhoff in US District Court for the District of North Dakota. The lawsuit requested the court:

Compel the Federal Defendants to hold quarterly lease sales. Oral arguments are scheduled for 1/12/22 in Bismarck.
Prohibit the Federal Defendants from cancelling quarterly lease sales.
Enjoin the Secretary implementing a moratorium on federal lease sales.
Declare that Federal Defendants are in violation of MLA, FLPMA, NEPA, and APA.
Grant other relief sought and as the court deems proper to remedy the violations.

There are 811 tracts nominated for pending lease sales in ND:

- 569 are pending NEPA or surface manager concurrence
- 242 are fully evaluated with Record of Decision by US Forest Service and Corp of Engineers, and waiting for scheduled auction – value to ND 1,037 wells and $4.9 billion (GPT, OET, NDTL royalties, federal royalties, sales tax and income tax)

On 01/14/2022 Judge Traynor denied North Dakota's motion without prejudice. In the Order on Mandamus, the Court noted that "a fully developed factual record is necessary to resolve the instant dispute." The Court also held that because Federal Defendants had given the Court "assurances at the hearing the process to start Federal oil and gas leasing sales in North Dakota was imminent" mandamus relief was "unnecessary." However, the Court noted that "if the Defendants do not hold to their word and cancel any planned future sale, North Dakota may bring this action for review of the specifically cancelled sales once this Court has the benefit of a complete record.". Federal Defendants have cancelled the Q1 2022 lease sale, but have now published a potential Q2 sales listing with a protest period ending 5/18/22. The matters at issue in Louisiana v. Biden et al. continue to be litigated. For these reasons, North Dakota filed a motion with the Court to enter a Scheduling Order setting the following schedule for resolving North Dakota's case:

1. Federal Defendants will prepare an administrative record for lodging and certification to this Court by no later than March 25, 2022.
2. North Dakota will file any motion to complete the administrative record within fourteen days from when the administrative record is lodged.
3. The dispositive briefing schedule will then proceed as follows:

a. North Dakota will file its opening brief within four weeks of when the administrative record is complete.
b. The Federal Defendants and Intervenors will simultaneously file their responsive briefs within four weeks of North

https://bismarcktribune.com/news/state-and-regional/north-dakota-oil-production-drops-for-first-time-in-2-months-natural-gas-production-up/article_9bb31e7e-353b-11ed-a905-db9cf24bc61f.html

North Dakota oil production drops for first time in 2 months; natural gas production up

JACKIE JAHFETSON

4 hrs ago

North Dakota oil production in July dropped 2.5% after a two-month rising streak, while natural gas production was up 1.3%, the state Department of Mineral Resources reported Thursday.

July oil production fell to just over 1 million barrels per day. The state's oil figures lag two months as officials collect and analyze data from energy companies. Director Lynn Helms said the Mineral Resources Department was surprised to see the decline in July when officials were anticipating to reach June's mark of 1.1 million barrels daily.

Helms said the drop is likely because of fewer well completions due to a lack of available workforce.

The drilling rig count in North Dakota has "stalled out" in the mid-forties, Helms said, adding that the department continues to hear "the steady drumbeat that it's a skilled workforce problem."

Helms addressed a tentative labor deal that has averted a potential railroad workers strike. About 100,000 barrels of oil per day is dependent on rail to move out of North Dakota, he said, explaining that is the only means of transportation that can reach the West Coast, where three out of every four barrels is delivered.

July gas production in North Dakota totaled 3.1 billion cubic feet per day. The state's record production was 3.15 billion cubic feet per day in November 2019. July was the first time North Dakota surpassed more than 3 billion cubic feet per day in capturing and marketing gas.

North Dakota maintained 94% gas capture in July, the same as June, and exceeded the state's 91% target. The rest was burned off at well sites in a wasteful process known as flaring, due to a lack of access to pipelines and processing plants.

MONTHLY UPDATE

SEPTEMBER 2022 PRODUCTION & TRANSPORTATION

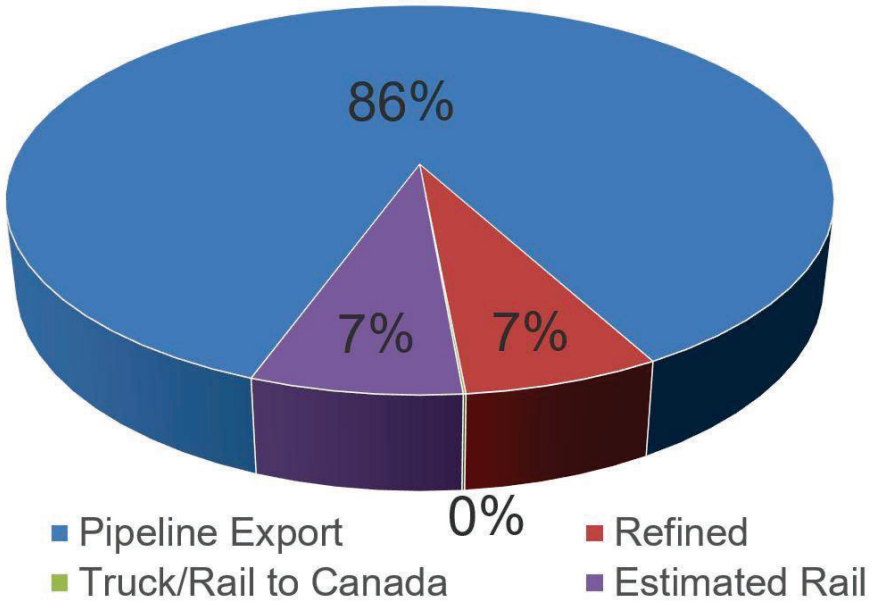
North Dakota Oil Production

Month	Monthly Total, BBL	Average, BOPD
June 2022 - Final	32,903,502	1,096,783
July 2022 - Prelim.	33,155,038	1,069,517

North Dakota Natural Gas Production

Month	Monthly Total, MCF	Average, MCFD
June 2022 - Final	91,883,343	3,062,778
July 2022 - Prelim.	96,172,149	3,102,327

Estimated Williston Basin Oil Transportation, July 2022



CURRENT DRILLING ACTIVITY:

NORTH DAKOTA[1]

45 Rigs

EASTERN MONTANA[2]

2 Rigs

SOUTH DAKOTA[2]

0 Rigs

SOURCE (SEP 15, 2022):

1. ND Oil & Gas Division
2. Baker Hughes

PRICES:

Crude (WTI): $85.34

Crude (Brent): $90.87

NYMEX Gas: $8.29

SOURCE: BLOOMBERG (SEP 15, 2022 10AM CST)

GAS STATS*

94% CAPTURED & SOLD

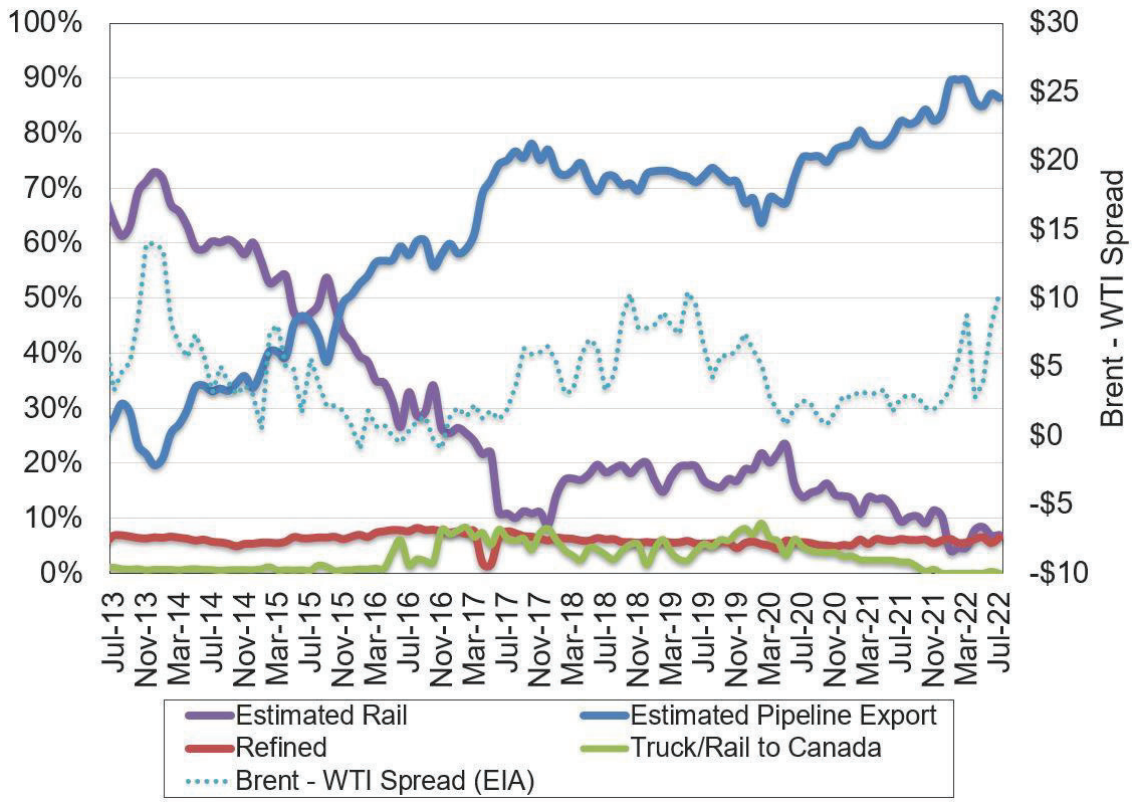
5% FLARED DUE TO CHALLENGES OR CONSTRAINTS ON EXISTING GATHERING SYSTEMS

1% FLARED FROM WELL WITH ZERO SALES

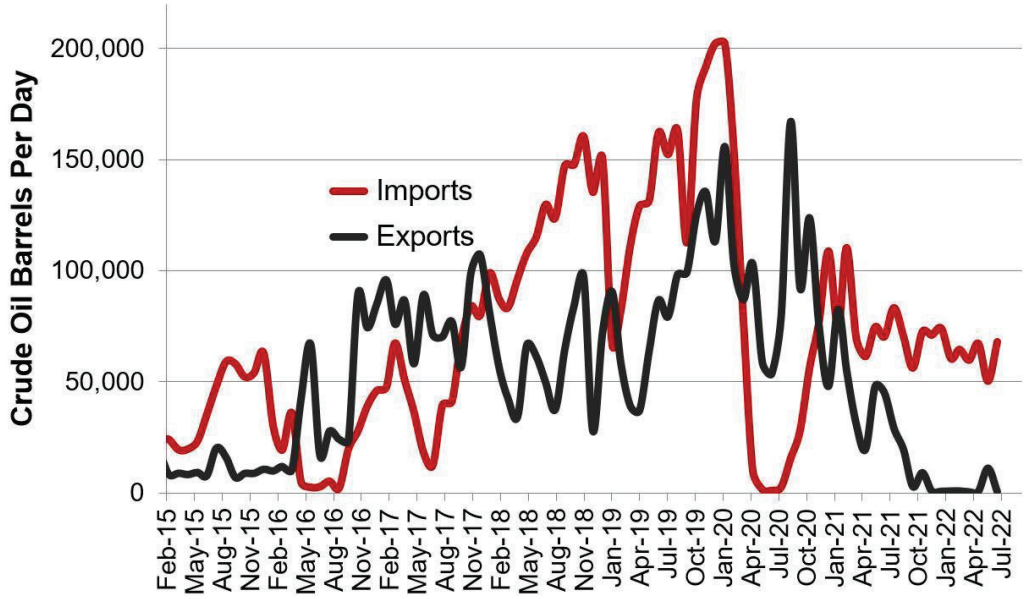
JULY 2022 NON-CONF DATA

Estimated North Dakota Rail Export Volumes

Estimated Williston Basin Oil Transportation

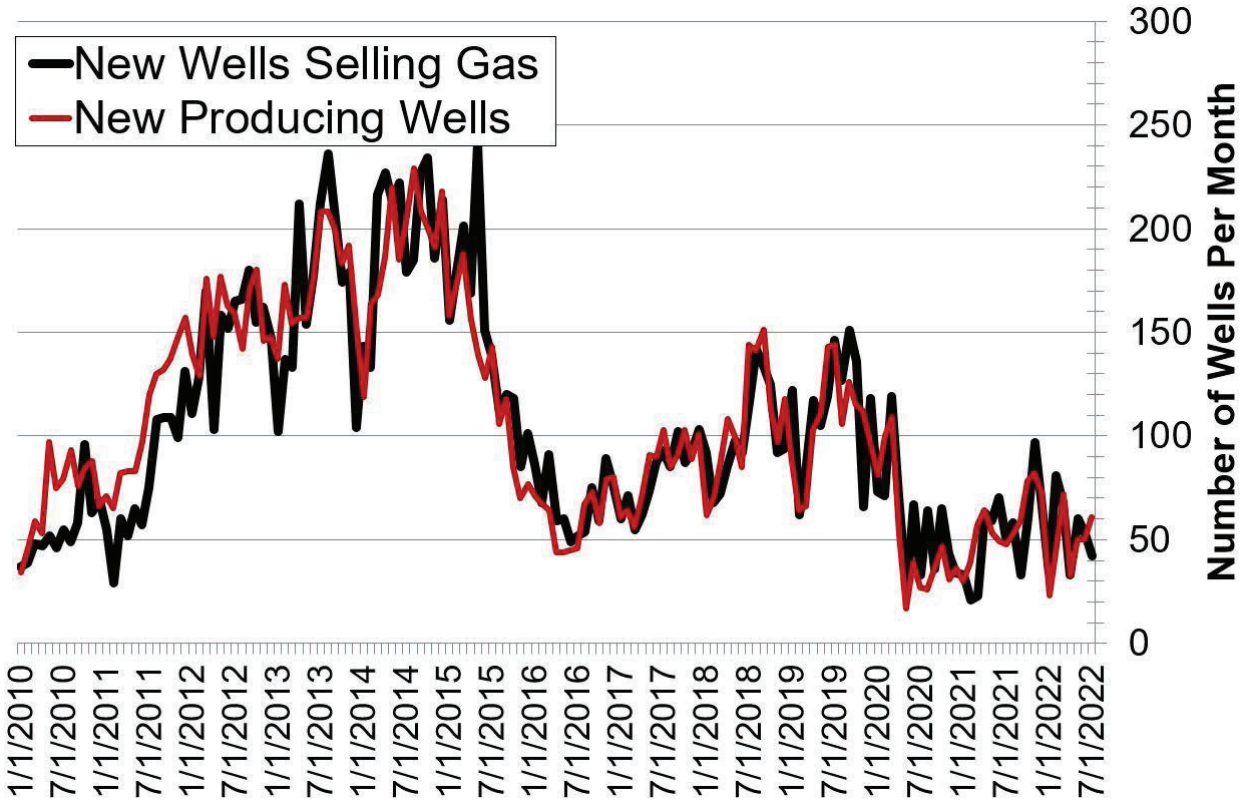


Williston Basin Truck/Rail Imports and Exports with Canada



Data for imports/exports chart is provided by the US International Trade Commission and represents traffic across US/Canada border in the Williston Basin area.

New Gas Sales Wells per Month



US Williston Basin Oil Production, BOPD

2021

MONTH	ND	EASTERN MT*	SD	TOTAL
January	1,147,724	50,415	2,874	1,201,012
February	1,083,820	48,246	2,828	1,134,895
March	1,109,005	49,520	2,744	1,161,269
April	1,121,776	48,440	2,644	1,172,860
May	1,129,785	47,277	2,640	1,179,702
June	1,134,758	44,100	3,103	1,181,962
July	1,078,883	43,758	2,884	1,125,525
August	1,108,084	47,284	2,892	1,158,260
September	1,113,963	50,410	2,847	1,167,220
October	1,110,828	49,462	2,853	1,163,143
November	1,158,553	48,588	2,780	1,209,921
December	1,144,999	47,957	2,717	1,195,673

2022

MONTH	ND	EASTERN MT*	SD	TOTAL
January	1,088,613	47,599	2,709	1,138,921
February	1,089,091	46,945	2,742	1,138,778
March	1,122,640	49,451	2,709	1,174,800
April	905,357	49,804	2,338	957,499
May	1,059,060	48,994	2,648	1,110,702
June	1,096,783		2,764	
July	1,069,517			
August				
September				
October				
November				
December				

** Eastern Montana production composed of the following Counties: Carter, Daniels, Dawson, Fallon, McCone, Powder River, Prairie, Richland, Roosevelt, Sheridan, Valley, Wibaux*

https://www.tasnimnews.com/en/news/2022/09/11/2772824/iran-to-build-own-refineries-abroad

Iran to Build Own Refineries Abroad

- September, 11, 2022 - 13:14

TEHRAN (Tasnim) – Iran has signed two contracts to build oil refineries for itself in foreign countries, an MP said.

Speaking to Tasnim, member of the Iranian Parliament's Energy Commission Parviz Mohammadnejad said the lawmakers have repeatedly recommended that the Oil Ministry should take swift action to attract foreign investment and construct "extraterritorial refineries".

He said two contracts have been signed so far to set up refineries in other countries.

The MP noted that constructing refineries outside Iran will improve the country's international relations in the energy sector and help Tehran generate a high and sustainable currency income.

The construction of extraterritorial refineries has many advantages, as it would allow for easier access to the customers without any barrier, Mohammadnejad noted.

"Venezuela has many refineries which require our country's up-to-date knowhow and technology. We can take advantage of such a capacity to achieve our purposes in and outside the region. We can have access to the customers without paying additional costs in this way, because the extra and additional expenses for the export of oil are very high at present," he added.

During a visit to Tehran in June, President of Venezuela Nicolas Maduro and the oil minister of Iran weighed plans to strengthen cooperation between the two countries in various fields relating to the energy, oil and petrochemical industries.

They made a series of decisions about the export of technical and engineering services, renovation and reconstruction of refineries, and the development of oil and gas fields.

Germany Tightens Control Over Industry With Russian Oil Grab
2022-09-16 07:57:58.216 GMT

By Stefan Nicola
(Bloomberg) -- Germany seized the local unit of Russian oil major Rosneft PJSC as Berlin moves to take sweeping control of its energy industry, secure supplies and sever decades of deep dependence on Moscow for fuel.
In the latest move, the government said it was taking over Rosneft's German unit, including stakes in three oil refineries.
As Germany prepares to stop buying Russian crude by the end of the year because of sanctions, it needs to find alternative sources and make sure Russian ownership of its key refineries doesn't become a threat to supplies.
Germany has been particularly hard hit by the economic standoff with the Kremlin because of its reliance on Russian gas and oil. Sanctions and Moscow's efforts to punish Europe economically for its support for Ukraine risk tipping the region's largest economy into recession. Its energy sector is reeling from the squeeze on supplies, and government bailouts are quickly being dwarfed by the scale of the crisis.
In parallel to its swoop on Rosneft, Chancellor Olaf Scholz's government is in advanced talks to take over Uniper SE and two other large gas importers to avoid a collapse of its energy system, Bloomberg reported on Thursday. A decision could come within days. The need for action is urgent with Uniper losing 100 million euros a day as it tries to replace Russian gas with more expensive alternatives.
"Things are complex, we are working it through very carefully," Economy Minister Robert Habeck said on Thursday.
Read more: Germany Working on Historic Takeover of Three Gas Companies
Seizing the Rosneft unit is an escalation in the economic standoff with Russia as Berlin unwinds decades of tight collaboration. The Schwedt refinery -- near the Polish border -- has, until now, got its crude via the Druzhba pipeline from Russia. As long as the plant remained significantly in Russian hands, it was hard to see how the facility would keep getting enough fuel to supply Berlin and other parts of eastern Germany.

The government said the move "counteracts the impending threat to the security of energy supply and lays an important foundation for the preservation and future of the Schwedt location," the Economy Ministry said.
Grid regulator BNetzA will become trustee of RN Refining & Marketing GmbH and Rosneft Deutschland GmbH, which account for around 12% of Germany's oil processing capacity, through stakes in oil refineries in Schwedt, Karlsruhe and Vohburg. It's a similar setup to the takeover of Gazprom Germania earlier this year.
Germany has the power to takeover the administration of an energy company by issuing an order through the German Energy Safety Act. The order, issued by the Economy Ministry, elapses

after six months but can be simply renewed.
Rosneft can challenge the order in German courts.
Scholz and Habeck will present more details on the nationalization plan at a news conference in Berlin later Friday, it added. The government has declined to comment on any plans to nationalize the gas companies.
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Read more:
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Cold War Relic Threatens Europe's Plans to Ditch Russian OilGermany Signals It May Stop Rosneft Running Schwedt RefineryEurope Prepares Blackout Plans to Head Off Winter Energy ChaosWhy Europe Is Crippled By a Wartime Energy Crisis: QuickTake
*T

--With assistance from Michael Nienaber and Alaric Nightingale.

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To view this story in Bloomberg click here:
https://blinks.bloomberg.com/news/stories/RIAIMSDWX2PT

Oil Market Highlights

Crude Oil Price Movements

Crude oil spot prices fell for the second-consecutive month in August. The North Sea Dated benchmark declined by $13/b month-on-month (m-o-m), while Dubai fell by almost $7/b. The OPEC Reference Basket fell by $6.65, or 6.1%, to settle at $101.90/b. The ICE Brent front-month declined by $7.38, or 7.0%, to average $97.74/b. NYMEX WTI fell by $7.90, or 7.9%, to average $91.48/b. Consequently, the Brent-WTI futures spread widened by 52¢ to an average of $6.26/b. The market structure of all three major crude benchmarks – ICE Brent, NYMEX WTI and DME Oman – remained in backwardation but flattened significantly in August. Hedge funds and other money managers further cut net long positions in the two major futures contracts. The paper and physical markets have become increasingly more disconnected. In a way, the market is in a state of schizophrenia, and this is creating a type of yo-yo market and sending erroneous signals at times when greater visibility and clarity and well-functioning markets are needed more than ever to allow market participants to efficiently hedge and manage the huge risks and uncertainties they face.

World Economy

The global economic growth forecast remained similar to last month's assessment at 3.1% for both 2022 and 2023, although some minor adjustments have been applied. For the US, economic growth remained unchanged for both 2022 and 2023 at 1.8% and 1.7%, respectively. Euro-zone economic growth for 2022 was revised down to 3.1%, but remained at 1.7% for 2023. Japan's economic growth forecast remained unchanged at 1.4% for 2022, followed by growth of 1.6% in 2023. China's 2022 growth forecast was revised down to 4.2 %, while the 2023 forecast remained unchanged at 5.0%. The forecast for India remained the same at 7.1% in 2022 and 6.0% in 2023. Brazil's economic growth forecasts were revised up slightly for both 2022 and 2023, to stand at 1.5% and 1.6%, respectively. The 2022 forecast for Russia was unchanged, showing a contraction of 6.0%. This will be followed by growth of 1.2% in 2023. The global growth level has been well supported by consumption, which has shown a solid trend especially in advanced economies. However, some downside risks remain, stemming from ongoing geopolitical tensions, the pandemic, supply chain issues, rising inflation, high sovereign debt levels in many regions, and expected monetary tightening by US, EU and UK central banks.

World Oil Demand

World oil demand growth in 2022 remained unchanged from the previous month's assessment at a healthy level of 3.1 mb/d. This includes the recently observed trend for additional oil demand growth due to fuel switching in power generation. Oil demand in the OECD is estimated to grow by 1.6 mb/d in 2022, while non-OECD growth is expected at 1.5 mb/d. The second quarter of 2022 is revised higher amid better-than-anticipated oil demand in the main OECD consuming countries, while the 3Q22 and 4Q22 have seen offsetting revisions. For 2023, the forecast for world oil demand growth also remained unchanged from the previous month's assessment to 2.7 mb/d. The OECD is expected to grow by 0.6 mb/d and the non-OECD by 2.1 mb/d. Oil demand in 2023 is expected to be supported by a still-solid economic performance in major consuming countries, as well as potential improvements in COVID-19 restrictions and reduced geopolitical uncertainties.

World Oil Supply

Non-OPEC liquids supply growth in 2022 remained broadly unchanged from last month's assessment at 2.1 mb/d. A downward revision in Other Eurasia and OECD Americas was offset by an upward revision in Latin America and Other Asia. The main drivers of liquids supply growth for 2022 are expected to be the US, Canada, China, Brazil and Guyana, while the main production declines are expected in Indonesia and Norway. In 2023, the forecast for non-OPEC liquids production growth remained unchanged from last month's assessment of 1.7 mb/d. The main drivers for 2023 growth are expected to be the US, Norway, Brazil, Canada and Guyana, whereas oil production declines are projected mainly in Russia and Azerbaijan. However, geopolitical concerns and uncertainties around the operational side as well as financial aspects of US production remain high. OPEC NGLs and non-conventional liquids are forecast to grow by 0.1 mb/d in 2022 to average 5.4 mb/d, and by 50 tb/d in 2023. In August, OPEC-13 crude oil production increased by 618 tb/d m-o-m to average 29.65 mb/d, according to available secondary sources.

Product Markets and Refining Operations

Refinery margins showed diverging trends in August. In the US Gulf Coast (USGC), margins declined moderately, with weakness mainly at the top of the barrel. This was on the back of weaker gasoline domestic consumption which exhibited signs of a slowdown amid concerns over high inflation, economic growth and the approaching end of the driving season. In contrast, refinery margins in Europe and Asia reversed trend, following the steep losses witnessed in July. This was mainly reflective of a continued decline in diesel availability, as high operational costs for European refiners due to strong natural gas prices weighed on diesel production. In Asia, strong diesel consumption in India and China, and open arbitrage for diesel flows from Asia to Europe, led to significant regional market support that resulted in higher refining gains. Over the month, global refinery runs slightly extended the upward trend, in line with expected seasonality, despite significant unplanned US refinery outages.

Tanker Market

Dirty tanker spot freight rates continued to pick up in August. They now stand at the top of the five-year range. VLCC rates rose a further 16% m-o-m on average, with all monitored routes seeing gains. Spot VLCCs rates on the Middle East to East route rose 17%. Aframax rates edged up 5% on average, with rates on the Caribbean to US East Coast route up 21%, offsetting declines on Mediterranean routes. Suezmax rates rose 4% on average. Clean rates fell for the second-month in a row, with rates on the NWE to the US East Coast down 6%.

Crude and Refined Products Trade

Preliminary data shows US crude imports fell in August after reaching a three-year high in July, while US crude exports set a new record high of just under 4.0 mb/d. Japan's crude imports recovered from an 11-month low to average 2.6 mb/d in July, representing a strong y-o-y increase. Preliminary estimates show OECD Europe crude imports moved to higher levels in May, while crude exports remained at low levels as more locally produced supply remained in the region. Preliminary data shows China's crude imports averaging 9.5 mb/d in August, representing a y-o-y decline of around 10%. China's product exports remained soft August as increased outflows of gasoline, fuel oil and gasoil outpaced declines in jet fuel and naphtha. India's crude imports edged 3% higher to average a robust 4.8 mb/d in July, with secondary sources showing Russian flows remaining above 1.0 mb/d. India's product exports dropped a seasonal 18%, with losses in naphtha and gasoil.

Commercial Stock Movements

Preliminary July data sees total OECD commercial oil stocks up m-o-m by 18.1 mb. At 2,699 mb, they were 148 mb less than the same time a year ago, 279 mb lower than the latest five-year average and 271 mb below the 2015-2019 average. Within the components, crude and product stocks rose m-o-m by 6.4 mb and 11.7 mb, respectively. At 1,318 mb, OECD crude stocks were 45 mb lower than the same time a year ago, 128 mb below the latest five-year average and 144 mb lower than the 2015-2019 average. OECD product stocks stood at 1,380 mb, representing a deficit of 103 mb compared to the same time a year ago, 151 mb lower than the latest five-year average and 127 mb below the 2015-2019 average. In terms of days of forward cover, OECD commercial stocks rose by 0.3 days m-o-m in July to stand at 59.1 days. This is 2.7 days below July 2021 levels, 5.3 days less than the latest five-year average and 3.4 days lower than the 2015-2019 average.

Balance of Supply and Demand

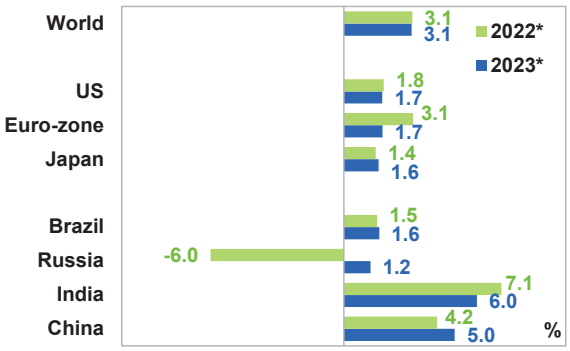
Demand for OPEC crude in 2022 remains unchanged from the previous month's assessment to stand at 28.9 mb/d. This is around 0.9 mb/d higher than in 2021. Demand for OPEC crude in 2023 was also unchanged from the previous assessment at 29.8 mb/d. This is around 0.9 mb/d higher than in 2022.

Feature Article

Assessment of the global economy

Economic growth is forecast to remain robust at 3.1% in 2022. Consumer spending in value terms has performed well in recent months — better than indicated by underlying sentiment, particularly in Western economies. Positively, this weakening sentiment seems to have been offset so far by a combination of ongoing social welfare measures in advanced economies, rising wages and salaries, increasing debt-financed consumption, particularly in the US, as well as consumers tapping into their savings. In terms of economic sectors, support has come from a recovery in the contact-intensive services sector, as can be seen from the rebound in global tourism activity. Moreover, strong growth in commodity-exporting economies and rising global trade contributed to this trend. Finally, some strong economic growth trends in 1H22 should be highlighted, which provides a more granular perspective when reviewing global economic developments. Economies like India and the Euro-zone showed a strong growth dynamic in 1H22, compensating very well for the relatively — and likely temporary — weaker performance of the US and China.

Graph 1: GDP growth forecast for 2022-23



*Note: * 2022-2023 = Forecast. Source: OPEC.*

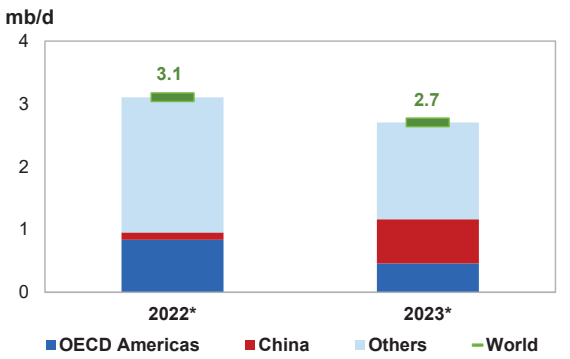
Looking forward to the coming year, global economic growth in 2023 is again expected to be strong at 3.1%. This matches the average pre-pandemic growth level of around 3.1% between 2009 and 2019. Despite the obvious downside risks, there is also upside potential to the global economic growth forecast. Fiscal measures in the EU and China support growth towards the end of the year and lead to the potential continuation of a stable dynamic in 2023. This fiscal support may at least counter-balance the anticipated downward momentum that some market observers forecast. Moreover, any resolution to developments in Eastern Europe could have a positive impact on the inflationary dynamic, allowing for less hawkish monetary policy, which in turn could uplift consumer and business sentiment, in addition to triggering a wide range of other positive impacts. However, downward risks still exist.

Another important aspect is the strong rise of the US dollar, which is an outcome of considerable monetary tightening efforts by the US Federal Reserve, in combination with uncertainty in the global economy. The strengthening of the US dollar led to rising import costs in non US-dollar denominated economies in 1H22, including major economies like Japan and India. However, the expectation of a less accentuated rise in the US dollar exchange rate in 2H22 could provide some relief to affected economies in the near term.

Oil demand is forecast to remain driven by ongoing global economic growth, especially by the recovery in travel and transportation, which is projected to lead to robust overall growth in oil demand of 3.1 mb/d in 2022 and 2.7 mb/d in 2023, surpassing the pre-COVID-19 levels, to stand at 102.7 mb/d (***Graph 2***).

Given the ongoing high level of uncertainty and increased volatility observed in the markets, OPEC and non-OPEC countries participating in the Declaration of Cooperation (DoC) will continue to monitor market developments and address challenges as well as ensure sustainable market stability.

Graph 2: World oil demand growth in 2022-23



*Note: * 2022-2023 = Forecast. Source: OPEC.*

World Oil Demand

World oil demand for 2022 is expected to rise by 3.1 mb/d, y-o-y unchanged from last month's report. Gas-to-oil substitution for power generation and for industrial uses in OECD Europe and Asia represents an important component of the demand outlook for the year.

Total oil demand is projected to average 100.0 mb/d in 2022. In the OECD region, oil demand is anticipated to rise by 1.6 mb/d to 46.4 mb/d y-o-y. OECD Americas demand is expected to rise the most in 2022, led by the US on the back of recovering gasoline and diesel demand. Light distillates are also projected to support demand growth this year.

In the non-OECD region, total oil demand for the year is anticipated to rise by 1.5 mb/d to 53.7 mb/d. A steady increase in industrial and transportation fuel demand, supported by a recovery in economic activity and an easing of COVID-19 restrictions in China, are projected to boost demand in 2022.

In 2023, expectations for healthy global economic growth, combined with anticipated improvements in the containment of COVID-19 in China, are expected to boost oil consumption. The demand outlook for 2023 remains at 2.7 mb/d, unchanged from the last MOMR, and reach 102.73 mb/d.

In the OECD, oil demand is anticipated to rise by 0.6 mb/d, as OECD Americas is expected to climb firmly, with US oil demand above 2019 levels mainly due to the recovery in transportation fuels and light distillate demand. OECD Europe and the Asia Pacific will also rise above 2019 consumption levels.

In the non-OECD, oil demand is projected to rise by 2.1 mb/d, with the largest growth seen in China and India, supported by a recovery in transportation fuels and firm industrial fuel demand, including petrochemical feedstock. Other regions such as Other Asia, Latin America and the Middle East are also expected to see decent gains, supported by a positive economic outlook. In terms of fuels, gasoline and diesel are assumed to lead oil demand growth next year.

Table 4 - 1: World oil demand in 2022*, mb/d

							Change 2022/21	
World oil demand	**2021**	**1Q22**	**2Q22**	**3Q22**	**4Q22**	**2022**	**Growth**	**%**
Americas	24.22	24.79	24.88	25.16	25.40	25.06	0.83	3.45
of which US	*19.93*	*20.38*	*20.31*	*20.54*	*20.91*	*20.53*	*0.61*	*3.05*
Europe	13.13	13.15	13.52	14.24	14.35	13.82	0.69	5.23
Asia Pacific	7.38	7.85	6.98	7.19	7.94	7.49	0.11	1.45
Total OECD	**44.74**	**45.79**	**45.38**	**46.59**	**47.70**	**46.37**	**1.63**	**3.64**
China	14.97	14.74	14.76	15.09	15.74	15.08	0.12	0.78
India	4.77	5.18	5.16	4.89	5.35	5.14	0.37	7.79
Other Asia	8.63	9.09	9.27	8.73	8.90	8.99	0.37	4.26
Latin America	6.23	6.32	6.36	6.55	6.40	6.41	0.18	2.92
Middle East	7.79	8.06	8.13	8.40	8.22	8.20	0.41	5.26
Africa	4.22	4.51	4.25	4.22	4.53	4.38	0.16	3.68
Russia	3.61	3.67	3.42	3.45	3.59	3.53	-0.08	-2.32
Other Eurasia	1.21	1.22	1.16	1.03	1.21	1.15	-0.06	-4.61
Other Europe	0.75	0.79	0.75	0.73	0.80	0.77	0.01	1.63
Total Non-OECD	**52.18**	**53.58**	**53.25**	**53.07**	**54.73**	**53.66**	**1.47**	**2.83**
Total World	**96.92**	**99.36**	**98.63**	**99.67**	**102.42**	**100.03**	**3.10**	**3.20**
Previous Estimate	96.92	99.36	98.56	99.93	102.22	100.03	3.10	3.20
Revision	0.00	0.00	0.07	-0.26	0.20	0.00	0.00	0.00

*Note: * 2022 = Forecast. Totals may not add up due to independent rounding. Source: OPEC.*

Table 4 - 2: World oil demand in 2023*, mb/d

World oil demand	2022	1Q23	2Q23	3Q23	4Q23	2023	Change 2023/22 Growth	Change 2023/22 %
Americas	25.06	25.13	25.35	25.71	25.88	25.52	0.46	1.84
of which US	*20.53*	*20.42*	*20.50*	*20.79*	*21.06*	*20.69*	*0.16*	*0.78*
Europe	13.82	13.19	13.59	14.38	14.46	13.91	0.09	0.62
Asia Pacific	7.49	7.88	7.03	7.23	7.96	7.53	0.04	0.48
Total OECD	**46.37**	**46.20**	**45.97**	**47.32**	**48.30**	**46.95**	**0.58**	**1.26**
China	15.08	15.35	15.74	15.78	16.27	15.79	0.70	4.67
India	5.14	5.41	5.44	5.15	5.59	5.40	0.25	4.95
Other Asia	8.99	9.49	9.61	9.09	9.25	9.36	0.36	4.04
Latin America	6.41	6.48	6.48	6.71	6.54	6.55	0.15	2.29
Middle East	8.20	8.45	8.46	8.73	8.51	8.54	0.33	4.06
Africa	4.38	4.71	4.44	4.41	4.72	4.57	0.19	4.34
Russia	3.53	3.69	3.44	3.62	3.77	3.63	0.10	2.84
Other Eurasia	1.15	1.22	1.16	1.04	1.22	1.16	0.01	0.72
Other Europe	0.77	0.80	0.76	0.75	0.82	0.78	0.02	2.32
Total Non-OECD	**53.66**	**55.60**	**55.53**	**55.28**	**56.69**	**55.78**	**2.12**	**3.95**
Total World	**100.03**	**101.80**	**101.50**	**102.60**	**104.99**	**102.73**	**2.70**	**2.70**
Previous Estimate	100.03	101.75	101.34	102.92	104.85	102.72	2.70	2.70
Revision	0.00	0.05	0.15	-0.32	0.14	0.00	0.00	0.00

*Note: * 2022 and 2023 = Forecast. Totals may not add up due to independent rounding. Source: OPEC.*

OECD

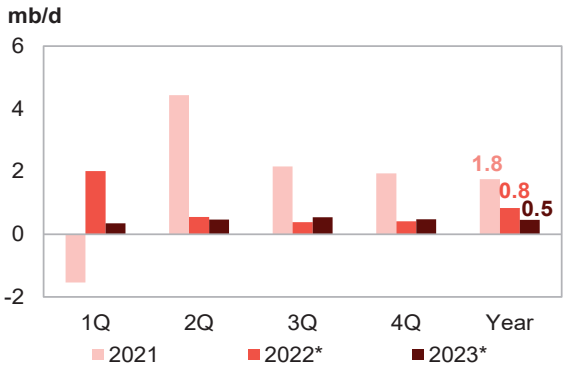
OECD Americas

Update on the latest developments

Against some expectations, **oil demand in the US** has shown signs of recovery. Despite soaring inflation in June, oil demand rebounded from an annual contraction of 20 tb/d in May to modest growth of 0.2 mb/d annually in June. As US domestic air traffic remained mostly healthy, jet/kerosene led the demand improvement to grow by 0.3 mb/d y-o-y in June, essentially at the same rate compared to the previous month.

Gasoline consumption in June slumped by 0.2 mb/d y-o-y compared with the 30 tb/d annual decline recorded in May. Gasoline demand was promising at the beginning of the summer driving season, but the sudden rise in inflation and high prices had an adverse impact on gasoline consumption.

Graph 4 - 1: OECD Americas oil demand, y-o-y change



*Note: * 2022-2023 = Forecast. Source: OPEC.*

Diesel recovered from its 30 tb/d y-o-y decline in May, with demand rising by 50 tb/d in June. **Other fuels** improved, with annual growth of 0.1 mb/d y-o-y following a decline of the same rate in May. **LPG** slowed to 0.1 mb/d y-o-y in June from 0.3 mb/d y-o-y growth in May. Demand for **naphtha** contracted by 80 tb/d in June following a 70 tb/d annual decline in the previous month, and **residual fuels** slumped by 60 tb/d annually in June from an 80 tb/d annual increment in May.

Table 4 - 3: US oil demand, mb/d

By product	Jun 21	Jun 22	Change Growth	Jun 22/Jun 21 %
LPG	3.37	3.49	0.13	3.7
Naphtha	0.21	0.13	-0.08	-37.1
Gasoline	9.36	9.13	-0.23	-2.5
Jet/kerosene	1.43	1.71	0.28	19.8
Diesel	3.95	3.99	0.05	1.2
Fuel oil	0.35	0.29	-0.06	-17.1
Other products	2.23	2.33	0.10	4.5
Total	**20.88**	**21.06**	**0.19**	**0.9**

Note: Totals may not add up due to independent rounding. Sources: EIA and OPEC.

Near-term expectations

In 2H22, US oil demand is expected to improve and reach 0.4 mb/d in 3Q22 and remain at that rate in 4Q22. Gasoline demand is due for a rebound following a steady drop in retail prices, which supported demand during the summer driving season, while 3Q22 appears to be promising in terms of travel activity. However, the beginning of cold weather in 4Q22 will slightly reduce mobility activity and affect gasoline demand. Nevertheless, there is the possibility of upside for year-end seasonal demand for diesel.

In 2023, US oil demand is forecast to increase by around 0.2 mb/d y-o-y. The 2023 outlook is subject to many uncertainties, including the possibility of economic activity being less robust. High inflation and rising interest rates could also affect consumer confidence. In addition, industrial output is on decline. On the positive side, oil demand next year is to be supported by petrochemical and transportation sector requirements for oil products. Gasoline demand will be backed by improved mobility. Expansion in the petrochemical industry and consequently healthy petrochemical margins will provide support to light distillates in 2023. Furthermore, improvements in aviation sector activity will support the demand for jet/kerosene.

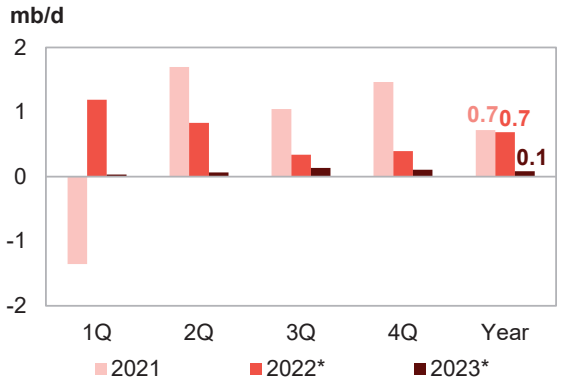
In 1Q23, oil demand will grow marginally by 40 tb/d y-o-y. The low growth can be attributed to the high baseline comparison with strong growth of 1.8 mb/d in 1Q22. During the quarter, mobility activity is expected to slow due to winter weather and this, combined with forecasted slower economic growth, will weigh on transportation fuels. However, by 2Q23, economic activity is expected to improve and support the industrial sector and mobility, which will help oil demand to grow by 0.2 mb/d y-o-y.

OECD Europe

Update on the latest developments

Oil demand in OECD Europe has fallen from 1 mb/d y-o-y in May to 0.4 mb/d in June as inflation and the impact of geopolitical tensions continue to weigh on the region. The Euro-zone's annual inflation rate in June reached a new record high of 8.6%, compared to 2.2% a year earlier. However, the index of industrial output rose from 104.7 in May to 108 in June. A sharper deceleration in business activity, including trucking, and high costs slowed down the consumption of diesel in the region. Diesel consumption slumped from 0.2 mb/d y-o-y in May to a decline of 0.2 mb/d y-o-y in June.

Graph 4 - 2: OECD Europe's oil demand, y-o-y change



*Note: * 2022-2023 = Forecast. Source: OPEC.*

The consumption of gasoline in the region also weakened in June, despite seasonal norms and expectations. Gasoline demand fell to 0.2 mb/d y-o-y in May compared with 40 tb/d y-o-y in June. As road mobility weakened in the region, air travel remained healthy, according to the International Air Transport Association (IATA) Air Passenger Market Analysis for June. European carriers' June traffic rose 234.4% versus June 2021. Capacity rose 134.5%, and load factor climbed 25.8 pp to 86.3%. International traffic within Europe is above pre-pandemic levels in seasonally adjusted terms.

On the back of this development, jet/kerosene demand grew by 0.1 mb/d y-o-y. The demand for naphtha improved from 30 tb/d annually in May to 80 tb/d y-o-y in June. However, LPG is still sluggish, recording a decline by 70 tb/d y-o-y in June, although this is an improvement compared with the decline of 90 tb/d annually in previous month.

Table 4 - 4: Europe's Big 4* oil demand, mb/d

By product	Jun 21	Jun 22	Change Growth	Jun 22/Jun 21 %
LPG	0.43	0.39	-0.04	-9.4
Naphtha	0.44	0.46	0.03	6.0
Gasoline	1.22	1.26	0.04	3.1
Jet/kerosene	0.41	0.72	0.31	74.4
Diesel	3.29	3.02	-0.26	-8.0
Fuel oil	0.16	0.21	0.05	32.9
Other products	0.52	0.51	-0.01	-1.5
Total	**6.46**	**6.56**	**0.11**	**1.7**

*Note: * Germany, France, Italy and the UK. Totals may not add up due to independent rounding.*

Sources: JODI, UK Department for Business, Energy & Industrial Strategy, Unione Petrolifera and OPEC.

Near-term expectations

Economic momentum in OECD Europe is slowing, with GDP growth revised down from 3.2% to 3.1%. Similarly, the region's annual inflation rate reached a new record high of 8.9% in July 2022, compared to 8.6% in June and 2.2% a year earlier.

Despite the likely economic challenges, there is expectation for higher oil demand as the EU is set to lead global gas-to-oil switching due to soaring prices of natural gas and supply uncertainties during the winter. The gas-to-oil switching is expected to boost oil consumption in the region by about 200,000 b/d. In addition, dry conditions in parts of Europe have led to a significant downturn in hydropower generation, and this is likely to add pressure to electricity producers during winter and may lead to additional switching to oil in 4Q22. The oil-to-gas switching is expected to make oil products more attractive, particularly for industries that can fire their boilers with liquid fuels. Fuel oil and LPG are going to be major beneficiaries among the oil products. Similarly, residual fuel oil will account for a substantial portion of the incremental global shift to oil from natural gas. Finally, air travel improvements will enhance the demand for jet/kerosene in the region.

The outlook for European oil demand in 2023 is still with somewhat uncertain. The region's GDP growth is projected to slowdown, from 3.1% in 2022 to 1.7% in 2023. Furthermore, the geopolitical crisis and supply chain bottlenecks are likely to continue weighing on oil demand prospects in 1H23. Due to such factors, oil demand may not grow spectacularly in 1H23, rising by 30 tb/d y-o-y growth in 1Q23 and marginally improving to 70 tb/d in 2Q23.

Nevertheless, as prices of natural gas continue rising, gas-to-oil switching is going to aid oil products, including fuel oil, LPG and residual oil in the region's industrial sector. Finally, demand for air travel will remain stable and promote jet/kerosene consumption in the region.

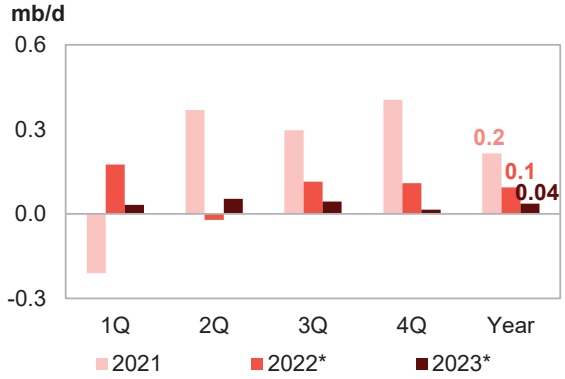
OECD Asia Pacific

Update on the latest developments

Oil demand in OECD Asia Pacific sharply undershot expectations and nosedived by 0.2 mb/d y-o-y in June after posting annual growth of 0.1 mb/d in May. Although the COVID-19 situation in the region's major consuming countries is easing gradually, economic and social activity are yet to fully return to pre-pandemic levels. Jet/kerosene is one of the products that remained on a positive trajectory in June. According to the IATA Air Passenger Market Analysis, airlines based in the Asia Pacific recorded the strongest y-o-y growth rates for international revenue passenger kilometres (RPKs) in June, at 492%. This sharp uptake reflects the recent policy decisions in countries including Japan to re-open travel markets. Behind this healthy development, **jet/kerosene** annual demand is seen rising by 40 tb/d, unchanged from last month. Residual and other fuels posted marginal growth of 10 tb/d y-o-y each in June.

Rising inflation has affected domestic activity, including mobility. Accordingly, gasoline demand slumped by 60 tb/d from 70 tb/d annual growth last month. Diesel demand also eased, falling by 40 tb/d y-o-y growth in June, compared to growth of 70 tb/d y-o-y in May Furthermore, the supply chain bottlenecks related to China's zero-COVID-19 policy have negatively affected the demand for naphtha in the region. Asia Pacific's naphtha-fed steam cracker operations remain low and the region's naphtha market is feeling the pinch of China's weak economic and industrial growth, with the product posting a decline of 60 tb/d annually in June.

Graph 4 - 3: OECD Asia Pacific oil demand, y-o-y change



*Note: * 2022-2023 = Forecast. Source: OPEC.*

Table 4 - 5: Japan's oil demand, mb/d

By product	Jul 21	Jul 22	Change Growth	Jul 22/Jul 21 %
LPG	0.36	0.22	-0.13	-37.2
Naphtha	0.61	0.62	0.01	1.7
Gasoline	0.75	0.76	0.01	0.8
Jet/kerosene	0.21	0.23	0.02	9.5
Diesel	0.70	0.71	0.01	2.1
Fuel oil	0.25	0.26	0.01	4.0
Other products	0.24	0.38	0.14	57.2
Total	**3.11**	**3.18**	**0.07**	**2.2**

Note: Totals may not add up due to independent rounding. Sources: JODI, METI and OPEC.

Near-term expectations

Most countries in the region are now learning to co-exist with COVID-19. However, a slower economic recovery – with annual growth of 2.1% – will affect both manufacturing activity and mobility.

Nevertheless, the gradual reopening of South Korea's economy is expected to support consumer confidence and the mobility recovery in the region, which along with improvements in the region's aviation operations, could boost gasoline and jet/kerosene demand. In Japan, pent-up demand is expected to rise further, boosted by substantial policy support which will in turn help support oil demand in 2022. On average, oil demand in the OECD Asia Pacific is expected to remain at 0.1 mb/d, y-o-y growth in 2H22.

In 2023, the outlook for the region is clouded by the expected slow pace of the economic recovery. GDP growth has been scaled down from 2.1% in 2022 to 1.8% in 2023. Furthermore, geopolitical tensions have contributed to supply bottlenecks and COVID-19 restrictions add additional challenges that are a posing threat to the economy of the region and will weigh on oil demand in 2023. On average, oil demand is expected to remain at about 30 tb/d in 1Q23.

Nevertheless, many governments in the region are under pressure to increase spending to provide relief from rising inflation; this will boost consumers' purchasing power. Additionally, the South Korean government's subsidy rate hike and current Japanese subsidies on gasoline will bring succour to oil demand in the region in the short term. These factors will help oil demand improve by 20 tb/d and reach growth of 50 tb/d, y-o-y in 2Q23.

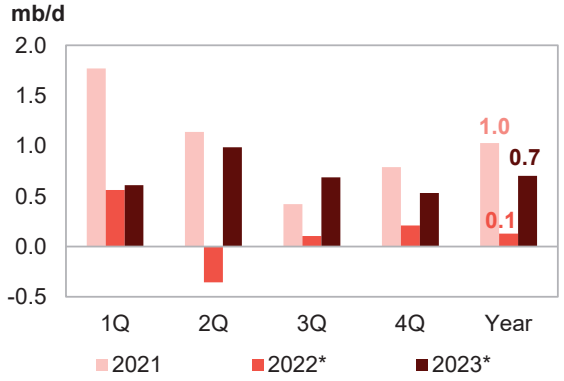
Non-OECD

China

Update on the latest developments

Oil demand has yet to recover as **China** has extended regionalized COVID-19 restrictions. Domestic oil demand weakened further by 0.2 mb/d y-o-y in July, from 30 tb/d annually in June. Nevertheless, distillates demand has improved from annual growth of 40 tb/d in June to 0.3 mb/d y-o-y in July. Industrial activity boosted the demand for diesel. S&P Global/Haver Analytics reported that China's PMI remained on a positive trajectory, despite the zero-COVID-19 policy, the PMI in July was 52.2%. LPG demand remained on a positive trajectory, and although weak in July as compared to June, it posted annual growth 90 tb/d (4%) y-o-y compared to 0.2 mb/d y-o-y growth in June. Naphtha also eased from 90 tb/d y-o-y growth in June to 50 tb/d y-o-y growth in July.

Graph 4 - 4: China's oil demand, y-o-y change



*Note: * 2022-2023 = Forecast. Source: OPEC.*

Naphtha has been under pressure due to a decline petrochemical feedstock requirements caused by falling demand for plastic fittings from house builders due to the zero-COVID-19 policy, which has hampered construction activity.

Gasoline demand fell again to an annual decline of 0.4 mb/d in July from a decline of 0.3 mb/d y-o-y in the previous month, even though sales of motor vehicles in China increased 23% in July compared to the same period in 2021. The demand for air travel continued to slow due pandemic restrictions, with air transport turnover falling by 21% in July according to statistics from key performance indicators for China's aviation industry. This affected the demand for jet/kerosene, which fell by 0.2 mb/d y-o-y in July. Meanwhile, the demand for other products has also softened with annual growth of 90 tb/d.

Table 4 - 6: China's oil demand*, mb/d

By product	Jul 21	Jul 22	Change Growth	Jul 22/Jul 21 %
LPG	2.36	2.46	0.09	4.0
Naphtha	1.96	2.01	0.05	2.6
Gasoline	3.01	2.65	-0.36	-11.9
Jet/kerosene	0.49	0.29	-0.20	-40.5
Diesel	2.86	3.14	0.28	9.7
Fuel oil	0.86	0.85	-0.02	-1.8
Other products	1.52	1.43	-0.09	-6.2
Total	**13.06**	**12.82**	**-0.24**	**-1.9**

*Note: * Apparent oil demand. Totals may not add up due to independent rounding.*
Sources: Argus Global Markets, China OGP (Xnhua News Agency), Facts Global Energy, JODI, National Bureau of Statistics China and OPEC.

Near-term expectations

Remaining economic and social challenges induced by the zero-COVID-19 policy restrictions are likely to undermine oil demand prospects in China during 2H22. China's GDP was revised down to 4.2% compared to 4.5% in the last MOMR. In addition, the lockdown has already created more bottlenecks and industrial closures in some provinces. These factors will dampen the demand for distillates from the industrial sector. Similarly, extended lockdowns will dampen mobility and air travel demand. The combination of these factors will weigh on oil demand in 3Q22. In the third quarter we expect Chinese oil demand to grow by 0.1 mb/d, y-o-y, mostly supported by petrochemical and household demand for LPG and naphtha.

In 4Q22, China's economy is expected to improve amid the relaxation of restrictions and high demand for exports to other parts of the world during the Christmas festivities. The combination of these factors will support the industrial sector and will enhance the demand for distillates. Furthermore, as air travel continues to recover amidst improvements in the COVID-19 situation, jet fuel will also continue to recover while the petrochemical industry's demand for light distillates will continue to support the demand for LPG and naphtha. In the 4Q22,

Chinese oil demand is forecast to reach 0.2 mb/d annual growth. In October, China's gasoline demand is expected to recover as virus flare-ups affect only a few cities, while leisure and business travel recover to more normal levels. Public holidays will aid gasoline demand. Diesel consumption will be supported by the harvest season as well as mining and industrial activity amid government stimulus. Already the People's Bank of China cut its interest rates by 10 bps, which should stimulate economic activity, particularly in the manufacturing and construction sectors and lift the demand for distillates.

In first half of 2023, the Chinese economy is expected to continue to improve from 4% GDP growth in 4Q22 to 5% in 1Q23 as COVID-19 wanes. This will lead to an improvement in mobility and aid the demand for gasoline and transportation diesel. Furthermore, supply chain bottlenecks are expected to ease and construction and industrial activity will pick up. Hence, construction companies and industries will continue to place orders for oil products to meet their demand for energy, raw materials and plastic fittings; these factor will support demand for diesel and bitumen and naphtha. Air travel, both domestic and international, is expected to continue its recovery. These factors are expected to support oil demand growth in 1H23. In 1Q23, oil demand is forecast to grow by 0.6 mb/d y-o-y. In this quarter, the demand will be driven largely by gasoline and diesel, followed by petrochemical feedstock requirements for LPG and naphtha.

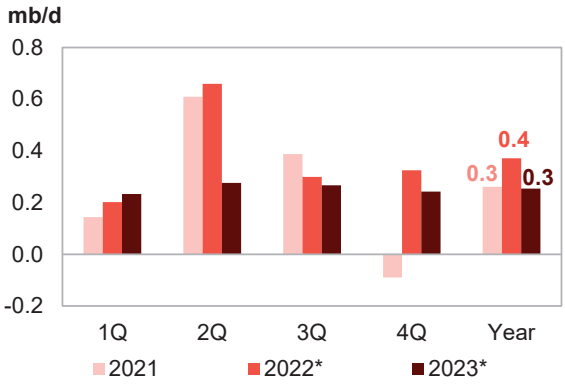
In 2Q23, oil demand in China is forecast to continue on its growth trajectory and reach 1.0 mb/d annually, to be led by transportation fuels and supported by petrochemical feedstock demand. As the aviation sector improves, the jet/kerosene demand will improve farther. However, the prospects for demand largely depend on the COVID-19 situation and the extent of government's restrictions and the response of the Chinese economy to the situation.

India

Update on the latest developments

India's oil demand softened in July amid the arrival of intense monsoon rains that weighed heavily on the economy and resulted in a slowdown in mobility, construction and agricultural activity. The slowdown in sectoral activity chipped away at the consumption of oil products. In July, total annual growth of oil demand was about 0.3 mb/d, y-o-y or growth about 0.4 mb/d lower than consumption in June. However, consumption is still very strong at about 4.4 mb/d, suggesting that the oil outlook is improving. Transportation fuels remained the main drivers of oil demand in July. Amid the decline in construction and agricultural activity, diesel grew by 0.1 mb/d y-o-y compared with 0.4 mb/d annual growth in previous month.

Graph 4 - 5: India's oil demand, y-o-y change



*Note: * 2022-2023 = Forecast. Source: OPEC.*

Despite the lower growth in July diesel demand, there is a glimpse of hope as the Global India Manufacturing Purchasing Managers' Index (PMI) jumped to 56.4 in July from 53.9 in June. Gasoline also posted growth of 50 tb/d y-o-y compared to 0.2 mb/d in June. Gasoline consumption was also affected by strong rains which hampered mobility in July. LPG demand from residential requirements for cooking and the petrochemical sector has improved immensely from sluggish growth of 10 tb/d y-o-y in June to 20 tb/d y-o-y growth in July.

India's domestic jet fuel consumption slipped by 40 tb/d y-o-y compared to 60 tb/d annually in June. Jet/kerosene demand was impacted by cyclicality in passenger travel, mainly arising from the lean period during the monsoon season. Nevertheless, the demand remained high as international travel surpassed pre-COVID-19 levels. Demand for naphtha improved from a decline of 40 tb/d in June to decline of 20 tb/d y-o-y in July. Demand for other fuels grew by a marginal 30 tb/d y-o-y and consumption of other products, including bitumen, was affected by the monsoon-induced construction slowdown. The consumption of other products slipped to 30 tb/d y-o-y in July from 0.2 mb/d y-o-y in June.

Table 4 - 7: India's oil demand, mb/d

By product	Jul 21	Jul 22	Change Growth	Jul 22/Jul 21 %
LPG	0.83	0.85	0.02	1.8
Naphtha	0.31	0.29	-0.02	-6.6
Gasoline	0.71	0.76	0.05	6.8
Jet/kerosene	0.12	0.16	0.04	34.1
Diesel	1.62	1.73	0.11	7.0
Fuel oil	0.27	0.29	0.02	7.2
Other products	0.28	0.31	0.03	10.8
Total	**4.14**	**4.39**	**0.25**	**5.9**

Note: Totals may not add up due to independent rounding.

Sources: JODI, Petroleum Planning and Analysis Cell of India and OPEC.

Near-term expectations

India's oil demand outlook is poised to improve as economic growth is to remain firm at 7.1% in 2022, thus supporting mobility and industrial activity. Oil demand is expected to grow by 0.3 mb/d in 2H22 as COVID-19 cases decline substantially and economic and social activity recover after the monsoon season. Growth is also expected to be supported by a positive PMI. Distillates are expected to be supported by post-monsoon cultivation and harvesting activity in October. Additionally, the annual festivals in 4Q22 will support mobility and boost gasoline demand amid improvements in air travel, which will aid jet/kerosene demand.

In 2023, India's oil demand is expected to grow on average at 0.2 mb/d y-o-y in 1Q23, on the back of vigorous GDP growth at 6%. Oil demand is projected to improve from 0.2 mb/d annual growth in 1Q23 to 0.3 mb/d annually in 2Q23. In 2Q23, the improvement in demand growth will be aided by healthy GDP growth, which will support mobility and steady demand for distillates in the manufacturing sector.

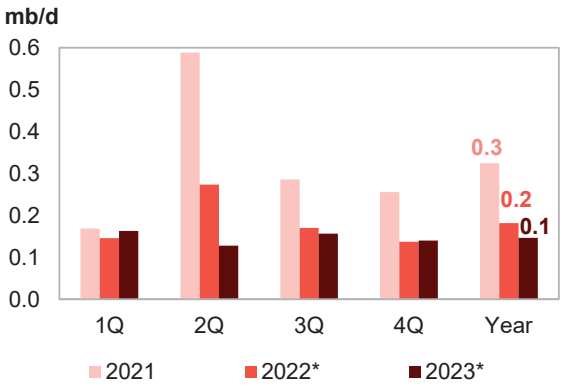
Furthermore, the relaxation of stringent COVID-19-related travel restrictions should boost domestic and international air travel demand and thus support jet/kerosene demand in 1H23. Finally, the Indian government announced subsidies of Rs.200 per 14.2 kg of domestic LPG cylinders up to 12 refills per year for 2022 and 23. This will boost the demand for LPG from residences and smaller industries in India during the period.

Latin America

Update on the latest developments

Oil demand in Latin America slackened slightly from annual growth of 0.3 mb/d in May to 0.1 mb/d y-o-y in June. Although COVID-19 has remained contained in the region, global trade-related bottlenecks continue to disrupt regional manufacturing activity leading to high production costs and surging inflation. Inflation in the region's major economies, Argentina and Brazil, has risen far above central bank targets, squeezing household incomes and feeding into domestic demand for oil products. Surging input costs weighed on diesel demand, which fell from 0.1 mb/d annual growth in May to 30 tb/d y-o-y growth.

Graph 4 - 6: Latin America's oil demand, y-o-y change



*Note: * 2022-2023 = Forecast. Source: OPEC.*

On the back of healthy airline activity, Latin American carriers recorded y-o-y growth in international RPKs of 136.6% in June, helping jet/kerosene demand to remain on a positive trajectory at 60 tb/d y-o-y, although this was the same level as in May. Gasoline demand slowed from 90 tb/d annually in May to grow by 40 tb/d y-o-y in June. Other products marginally improved by 40 tb/d annual growth in June from 30 tb/d in May. However, demand for LPG declined from the levels in May due to increasing prices and a faster return to offices, which decreased residential cooking in some Brazilian households. LPG posted negative growth of 10 tb/d y-o-y in June from annual growth of 10 tb/d in May.

Near-term expectations

Oil demand in the region is expected to remain relatively healthy in 2H22 amid projected economic growth of 3.9%. The acceleration in vaccination efforts and improved manufacturing PMI in the region's big consuming countries will support oil demand recovery. Accordingly, oil demand growth in the region is expected to increase by 0.2 mb/d in 3Q22 but will soften to 0.1 mb/d annually in 4Q22 as the authorities tighten monetary policies aimed at combating inflation and withdraw pandemic-related fiscal support.

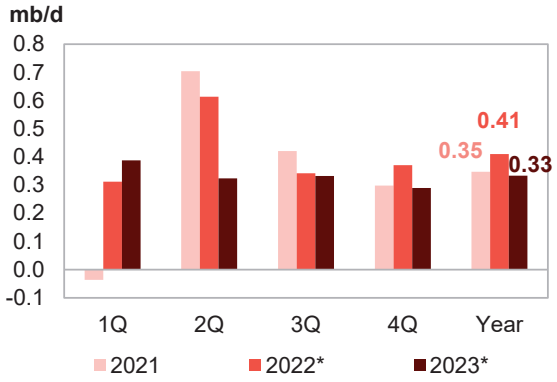
In 2023, oil demand growth is forecast to remain at 0.2 mb/d in 1Q23, amid annual GDP growth of 3.1% combined with expected improvements in the COVID-19 situation in the region as vaccination programmes accelerate. However, in 2Q23, oil demand is projected to ease to 0.1 mb/d annually. The oil demand prospects for Latin America still largely hinge on the region's economic recovery and containment of the pandemic as well as spill-over effects from the slowdown in the global economy.

Middle East

Update on the latest developments

The **Middle East** posted robust oil demand growth in June. Demand doubled from 0.5 mb/d y-o-y in May to a strong growth of 1 mb/d y-o-y growth in June. The June oil demand was driven by power generation requirements for residual fuels in Saudi Arabia due to hot weather and similar requirements for fuel oil in Iraq. Residual fuels posted very strong growth of 0.3 mb/d y-o-y compared to a decline by 70 tb/d May 2022. Similarly, Iraq's requirement for fuel oil helped monthly demand to grow by 0.3 mb/d y-o-y in the region in June 2022.

Graph 4 - 7: Middle East's oil demand, y-o-y change



*Note: * 2022-2023 = Forecast. Source: OPEC.*

Furthermore, mobility in the region remained impressive and supported gasoline demand to grow at 0.1 mb/d, y-o-y in June, as gas diesel remained on a positive trajectory at 70 tb/d annual growth in June. IATA's Air Passenger Market Analysis in June shows that the strong recovery in Middle East airline activity continues, with volumes up 246.5% y-o-y in June, helping jet/kerosene to improve from 60 tb/d y-o-y in May to 70 tb/d y-o-y in June. LPG has also grew from 20 tb/d y-o-y growth in May to 30 tb/d y-o-y growth in June. However, naphtha recorded a decline of 10 tb/d y-o-y in May compared with an decline of 20 tb/d,y-o-y in June.

Table 4 - 8: Saudi Arabia's oil demand, mb/d

			Change	Jul 22/Jul 21
By product	Jul 21	Jul 22	Growth	%
LPG	0.04	0.05	0.00	11.4
Gasoline	0.47	0.49	0.01	3.1
Jet/kerosene	0.04	0.07	0.03	59.8
Diesel	0.49	0.60	0.11	21.6
Fuel oil	0.54	0.65	0.11	20.5
Other products	0.77	0.75	-0.02	-3.1
Total	**2.36**	**2.60**	**0.24**	**10.0**

Note: Totals may not add up due to independent rounding.

Sources: JODI and OPEC.

Near-term expectations

Strong economic activity in the region will continue to support oil demand in the near future. Saudi Arabia's economy expanded 9% in the second quarter, maintaining the fastest pace of growth since 2011. Non-oil gross domestic product gained 5.4%. Similarly, the United Arab Emirates (UAE) is optimistic its economy will grow robustly this year as it continues to recover from the pandemic. The expected strong economic growth in region should boost consumer confidence as well as accelerate mobility and industrial activity.

In addition, the hot season is expected to boost electricity demand due to requirements for air conditioning. Hence, demand for residual and fuel oil will continue to accelerate in 2H22. Similarly, the continued strong recovery in international traffic continues should boost jet/kerosene demand and support oil demand growth in the region.

In 1Q23, oil demand is projected to grow by 0.4mb/d y-o-y. Economic growth in the region is expected to be stable and support consumer confidence, which will increase regional demand for social services and consumer goods. Gasoline, transportation diesel and jet kerosene are expected to lead oil demand growth. Gasoil/diesel and fuel oil demand for power generation are also expected to play a significant role in demand growth. By 2Q23, economic growth in the region is projected remain firm, but the momentum is expected to subside and this will affect oil demand growth, which will soften to 0.3 mb/d y-o-y in 2Q23.

World Oil Supply

Non-OPEC liquids supply growth in 2022 (including processing gains) is forecast at 2.1 mb/d for an average of 65.8 mb/d, which is broadly unchanged from the previous assessment. Upward revisions to oil production in Latin America, Other Asia and the Middle East offset downward revisions to the Other Eurasia, OECD America and OECD Europe. However, significant uncertainty regarding Russia's liquids production in the forecast period remains. In the US, solid increases in oil and gas rig counts, as well high fracking activity, are expected to support production going forward. However, completions are lagging behind drilling in the main basins, expanding the number of drilled but uncompleted wells, and the price of materials and services is steadily soaring, due to labour and supply chain issues, as well as cost inflation, which is expected to limit growth. Moreover, despite a quiet August, the forecast for hurricane season sees above-normal activity in the Atlantic region. Lower-than-expected production in 2Q22, as well as an upward revision to historical NGLs output, necessitated a downward revision to the US liquids supply growth forecast for 2022 by 41 tb/d, with output now forecast to grow by 1.1 mb/d y-o-y. The production forecast for Other Eurasia was also revised down due to lower-than-expected output in Azerbaijan and field maintenance along with export disruptions in Kazakhstan. The main drivers of liquids supply growth for the year are expected to be the US, Canada, China, Brazil and Guyana, while production is expected to decline mainly in Thailand and Norway.

Non-OPEC liquids production growth in 2023 also remained broadly unchanged and is expected to rise by 1.7 mb/d to average 67.5 mb/d. The liquids supply in OECD countries is forecast to grow by 1.6 mb/d, while in the non-OECD region it is expected to grow by 0.1 mb/d. The main drivers for liquids supply growth are expected to be the US, Norway, Brazil, Canada and Guyana, whereas oil production is forecast to decline mainly in Russia and Azerbaijan. Nevertheless, uncertainty about the geopolitical situation in Eastern Europe and US shale liquids production growth remains high.

OPEC NGLs and non-conventional liquids production in 2022 is forecast to grow by 0.1 mb/d to average 5.4 mb/d. For 2023, it is forecast to grow by 50 tb/d to average 5.4 mb/d. OPEC-13 crude oil production in August increased by 618 tb/d m-o-m to average 29.65 mb/d, according to available secondary sources.

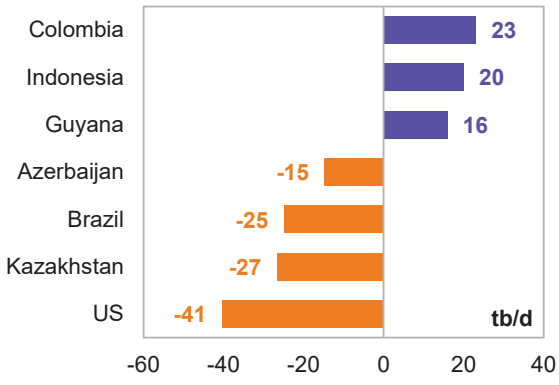
Preliminary non-OPEC liquids production in August, including OPEC NGLs, is estimated to have increased by 0.7 mb/d m-o-m to average 71.6 mb/d, up by 2.8 mb/d y-o-y. As a result, preliminary data indicates that global oil supply in August increased by 1.3 mb/d m-o-m to average 101.3 mb/d, up by 5.6 mb/d y-o-y.

The non-OPEC liquids supply forecast for **2022** mostly remained the same, to average 65.8 mb/d. Y-o-y growth averaged 2.1 mb/d, which is broadly unchanged from the previous month.

The **OECD** supply growth forecast for 2022 was revised down by 36 tb/d. The US and OECD Europe saw downward revisions to their growth forecasts, while that for OECD Asia Pacific remained quite unchanged from the previous month's assessment.

The **non-OECD** supply forecast for 2022 remained unchanged, while downward revisions in Other Eurasia offset upward changes in Latin America, Other Asia and the Middle East.

Graph 5 - 1: Major revisions to annual supply change forecast in 2022*, MOMR Sep 22/Aug 22



*Note: * 2022 = Forecast. Source: OPEC.*

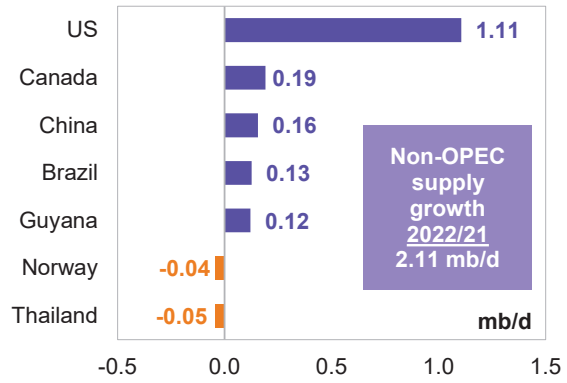
Non-OPEC liquids production growth in **2023** remained broadly unchanged compared with the previous month's assessment.

There were some small upward and downward revisions, mainly in Other Eurasia, Latin America and OECD America, which offset each other.

Key drivers of growth and decline

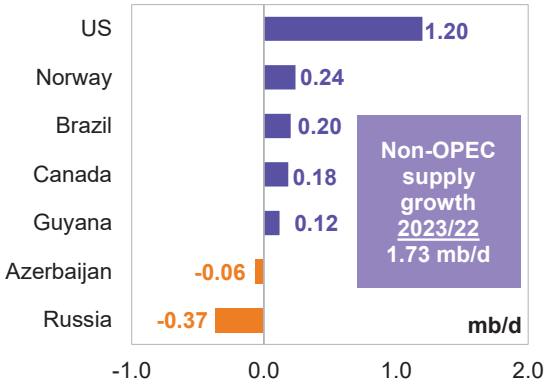
The **key drivers of non-OPEC liquids supply growth in 2022** are projected to be the US, Canada, China, Brazil and Guyana, while oil production is expected to decline mainly in Thailand and Norway.

Graph 5 - 2: Annual liquids production changes for selected countries in 2022*



*Note: * 2022 = Forecast. Source: OPEC.*

Graph 5 - 3: Annual liquids production changes for selected countries in 2023*



*Note: * 2023 = Forecast. Source: OPEC.*

For **2023**, the key drivers of non-OPEC supply growth are forecast to be the US, Norway, Brazil, Canada and Guyana, while oil production is projected to decline mainly in Russia and Azerbaijan.

Non-OPEC liquids production in 2022 and 2023

Table 5 - 1: Non-OPEC liquids production in 2022*, mb/d

Non-OPEC liquids production	2021	1Q22	2Q22	3Q22	4Q22	2022	Change 2022/21 Growth	Change 2022/21 %
Americas	25.25	25.86	26.26	26.90	27.34	26.59	1.34	5.31
of which US	*17.85*	*18.27*	*18.83*	*19.19*	*19.52*	*18.95*	*1.11*	*6.20*
Europe	3.76	3.73	3.43	3.74	3.99	3.72	-0.03	-0.87
Asia Pacific	0.51	0.49	0.51	0.55	0.54	0.52	0.01	2.01
Total OECD	**29.52**	**30.08**	**30.20**	**31.19**	**31.86**	**30.84**	**1.32**	**4.47**
China	4.31	4.50	4.50	4.42	4.43	4.46	0.16	3.60
India	0.77	0.77	0.77	0.80	0.82	0.79	0.02	2.20
Other Asia	2.41	2.37	2.32	2.36	2.39	2.36	-0.04	-1.83
Latin America	5.95	6.11	6.15	6.32	6.49	6.27	0.31	5.29
Middle East	3.24	3.29	3.33	3.40	3.40	3.35	0.11	3.53
Africa	1.35	1.33	1.32	1.34	1.33	1.33	-0.02	-1.46
Russia	10.80	11.33	10.62	10.90	10.70	10.88	0.08	0.77
Other Eurasia	2.93	3.05	2.77	2.93	3.21	2.99	0.06	2.18
Other Europe	0.11	0.11	0.11	0.10	0.10	0.11	-0.01	-6.36
Total Non-OECD	**31.87**	**32.85**	**31.89**	**32.58**	**32.86**	**32.54**	**0.68**	**2.13**
Total Non-OPEC production	61.39	62.94	62.08	63.77	64.72	63.38	2.00	3.25
Processing gains	2.29	2.40	2.40	2.40	2.40	2.40	0.11	4.90
Total Non-OPEC liquids production	**63.67**	**65.33**	**64.48**	**66.17**	**67.12**	**65.78**	**2.11**	**3.31**
Previous estimate	63.65	65.37	64.55	66.26	67.00	65.80	2.14	3.37
Revision	0.02	-0.03	-0.06	-0.09	0.12	-0.02	-0.04	-0.06

*Note: * 2022 = Forecast. Totals may not add up due to independent rounding. Source: OPEC.*

Table 5 - 2: Non-OPEC liquids production in 2023*, mb/d

Non-OPEC liquids production	2022	1Q23	2Q23	3Q23	4Q23	2023	Change 2023/22 Growth	Change 2023/22 %
Americas	26.59	27.58	27.68	28.05	28.42	27.94	1.34	5.05
of which US	*18.95*	*19.77*	*20.07*	*20.26*	*20.49*	*20.15*	*1.20*	*6.33*
Europe	3.72	4.05	3.97	3.88	3.98	3.97	0.25	6.62
Asia Pacific	0.52	0.53	0.50	0.53	0.48	0.51	-0.01	-2.21
Total OECD	**30.84**	**32.17**	**32.16**	**32.46**	**32.88**	**32.42**	**1.58**	**5.12**
China	4.46	4.51	4.51	4.48	4.48	4.49	0.03	0.64
India	0.79	0.82	0.80	0.79	0.78	0.80	0.01	1.09
Other Asia	2.36	2.37	2.33	2.29	2.28	2.31	-0.05	-1.97
Latin America	6.27	6.44	6.61	6.70	6.76	6.63	0.36	5.73
Middle East	3.35	3.38	3.40	3.42	3.41	3.40	0.05	1.48
Africa	1.33	1.34	1.35	1.37	1.39	1.36	0.04	2.65
Russia	10.88	10.49	10.48	10.54	10.57	10.52	-0.37	-3.36
Other Eurasia	2.99	3.08	2.98	2.94	3.02	3.00	0.01	0.41
Other Europe	0.11	0.10	0.10	0.10	0.10	0.10	0.00	-2.83
Total Non-OECD	**32.54**	**32.52**	**32.56**	**32.63**	**32.78**	**32.62**	**0.08**	**0.24**
Total Non-OPEC production	63.38	64.69	64.72	65.08	65.65	65.04	1.66	2.61
Processing gains	2.40	2.47	2.47	2.47	2.47	2.47	0.07	2.96
Total Non-OPEC liquids production	**65.78**	**67.16**	**67.19**	**67.55**	**68.12**	**67.51**	**1.73**	**2.63**
Previous estimate	65.80	67.16	67.20	67.54	68.13	67.51	1.71	2.60
Revision	-0.02	0.00	-0.01	0.01	0.00	0.00	0.02	0.03

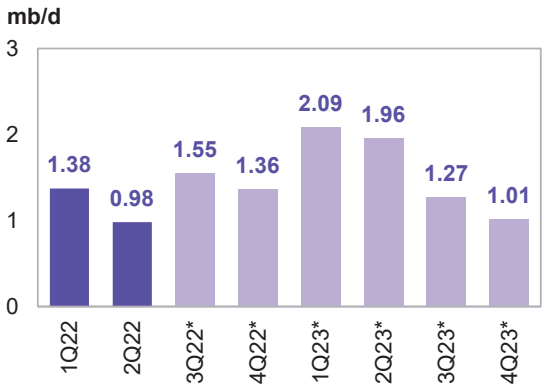
*Note: * 2022-2023 = Forecast. Totals may not add up due to independent rounding. Source: OPEC.*

OECD

OECD liquids production in 2022 is forecast to increase by 1.3 mb/d y-o-y to average 30.8 mb/d. This was revised down slightly by 36 tb/d, compared with a month earlier, on the back of downward revisions for the US and OECD Europe.

OECD Americas was revised down by 23 tb/d, compared with last month's assessment. Based on this revision, OECD Americas is forecast to grow by 1.3 mb/d to average 26.6 mb/d. Oil production in OECD Europe is anticipated to decline slightly y-o-y by 33 tb/d to average 3.7 mb/d, while OECD Asia Pacific is projected to grow y-o-y by a minor 10 tb/d to average 0.5 mb/d.

Graph 5 - 4: OECD quarterly liquids supply, y-o-y changes



*Note: * 3Q22-4Q23 = Forecast. Source: OPEC.*

For **2023**, oil production in the OECD is likely to grow by 1.6 mb/d to average 32.4 mb/d, with growth of 1.3 mb/d from OECD Americas to average 27.9 mb/d. Yearly liquids production in OECD Europe is anticipated to grow by 0.2 mb/d to average 4.0 mb/d, while OECD Asia Pacific is expected to decline by 12 tb/d y-o-y to average 0.5 mb/d.

OECD Americas

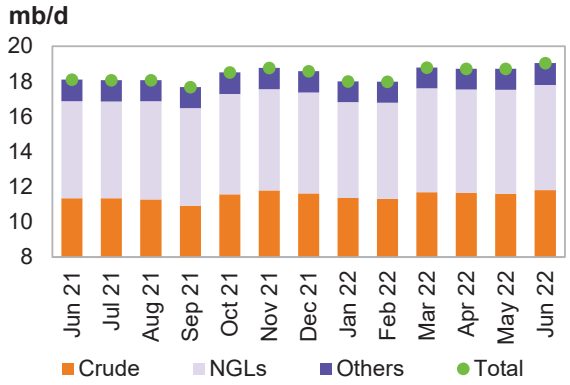
US

US liquids production jumped by 312 tb/d m-o-m in **June 2022** to average 19.0 mb/d, and was up by 0.9 mb/d compared with June 2021.

Crude oil and condensate production rose in **June 2022** by 201 tb/d m-o-m to average 11.8 mb/d, up by 0.5 mb/d y-o-y.

Regarding the **crude and condensate production breakdown by region (PADDs)**, production increased mainly on the US Gulf Coast (USGC), up by 206 tb/d to average 8.4 mb/d. The West Coast and East Coast showed slight decreases, while the Rocky Mountain region remained broadly unchanged. However, an increase of 26 tb/d was recorded in the Midwest, mainly in North Dakota. Production growth in the main regions was primarily due to higher drilling activities and a return to normal production in the GoM after completion of maintenance.

Graph 5 - 5: US monthly liquids output by key component



Source: OPEC.

NGLs production was up by 69 tb/d m-o-m to average 6.0 mb/d in June, higher by 0.5 mb/d y-o-y. Production of **non-conventional liquids** (mainly ethanol) increased by 42 tb/d m-o-m to average 1.2 mb/d in June, according to the US Department of Energy (DoE). Preliminary estimates see non-conventional liquids averaging 1.2 mb/d in July, down by 16 tb/d compared with the previous month.

Production in the Gulf of Mexico (GoM) rose m-o-m by 183 tb/d in June to average 1.8 mb/d, as maintenance wrapped up on Gulf Coast offshore platforms, allowing volumes to return to normal. In the **onshore lower 48**, June production increased m-o-m by 46 tb/d to average 9.6 mb/d.

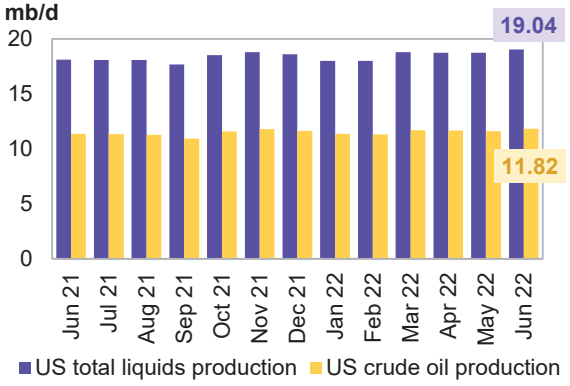
Looking at **individual states**, oil production in New Mexico increased by 30 tb/d m-o-m to average 1.5 mb/d, 285 tb/d higher than a year ago. Production in Texas was down by a minor 7 tb/d to average 5.0 mb/d, 177 tb/d higher than a year ago. In the Midwest, production in North Dakota increased by 36 tb/d m-o-m to average 1.1 mb/d, down by 36 tb/d y-o-y, while that in Oklahoma was down by 7 tb/d to average 0.4 mb/d. Oil output in Alaska and Colorado was also down by 28 tb/d and a minor 5 tb/d, m-o-m, respectively.

Table 5 - 3: US crude oil production by selected state and region, tb/d

State	Jun 21	May 22	Jun 22	Change m-o-m	Change y-o-y
Texas	4,782	4,966	4,959	*-7*	*177*
Gulf of Mexico (GOM)	1,783	1,608	1,791	*183*	*8*
New Mexico	1,246	1,501	1,531	*30*	*285*
North Dakota	1,125	1,053	1,089	*36*	*-36*
Alaska	440	447	419	*-28*	*-21*
Colorado	408	434	429	*-5*	*21*
Oklahoma	391	424	417	*-7*	*26*
Total	**11,356**	**11,615**	**11,816**	***201***	***460***

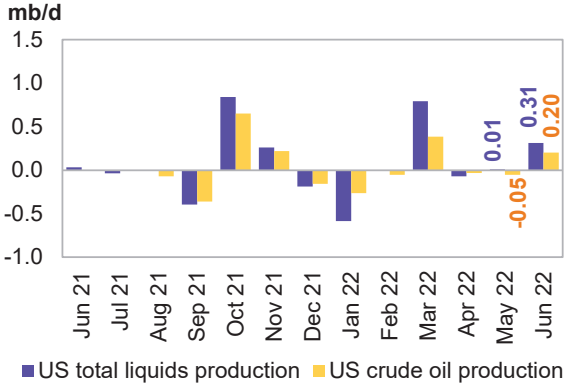
Sources: EIA and OPEC.

Graph 5 - 6: US monthly crude oil and total liquids supply



Sources: EIA and OPEC.

Graph 5 - 7: US monthly crude oil and total liquids supply, m-o-m changes



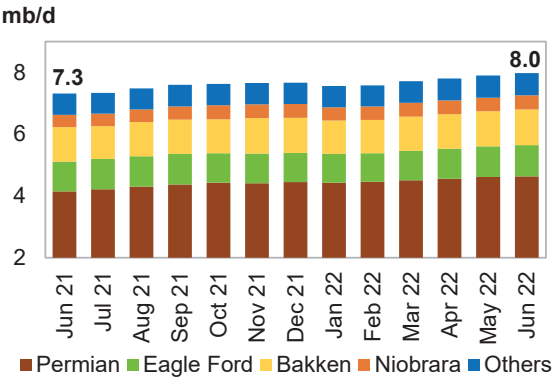
Sources: EIA and OPEC.

US tight crude output for **June** is estimated to have increased by 80 tb/d m-o-m to average 8.0 mb/d, which is 0.7 mb/d higher than the same month a year earlier.

The m-o-m increase from shale and tight formations through horizontal wells came partly from the Permian, which increased by 18 tb/d to average 4.6 mb/d. This is a rise of 0.5 mb/d y-o-y.

In the Williston Basin, production of Bakken shale increased marginally by 20 tb/d to average 1.2 mb/d, up by 38 tb/d y-o-y. Tight crude output at Eagle Ford in Texas rose by 24 tb/d to average 1.0 mb/d, up by 60 tb/d y-o-y, while production in Niobrara-Codell in Colorado and Wyoming was up by a minor 9 tb/d to average 0.45 mb/d.

Graph 5 - 8: US tight crude output breakdown



Sources: EIA, Rystad Energy and OPEC.

US liquids production in 2022, excluding processing gains, is forecast to grow y-o-y by 1.1 mb/d to average 19.0 mb/d, revised down by 41 tb/d compared with the previous assessment. The downward revision was due to lower-than-projected production in 2Q22 and historical revisions of NGLs production.

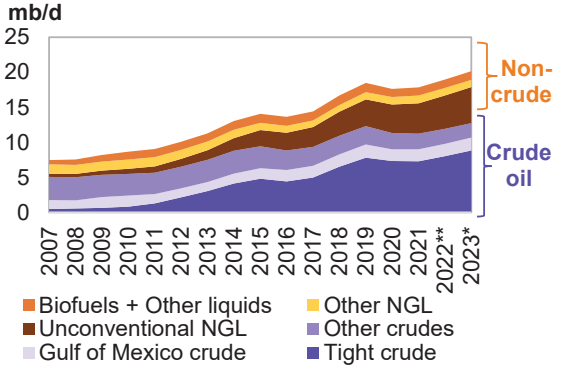
The 2022 gains are due primarily to expected tight crude production growth of 0.7 mb/d, to average 8.0 mb/d. In addition, NGLs, mainly from unconventional basins, are projected to grow by 0.4 mb/d, to average 5.8 mb/d, and production in the GoM is anticipated to increase by 50 tb/d to average 1.8 mb/d. Non-conventional liquids are projected to grow by 40 tb/d to average 1.2 mb/d. However, the expected growth will be partially offset by natural declines in onshore conventional fields of 0.1 mb/d y-o-y.

Given the current pace of drilling and well completions in oil fields, **production of crude oil and condensate** is forecast to grow by 0.7 mb/d y-o-y to average 11.9 mb/d in 2022. This forecast assumes ongoing capital discipline, current inflation rates, ongoing supply chain issues and oil field service section limitations (labour and equipment) in 2022. The hurricane season in the US Gulf Coast also brings uncertainty to the forecast.

US liquids production in 2023, excluding processing gains, is expected to grow by 1.2 mb/d y-o-y to average 20.2 mb/d, unchanged from the previous assessment. In addition, more drilling activity and fewer supply chain issues in the prolific Permian Basin, Eagle Ford and Bakken shale sites are assumed for 2023. Crude oil output is anticipated to jump by 0.8 mb/d y-o-y to average 12.7 mb/d.

At the same time, NGLs production and non-conventional liquids, particularly ethanol, are projected to increase by 0.35 mb/d and 40 tb/d y-o-y to average 6.2 mb/d and 1.3 mb/d, respectively. Average tight crude output in 2023 is expected at 8.8 mb/d, up by 0.8 mb/d.

Graph 5 - 9: US liquids supply developments by component



*Note: * 2022-2023 = Forecast.*
Source: OPEC.

Table 5 - 4: US liquids production breakdown, mb/d

US liquids	2021	Change 2021/20	2022*	Change 2022/21	2023*	Change 2023/22
Tight crude	7.29	-0.04	8.02	0.73	8.82	0.80
Gulf of Mexico crude	1.71	0.04	1.76	0.05	1.86	0.10
Conventional crude oil	2.25	-0.06	2.14	-0.11	2.05	-0.09
Total crude	**11.25**	**-0.06**	**11.91**	**0.66**	**12.73**	**0.81**
Unconventional NGLs	4.30	0.22	4.74	0.44	5.14	0.40
Conventional NGLs	1.12	0.03	1.10	-0.03	1.04	-0.05
Total NGLs	**5.42**	**0.25**	**5.84**	**0.41**	**6.18**	**0.35**
Biofuels + Other liquids	1.17	0.02	1.21	0.04	1.25	0.04
US total supply	**17.85**	**0.21**	**18.95**	**1.11**	**20.16**	**1.20**

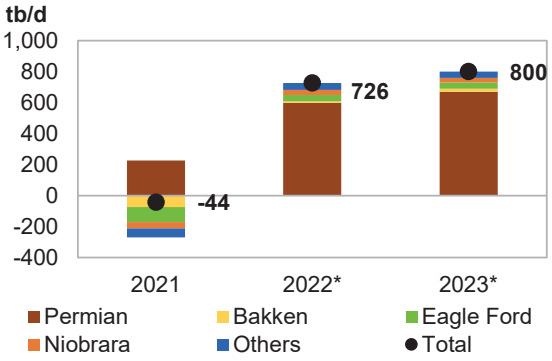
*Note: * 2022-2023 = Forecast. Sources: EIA, OPEC and Rystad Energy.*

US tight crude production in the **Permian** is estimated to have increased by 0.6 mb/d in 2022 to 4.7 mb/d and is forecast to grow by 0.7 mb/d y-o-y to average 5.4 mb/d in 2023.

The decline in **Bakken** shale production that occurred in 2020 and 2021 is expected to reverse to average 1.1 mb/d in 2022, which is still lower than the pre-pandemic average output of 1.4 mb/d. Tight crude production in the Bakken is forecast to grow by 11 tb/d in 2022, on the back of increased drilling activity in North Dakota and available DUC wells. In 2023, growth is forecast at 20 tb/d, to average 1.1 mb/d.

The **Eagle Ford** in Texas saw output of 1.2 mb/d in 2019. A decline then took place in 2020 and 2021, though output is forecast to grow in 2022 by 39 tb/d to average 1.0 mb/d. Growth of 40 tb/d is expected for 2023, to average 1.0 mb/d.

Graph 5 - 10: US tight crude output by shale play, y-o-y changes



*Note: * 2022-2023 = Forecast.*
Sources: EIA, Rystad Energy and OPEC.

Production in the **Niobrara** is forecast to grow by 33 tb/d in 2022 and 30 tb/d in 2023 y-o-y, to average 446 tb/d and 476 tb/d, respectively. Other shale plays are expected to show marginal increases totalling 45 tb/d and 40 tb/d in 2022 and 2023, given current drilling and completion activities.

Table 5 - 5: US tight oil production growth, mb/d

US tight oil	2021	Change 2021/20	2022*	Change 2022/21	2023*	Change 2023/22
Permian tight	4.15	0.23	4.74	0.60	5.41	0.67
Bakken shale	1.11	-0.07	1.12	0.01	1.14	0.02
Eagle Ford shale	0.96	-0.10	1.00	0.04	1.04	0.04
Niobrara shale	0.41	-0.04	0.45	0.03	0.48	0.03
Other tight plays	0.67	-0.06	0.72	0.05	0.76	0.04
Total	**7.29**	**-0.04**	**8.02**	**0.73**	**8.82**	**0.80**

*Note: * 2022-2023 = Forecast. Source: OPEC.*

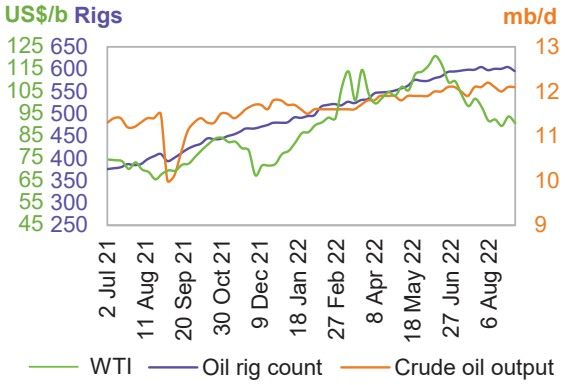
US rig count, spudded, completed, DUC wells and fracking activity

Total **US active drilling rigs** decreased by five units to 760 in the week ending 2 September, but were up by 263 rigs compared with a year ago. The number of active offshore rigs declined by two w-o-w to 16, 14 rigs more than the same month in 2021. At the same time, onshore oil and gas rigs reduced by three w-o-w to stand at 741, up by 246 rigs y-o-y, with three rigs in inland waters.

The **US horizontal rig count** rose by one w-o-w to 695, compared with 463 horizontal rigs a year ago. The number of drilling rigs for oil declined by nine to 596 w-o-w, while gas rigs increased by four to 162.

The rig count in the Permian declined by six w-o-w to 342. At the same time, the number of active rigs fell by one in Cana Woodford to 21. However, the rig count increased by two in Williston to 41 and by one in Eagle Ford to 71, w-o-w. The same number of rigs operated w-o-w in the DJ-Niobrara and Barnett basins, 17 and three, respectively.

Graph 5 - 11: US weekly rig count vs. US crude oil output and WTI price



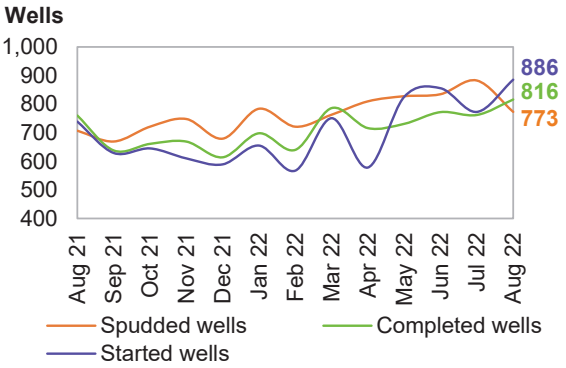
Sources: Baker Hughes, EIA and OPEC.

Drilling and completion (D&C) activities for spudded, completed and started wells in all US shale plays, based on US Energy Information Administration's Drilling Productivity Report (EIA-DPR) regions, saw 883 horizontal wells spudded in July 2022 (as per preliminary data), up by 48 m-o-m, and 30% higher than in July 2021.

July 2022 preliminary data indicate a lower number of completed wells at 762 m-o-m, though up by 12% y-o-y. Moreover, the number of started wells was estimated at 773, which is 25% higher than in July 2021.

Preliminary data for August estimates 773 spudded, 816 completed and 886 started wells, according to Rystad Energy.

Graph 5 - 12: Spudded, completed and started wells in US shale plays

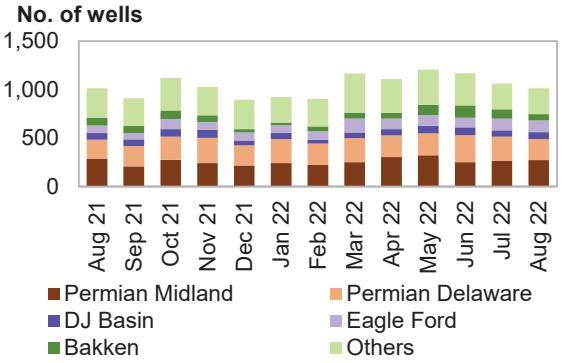


Note: Jul 22-Aug 22 = Preliminary data.
Sources: Rystad Energy and OPEC.

In terms of identified **US oil and gas fracking operations by region**, Rystad Energy reported that totally 1,167 wells were fracked in June, while July and August saw 1,064 and 1,014 wells starting to frack, respectively. These preliminary numbers are based on analysis of high-frequency satellite data.

Preliminary data on fracking in July shows that 267 and 249 wells were fracked in the Permian Midland and Permian Delaware, respectively. Compared with June, there was a jump of 16 wells fracked in the Midland and a decline of 31 wells in the Delaware, according to preliminary data. Data also indicate that 64 wells were fracked in the DJ Basin, 120 in Eagle Ford and 95 in Bakken during July.

Graph 5 - 13: Fracked wells count per month



Note: Jul 22-Aug 22 = Preliminary data.
Sources: Rystad Energy Shale Well Cube and OPEC.

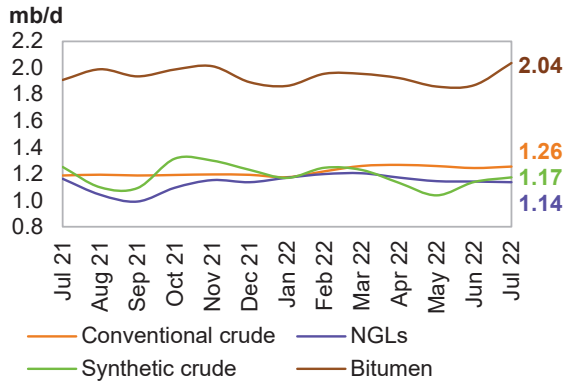
Canada

Canada's liquids production in July is estimated to have increased by 209 tb/d m-o-m to average 5.6 mb/d, due to a partial wrap-up of seasonal maintenance from 2Q22.

Crude bitumen production and synthetic crude output increased by 35 tb/d and 168 tb/d, m-o-m, in July, respectively. Taken together, crude bitumen and synthetic crude production rose by 203 tb/d to 3.3 mb/d. Production of conventional crude increased by a slight 11 tb/d m-o-m to average 1.3 mb/d, however NGLs output declined by a minor 5 tb/d m-o-m to average 1.1 mb/d.

Maintenance at the Suncor, Syncrude, Scotford and Horizon upgraders was completed in 1H22. However, it is still in progress at Cenovus's Foster Creek and Christina Lake, Suncor's Firebag, Suncor's Fort Hills, Imperial's Kearl Lake and Cold Lake sites, all of which feature non-upgraded oil sands production. However, project ramp-ups and optimization in oil sands output are expected to drive production in 4Q22.

Graph 5 - 14: Canada's monthly liquids production development by type

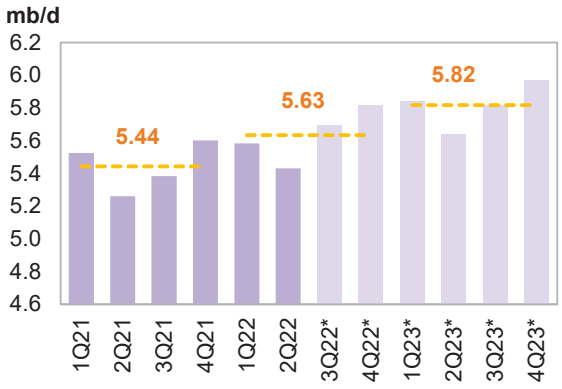


Sources: National Energy Board and OPEC.

The Canadian liquids supply in **2022** is forecast to grow by 0.2 mb/d to average 5.6 mb/d, broadly unchanged from the previous assessment. Output is expected to increase up to December due to oil sands project expansion/optimization and the return of upgraders from maintenance.

For **2023**, Canada's liquids production is forecast to increase gradually at a pace similar to that seen in 2022, rising by 0.2 mb/d to average 5.8 mb/d. Incremental production will come mainly from Alberta's oil sands, which saw average output of 3.1 mb/d in 1H22.

Graph 5 - 15: Canada's quarterly liquids production and forecast



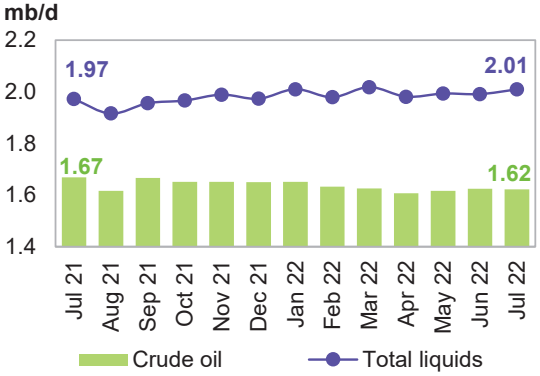
*Note: * 3Q22-4Q23 = Forecast. Source: OPEC.*

Mexico

Mexico's crude output remained largely unchanged in **July** to average 1.6 mb/d, while NGLs output increased by 20 tb/d due to an expected ramp-up of condensate fields. Thus, Mexico's total liquids output in July increased by 18 tb/d m-o-m to average 2.0 mb/d, according to national oil company Pemex.

For **2022**, liquids production in Mexico is forecast to grow by 40 tb/d to average 2.0 mb/d, revised up by 14 tb/d from the previous month. The 2H22 forecast was revised up due to recently modified development plans by Eni to boost activity at the Amoca and Mitzon fields (FPSO Miante). The 2022 increase is expected to be driven by foreign-operated fields, while minor growth is also expected at Pemex-operated fields.

Graph 5 - 16: Mexico's monthly liquids and crude production development



Sources: PEMEX and OPEC.

For **2023**, liquids production is forecast to decline by 0.04 mb/d to average 1.96 mb/d, unchanged m-o-m. Pemex's total crude production decline in mature fields like Ku-Maloob-Zaap, Abkatun-Pol-Chuc and Integral Yaxche-Xanab is forecast to outweigh production ramp-ups in other fields.

OECD Europe

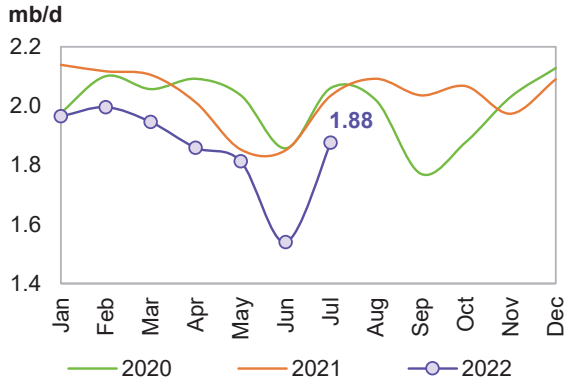
Norway

Norwegian liquids production in **July** rose by 0.34 mb/d m-o-m to average 1.9 mb/d. Some offshore fields rebounded from summer maintenance, pushing output to around April values.

Norway's crude production increased by 317 tb/d m-o-m in July to average 1.6 mb/d, down by 108 tb/d y-o-y. Oil production in July was 10.9% lower than the Norwegian Petroleum Directorate's (NPD) forecast.

At the same time, the production of NGLs and condensates increased by 19 tb/d m-o-m to average 0.2 mb/d, according to NPD data.

Graph 5 - 17: Norway's monthly liquids production development



Sources: NPD and OPEC.

For **2022**, production growth is expected to decrease by 43 tb/d y-o-y to average 2.0 mb/d. Norwegian liquid output dropped by 12% in 2Q22 to 1.74 mb/d, mainly because of maintenance at offshore platforms. In addition to some small start-ups, growth is expected in 4Q22, following the return from maintenance and second-phase production start-up of the Johan Sverdrup field.

For **2023**, Norwegian liquids production is forecast to grow by 0.24 mb/d, unchanged from the previous month, to average 2.2 mb/d. Plenty of projects, from small to large, are scheduled to ramp up in 2023 in the Njord, Nova, Ringhorne, Alvheim, Oseberg and Snohvit fields. However, Johan Sverdrup is projected to be the main source of increased output for the year, making up roughly 35% of total Norway's crude and condensate output.

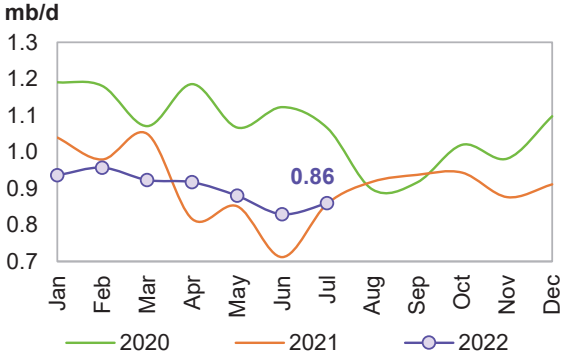
UK

UK liquids production increased in **July** by 31 tb/d m-o-m to average 0.9 mb/d. Crude oil output increased by 32 tb/d m-o-m to average 0.7 mb/d, according to official data, but was down by 21 tb/d y-o-y. NGLs output was broadly unchanged at 86 tb/d.

For **2022**, UK liquids production is forecast to grow by 13 tb/d to average 0.9 mb/d, revised down by a minor 10 tb/d from the previous assessment, mainly due to lower-than-expected production in 2Q22. Low investment levels, COVID-19-related delays and poor mature reservoir performance have impacted the growth forecast.

For **2023**, UK liquids production is forecast to stay steady for an average of 0.9 mb/d. Project sanctioning is essential for maintaining future oil and gas output at a time when the UK is already facing production declines due to a lack of new developments. Production ramp-ups are projected at the Penguins oil field (Redevelop), ETAP, Clair, the Schiehallion quad and some other small fields.

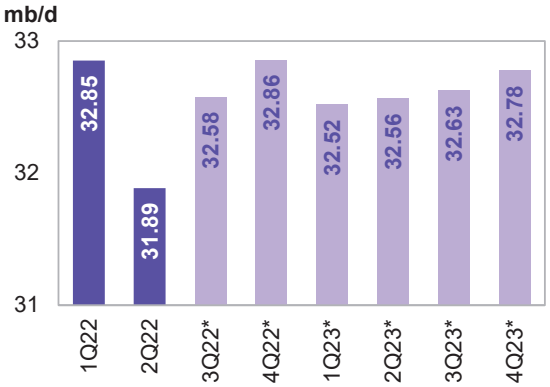
Graph 5 - 18: UK monthly liquids production development



Sources: Department of Energy & Climate Change and OPEC.

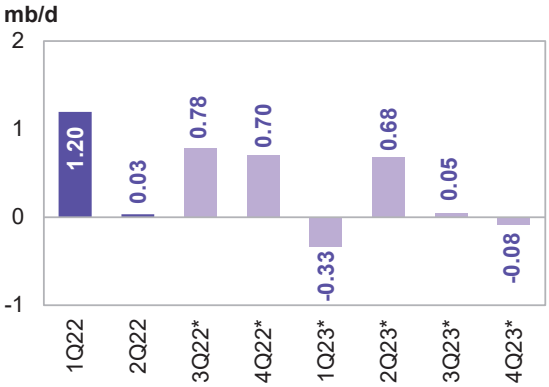
Non-OECD

Graph 5 - 19: Non-OECD quarterly liquids production and forecast



*Note: * 3Q22-4Q23 = Forecast. Source: OPEC.*

Graph 5 - 20: Non-OECD quarterly liquids supply, y-o-y changes

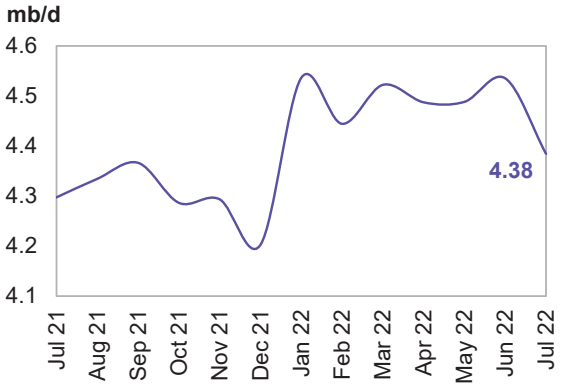


*Note: * 3Q22-4Q23 = Forecast. Source: OPEC.*

China

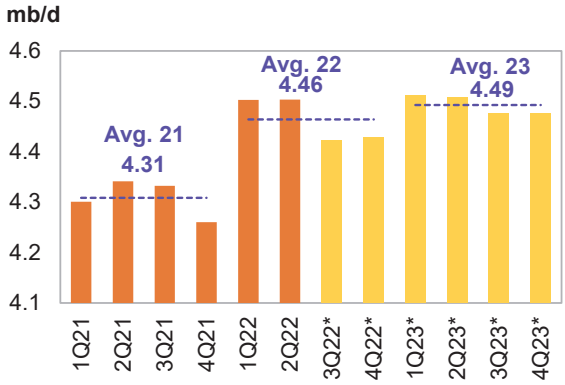
China's liquids production decreased m-o-m in **July** by 151 tb/d to average 4.4 mb/d, which is a rise of 87 tb/d y-o-y, according to official data. Crude oil output in July averaged 4.0 mb/d, down by 149 tb/d compared with the previous month, but higher by 61 tb/d y-o-y. Liquids production over the first seven months of the year averaged 4.5 mb/d, higher by 4% compared with the same period last year.

Graph 5 - 21: China's monthly liquids production development



Sources: CNPC and OPEC.

Graph 5 - 22: China's quarterly liquids production and forecast



*Note: * 3Q22-4Q23 = Forecast. Sources: CNPC and OPEC.*

Growth of 155 tb/d is forecast for **2022** to average 4.5 mb/d, broadly unchanged from the previous assessment. Natural decline rates are expected to be offset by the Chinese national oil company's considerable investments. Tianjin, Xinjiang, Heilongjiang, and Shaanxi were the main producing provinces in the first half of the year. Chinese companies expect additional growth through more in-fill wells and enhanced oil recovery (EOR) projects.

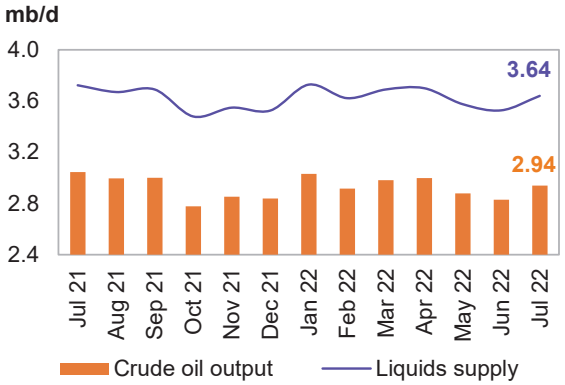
For **2023**, y-o-y growth of 30 tb/d is forecast for an average of 4.5 m/d, with Bozhong 29-6, Wushi 17-2 and Kenli 10-1N planned to come on stream under the China National Offshore Oil Corporation (CNOOC). At the same time, ramp-ups are expected from the Changqing, Jilin and Liaohe projects, which are managed by Petro China. The new projects will slightly offset declines from the mature onshore production base.

Latin America

Brazil

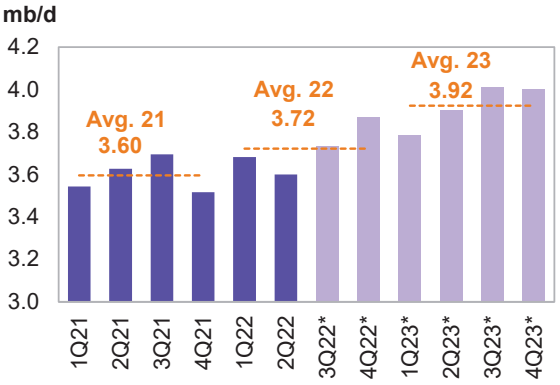
Brazil's crude output in **July** increased by 111 tb/d m-o-m to average 2.9 mb/d. NGLs production was largely unchanged, averaging 88 tb/d and is expected to remain flat in August. Biofuel output (mainly ethanol) remained unchanged in July to average 612 tb/d, with preliminary data showing a flat trend in August as well. Thus, total liquids production increased in July by 113 tb/d to average 3.6 mb/d, down by 83 tb/d y-o-y. Offshore maintenance eased slightly in July, allowing crude production to rise back above 2.9 mb/d for the first time since April.

Graph 5 - 23: Brazil's monthly liquids production development by type



Sources: ANP, Petrobras and OPEC.

Graph 5 - 24: Brazil's quarterly liquids production



*Note: * 3Q22-4Q23 = Forecast. Sources: ANP and OPEC.*

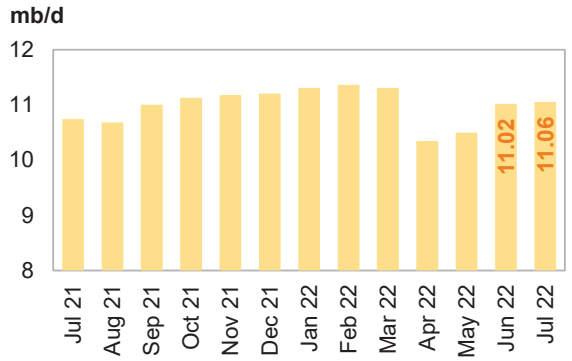
For **2022,** Brazil's liquids supply, including biofuels, is forecast to increase by 0.1 mb/d y-o-y to average 3.7 mb/d, revised down by 25 tb/d compared with the previous month's assessment, mainly due to a downward revision in biofuel output in 1H22 and lower-than-expected output in 3Q22. Growth in 2022 will be driven by the continued ramp-up of the Sepia field, along with the start-up of Mero 1 in the pre-salt Santos Basin and Peregrino (Phases 1 and 2).

For **2023**, Brazil's liquids supply, including biofuels, is forecast to increase by 0.2 mb/d y-o-y to average 3.9 mb/d. Crude oil output is expected to increase through production ramp-ups in the Mero (Libra NW), Buzios (Franco), Tupi (Lula), Peregrino, Sepia and Itapu (Florim) fields. However, offshore maintenance is expected to cause interruptions in major fields. The 150 tb/d Almirante Barroso floating production, storage and offloading (FPSO) unit departed China's Cosco shipyard and is on its way to Buzios, due to arrive in the fourth quarter, with first oil forecast for the middle of next year.

Russia

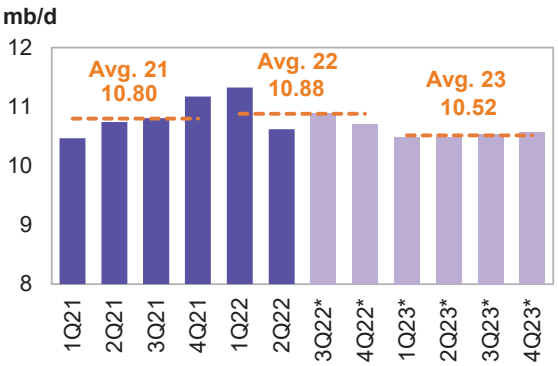
Russia's liquids production in July increased m-o-m by 36 tb/d to average 11.1 mb/d. This includes 9.8 mb/d of crude oil and condensate, and 1.2 mb/d of NGLs. A preliminary estimate for Russia's crude and condensate production in August shows a decrease of 71 tb/d m-o-m to average 9.8 mb/d, while a decline of around 119 tb/d is expected for NGLs.

Graph 5 - 25: Russia's monthly liquids production



Sources: Nefte Compass, The Ministry of Energy of the Russian Federation and OPEC.

Graph 5 - 26: Russia's quarterly liquids production



*Note: * 3Q22-4Q23 = Forecast.*
Sources: Nefte Compass and OPEC.

Russia's liquids output for **2022** is forecast to increase by 80 tb/d y-o-y to average 10.9 mb/d, unchanged from the previous month's assessment.

For **2023**, Russian liquids production is forecast to decrease by 0.4 mb/d to average 10.5 mb/d. It should be noted that the Russian oil forecast is highly subject to uncertainty.

Caspian

Kazakhstan & Azerbaijan

Liquids output in Kazakhstan increased by 206 tb/d to average 1.7 mb/d in **July**. Crude production was up by 184 tb/d m-o-m to average 1.4 mb/d. Production of NGLs also increased by 22 tb/d m-o-m to average 0.3 mb/d. This was mainly due to the partial return of the Kashagan oil field from 2Q maintenance.

Kazakhstan's liquids supply for **2022** is now forecast to grow by 56 tb/d to average 1.9 mb/d, down by 27 tb/d compared with the previous month's assessment. This was due to planned maintenance at the Tengiz oil field and reduced oil loadings at the Caspian Pipeline Consortium (CPC) from two of three Single Mooring Points (SPM) at its Black Sea terminal. Output in Kashagan oil field is expected to recover somewhat.

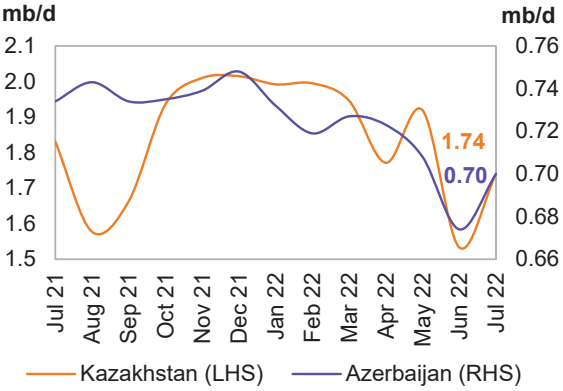
For **2023**, the liquids supply is forecast to increase by 78 tb/d to stand at 2 mb/d, due to production ramp-ups in the Kashagan oil field. Oil production in the Tengiz field and gas condensate output in the Karachaganak field are also expected to rise marginally.

Azerbaijan's liquids production in July rose by 26 tb/d m-o-m to average 0.7 mb/d, and was down by 34 tb/d y-o-y. Crude oil production decreased by 26 tb/d m-o-m to average 550 tb/d, while NGLs output averaged 150 tb/d, according to official sources.

No new projects are expected to come online in the country in 2022, though the main declines in legacy fields are expected to be offset by ramp-ups in other fields, such as Shah Deniz Phase 2 and Absheron.

For **2022**, liquids supply in Azerbaijan is forecast to grow by 24 tb/d y-o-y to average 0.8 mb/d, down by 15 tb/d, because of lower-than-expected production in major oil fields in July and a downward revision for 2Q22.

Graph 5 - 27: Caspian monthly liquids production development by selected country



Sources: Nefte Compass and OPEC.

Azerbaijan's liquids supply for **2023** is forecast to decline by 60 tb/d to average 0.7 mb/d. The overall decline rate will be higher than planned ramp-ups in the three major producing fields.

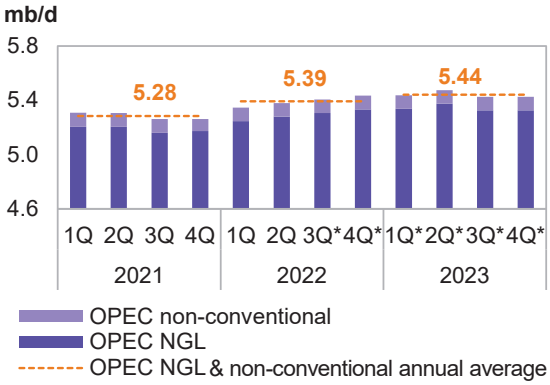
OPEC NGLs and non-conventional oils

OPEC NGLs and non-conventional liquids in 2022 are forecast to grow by 0.1 mb/d to average 5.4 mb/d, unchanged from the previous assessment.

Output of NGLs in 2Q22 is estimated to have averaged 5.3 mb/d, while OPEC non-conventional liquids remained steady at 0.1 mb/d.

The preliminary **2023** forecast indicates growth of 50 tb/d for an average of 5.4 mb/d. NGLs production is projected to grow by 50 tb/d to average 5.3 mb/d, while non-conventional liquids are projected to remain unchanged at 0.1 mb/d.

Graph 5 - 28: OPEC NGLs and non-conventional liquids quarterly production and forecast



*Note: * 3Q22-4Q23 = Forecast. Source: OPEC.*

Table 5 - 6: OPEC NGLs + non-conventional oils, mb/d

OPEC NGL and non-coventional oils	2021	Change 21/20	2022	Change 22/21	1Q23	2Q23	3Q23	4Q23	2023	Change 23/22
OPEC NGL	**5.18**	*0.12*	**5.29**	*0.11*	5.34	5.37	5.33	5.33	**5.34**	*0.05*
OPEC non-conventional	**0.10**	*0.00*	**0.10**	*0.00*	0.10	0.10	0.10	0.10	**0.10**	*0.00*
Total	**5.28**	***0.12***	**5.39**	***0.11***	**5.44**	**5.47**	**5.43**	**5.43**	**5.44**	***0.05***

Note: 2022-2023 = Forecast. Source: OPEC.

OPEC crude oil production

According to secondary sources, total **OPEC-13 crude oil production** averaged 29.65 mb/d in August 2022, higher by 618 tb/d m-o-m. Crude oil output increased mainly in Libya and Saudi Arabia, while production in Nigeria declined.

Table 5 - 7: OPEC crude oil production based on *secondary sources*, tb/d

Secondary sources	2020	2021	4Q21	1Q22	2Q22	Jun 22	Jul 22	Aug 22	*Change* Aug/Jul
Algeria	904	913	959	984	1,014	1,024	1,028	1,036	*7*
Angola	1,247	1,117	1,124	1,152	1,171	1,184	1,173	1,187	*13*
Congo	289	265	266	264	268	270	263	262	*-1*
Equatorial Guinea	114	98	89	92	90	88	98	90	*-9*
Gabon	191	182	185	199	190	193	200	202	*2*
IR Iran	1,991	2,392	2,472	2,529	2,556	2,565	2,567	2,572	*5*
Iraq	4,076	4,049	4,240	4,286	4,438	4,465	4,523	4,525	*2*
Kuwait	2,439	2,419	2,532	2,614	2,692	2,724	2,773	2,810	*37*
Libya	367	1,143	1,111	1,063	750	632	697	1,123	*426*
Nigeria	1,578	1,372	1,321	1,376	1,210	1,190	1,164	1,100	*-65*
Saudi Arabia	9,204	9,114	9,880	10,164	10,451	10,559	10,744	10,904	*160*
UAE	2,804	2,727	2,861	2,954	3,045	3,082	3,131	3,164	*33*
Venezuela	512	555	662	684	714	710	672	678	*6*
Total OPEC	**25,716**	**26,347**	**27,701**	**28,360**	**28,588**	**28,685**	**29,033**	**29,651**	***618***

Notes: Totals may not add up due to independent rounding, given available secondary sources to date. Source: OPEC.

Table 5 - 8: OPEC crude oil production based on *direct communication*, tb/d

Direct communication	2020	2021	4Q21	1Q22	2Q22	Jun 22	Jul 22	Aug 22	*Change* Aug/Jul
Algeria	899	911	958	984	1,016	1,027	1,040	1,053	*13*
Angola	1,271	1,124	1,123	1,161	1,173	1,175	1,180	1,179	*-1*
Congo	300	267	260	267	258	251	250	262	*12*
Equatorial Guinea	114	93	79	95	91	91	89	85	*-4*
Gabon	207	181	183	197	184	194	191	212	*21*
IR Iran	..	..	..	..	..	..	..	..	..
Iraq	3,997	3,971	4,167	4,188	4,472	4,515	4,584	4,651	*67*
Kuwait	2,438	2,415	2,528	2,612	2,694	2,724	2,768	2,811	*43*
Libya	389	1,207	1,182	1,151	..	770	746	..	..
Nigeria	1,493	1,323	1,260	1,299	1,133	1,158	1,084	972	*-112*
Saudi Arabia	9,213	9,125	9,905	10,224	10,542	10,646	10,815	11,051	*236*
UAE	2,779	2,718	2,854	2,949	3,042	3,083	3,133	3,184	*51*
Venezuela	569	636	817	756	745	727	629	723	*94*
Total OPEC	..	..	..	..	..	..	..	..	..

Notes: .. Not available. Totals may not add up due to independent rounding. Source: OPEC.

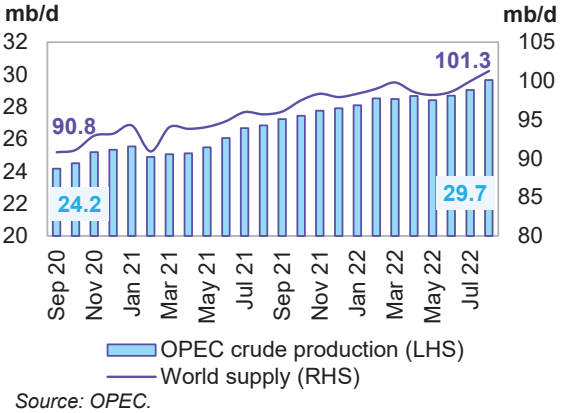
World oil supply

Preliminary data indicates that **global liquids production in August** increased by 1.3 mb/d to average 101.3 mb/d compared with the previous month.

Non-OPEC liquids production (including OPEC NGLs) is estimated to have increased in August by 0.7 mb/d m-o-m to average 71.6 mb/d, and was higher by 2.8 mb/d y-o-y. Preliminary estimated increases in production during August were mainly driven by OECD Americas, OECD Europe and Other Eurasia, which saw a rise by 0.5 mb/d, while production in Russia and some other countries declined.

The **share of OPEC crude oil in total global production** increased by 0.2 pp to 29.3% in August compared with the previous month. Estimates are based on preliminary data from direct communication for non-OPEC supply, OPEC NGLs and non-conventional oil, while estimates for OPEC crude production are based on secondary sources.

Graph 5 - 29: OPEC crude production and world oil supply development



Source: OPEC.

Commercial Stock Movements

Preliminary July data sees total OECD commercial oil stocks up m-o-m by 18.1 mb. At 2,699 mb, they were 148 mb less than the same time one year ago, 279 mb lower than the latest five-year average and 271 mb below the 2015-2019 average. Within the components, crude and product stocks rose m-o-m by 6.4 mb and 11.7 mb.

At 1,318 mb, OECD crude stocks were 45 mb lower than the same time a year ago, 128 mb below the latest five-year average and 144 mb lower than the 2015-2019 average. OECD product stocks stood at 1,380 mb, 103 mb lower than the same time a year ago, 151 mb lower than the latest five-year average and 127 mb below the 2015-2019 average.

In terms of days of forward cover, OECD commercial stocks rose by 0.3 days m-o-m in July to stand at 59.1 days. This is 2.7 days below July 2021 levels, 5.3 days less than the latest five-year average and 3.4 days lower than the 2015-2019 average.

Preliminary data for August showed that total US commercial oil stocks rose by 16.2 mb m-o-m to stand at 1,225 mb. This is 25.1 mb, or 2.0%, lower than the same month in 2021 and 79.9 mb, or 6.1%, below the latest five-year average. Crude and product stocks rose by 0.6 mb and 15.6 mb, m-o-m, respectively.

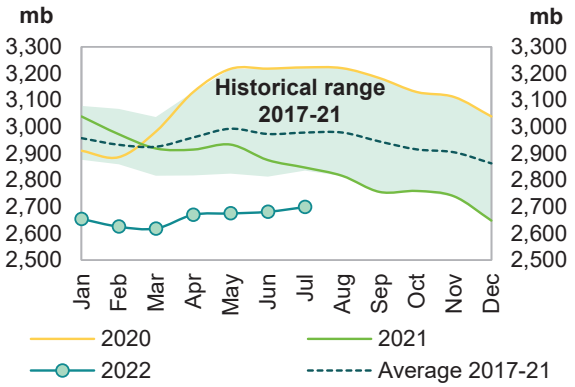
OECD

Preliminary **July** data sees **total OECD commercial oil stocks** up m-o-m by 18.1 mb. At 2,699 mb, they were 148 mb less than the same time one year ago, 279 mb lower than the latest five-year average and 271 mb below the 2015-2019 average.

Within the components, crude and product stocks rose m-o-m by 6.4 mb and 11.7 mb, respectively. Total commercial oil stocks in July rose in OECD Americas and OECD Asia Pacific, while OECD Europe saw a stock draw.

OECD commercial **crude stocks** stood at 1,318 mb in July. This is 45 mb lower than the same time a year ago, 128 mb below the latest five-year average and 144 mb lower than the 2015-2019 average.

Graph 9 - 1: OECD commercial oil stocks



Sources: Argus, EIA, Euroilstock, IEA, METI and OPEC.

Compared with the previous month, OECD Europe saw a stock draw of 3.0 mb, OECD Americas stocks rose by 9.1 mb and stocks in OECD Asia Pacific increased by 0.3 mb.

Total product inventories stood at 1,380 mb in July. This is 103 mb below the same time a year ago, 151 mb lower than the latest five-year average and 127 mb below the 2015-2019 average. Product stocks in OECD Americas and OECD Asia Pacific rose by 14.2 mb and 0.4 mb, respectively, while they fell m-o-m by 2.8 mb in OECD Europe.

Table 9 - 1: OECD's commercial stocks, mb

OECD stocks	Jul 21	May 22	Jun 22	Jul 22	Change Jul 22/Jun 22
Crude oil	1,363	1,313	1,312	1,318	*6.4*
Products	1,483	1,362	1,369	1,380	*11.7*
Total	**2,847**	**2,674**	**2,681**	**2,699**	***18.1***
Days of forward cover	**61.8**	**58.9**	**58.8**	**59.1**	***0.3***

Note: Totals may not add up due to independent rounding.

Sources: Argus, EIA, Euroilstock, IEA, METI and OPEC.

In terms of **days of forward cover**, OECD commercial stocks rose by 0.3 days m-o-m in July to stand at 59.1 days. This is 2.7 days below July 2021 levels, 5.3 days less than the latest five-year average and 3.4 days lower than the 2015-2019 average. All three OECD regions were below the latest five-year average: the Americas by 3.9 days at 60.0 days; Asia Pacific by 7.2 days at 46.4 days; and Europe by 7.1 days at 63.7 days.

OECD Americas

OECD Americas total commercial stocks rose by 23.2 mb m-o-m in July to settle at 1,475 mb. This is 72 mb less than the same month in 2021 and 103 mb lower than the latest five-year average.

Commercial **crude oil stocks** in OECD Americas rose m-o-m by 9.1 mb in July to stand at 749 mb, which is 26.4 mb lower than in July 2021 and 32.5 mb less than the latest five-year average. The monthly build in crude oil stocks can be attributed to lower crude runs, as well as additional barrels released from strategic petroleum reserves (SPRs).

Total product stocks in OECD Americas also rose m-o-m by 14.2 mb in July to stand at 726 mb. This was 45.6 mb lower than in the same month in 2021 and 71 mb below the latest five-year average. Lower total consumption in the region was behind the products stock build.

OECD Europe

OECD Europe total commercial stocks fell m-o-m by 5.8 mb in July to settle at 899 mb. This is 54.6 mb less than the same month in 2021 and 100.3 mb below the latest five-year average.

OECD Europe's **commercial crude stocks** fell in July by 3.0 mb m-o-m to end the month at 411 mb, which is 1.0 mb lower than one year ago and 31.3 mb below the latest five-year average. The drop in crude oil inventories came on the back of higher m-o-m refinery throughput in the EU-14, plus the UK and Norway, which increased by 180 tb/d to stand at 10.1 mb/d.

Europe's **product stocks** also fell m-o-m by 2.8 mb to end July at 489 mb. This is 53.6 mb lower than a year ago and 69.1 mb below the latest five-year average.

OECD Asia Pacific

OECD Asia Pacific's total commercial oil stocks rose m-o-m by 0.7 mb in July to stand at 324 mb. This is 21.3 mb lower than a year ago and 75.4 mb below the latest five-year average.

OECD Asia Pacific's **crude inventories** rose by 0.3 mb m-o-m to end July at 158 mb, which is 17.6 mb lower than one year ago and 64.4 mb below the latest five-year average.

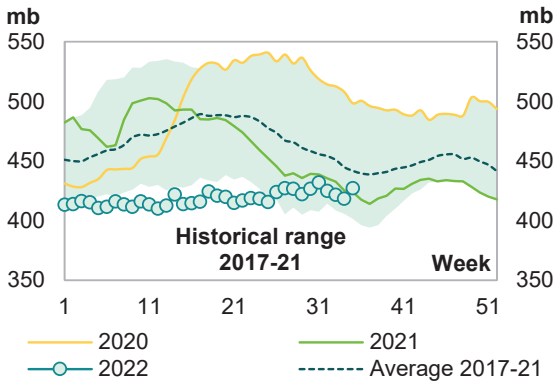
OECD Asia Pacific's **total product inventories** also rose m-o-m by 0.4 mb to end July at 165 mb. This is 3.7 mb lower than the same time a year ago and 11.0 mb below the latest five-year average.

US

Preliminary data for August showed that **total US commercial oil stocks** rose by 16.2 mb m-o-m to stand at 1,225 mb. This is 25.1 mb, or 2.0%, lower than the same month in 2021 and 79.9 mb, or 6.1%, below the latest five-year average. Crude and product stocks rose by 0.6 mb and 15.6 mb, m-o-m, respectively.

US **commercial crude stocks** in August stood at 427.2 mb. This is 5.7 mb, or 1.3%, higher than the same month of the previous year, and 17.5 mb, or 3.9%, below the latest five-year average. The monthly build in crude oil stocks can be attributed to lower crude imports, as well as additional barrels released from the SPR.

Graph 9 - 2: US weekly commercial crude oil inventories



Sources: EIA and OPEC.

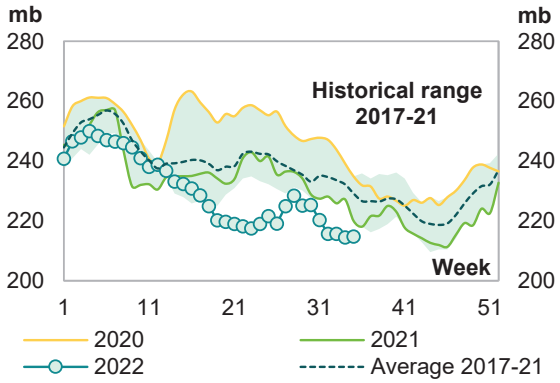
Total product stocks also rose in August to stand at 798.0 mb. This is 30.7 mb, or 3.7%, below August 2021 levels, and 62.4 mb, or 7.2%, lower than the latest five-year average. The stock build was mainly driven by lower product consumption.

Gasoline stocks in August fell m-o-m by 10.5 mb to settle at 214.8 mb. This is 10.7 mb, or 4.8% lower than in the same month of 2021, and 16.5 mb, or 7.1%, lower than the latest five-year average. The monthly stock drop came mainly on the back of higher gasoline consumption.

Jet fuel stocks also fell m-o-m by 2.9 mb, ending August at 38.7 mb. This is 3.8 mb, or 8.8%, lower than the same month of 2021, and 2.9 mb, or 6.9%, below the latest five-year average.

Residual fuel oil stocks also decreased by 0.9 mb m-o-m in August. At 27.3 mb, this was 2.5 mb, or 8.5%, lower than a year earlier, and 3.4 mb, or 11.2%, below the latest five-year average.

Graph 9 - 3: US weekly gasoline inventories



Sources: EIA and OPEC.

By contrast, **distillate stocks** rose m-o-m in August by 2.5 mb to stand at 111.8 mb. This is 25.8 mb, or 18.8%, lower than the same month of the previous year, and 34.8 mb, or 23.7%, below the latest five-year average.

Table 9 - 2: US commercial petroleum stocks, mb

US stocks	Aug 21	Jun 22	Jul 22	Aug 22	Change Aug 22/Jul 22
Crude oil	**421.5**	**417.5**	**426.6**	**427.2**	***0.6***
Gasoline	225.6	221.0	225.3	214.8	*-10.5*
Distillate fuel	137.6	111.4	109.3	111.8	*2.5*
Residual fuel oil	29.8	29.2	28.2	27.3	*-0.9*
Jet fuel	42.5	39.3	41.6	38.7	*-2.9*
Total products	**828.7**	**762.2**	**782.4**	**798.0**	***15.6***
Total	**1,250.2**	**1,179.7**	**1,208.9**	**1,225.1**	***16.2***
SPR	**621.3**	**493.3**	**469.9**	**442.5**	***-27.4***

Sources: EIA and OPEC.

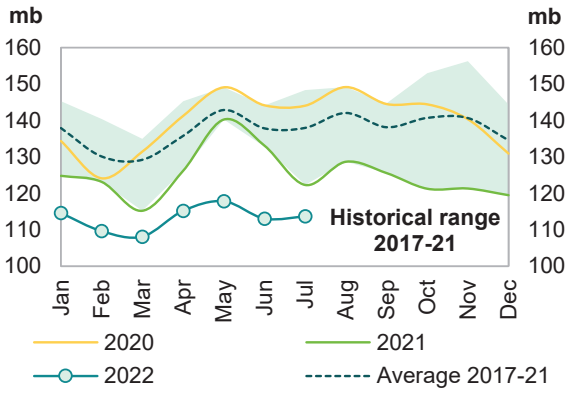
Japan

In **Japan**, **total commercial oil stocks** in July rose m-o-m by 0.7 mb to settle at 113.7 mb. This is 8.6 mb, or 7.0%, lower than the same month in 2021 and 24.2 mb, or 17.5%, below the latest five-year average. Crude and product stocks rose m-o-m by 0.3 mb and 0.4 mb, respectively.

Japanese **commercial crude oil stocks** rose in July to stand at 60.1 mb. This is 5.4 mb, or 8.3% lower than the same month of the previous year, and 18.7 mb, or 23.7%, lower than the latest five-year average. The drop came on the back of higher crude imports.

Japan's **total product inventories** also rose m-o-m by 0.4 mb to end July at 53.6 mb. This is 3.2 mb, or 5.6%, lower than the same month in 2021 and 5.5 mb, or 9.4%, below the latest five-year average.

Graph 9 - 4: Japan's commercial oil stocks



Sources: METI and OPEC.

Gasoline stocks fell by 1.0 mb m-o-m to stand at 8.9 mb in July. This was 1.0 mb, or 10.2% lower than a year earlier, and 1.3 mb, or 13.1%, lower than the latest five-year average. The drop came back on higher gasoline demand by 11.9% m-o-m.

Total residual fuel oil stocks also fell m-o-m by 0.6 mb to end July at 10.8 mb. This is 1.1 mb, or 8.9%, lower than in the same month of the previous year, and 1.8 mb, or 14.1%, below the latest five-year average. Within the components, fuel oil A and fuel oil B.C stocks fell by 2.3% and 6.9%, m-o-m, respectively.

By contrast, **distillate stocks** rose m-o-m by 2.3 mb to end July at 24.7 mb. This is 1.8 mb, or 7.0%, lower than the same month in 2021, and 2.2 mb, or 8.3%, below the latest five-year average. Within distillate components, jet fuel, kerosene and gasoil stocks went up by 11.9%, 14.7% and 4.9%, respectively.

Table 9 - 3: Japan's commercial oil stocks*, mb

Japan's stocks	Jul 21	May 22	Jun 22	Jul 22	Change Jul 22/Jun 22
Crude oil	**65.5**	**63.9**	**59.8**	**60.1**	***0.3***
Gasoline	10.0	10.4	10.0	8.9	*-1.0*
Naphtha	8.5	9.8	9.6	9.3	*-0.4*
Middle distillates	26.5	22.0	22.3	24.7	*2.3*
Residual fuel oil	11.8	11.7	11.3	10.8	*-0.6*
Total products	**56.8**	**54.0**	**53.3**	**53.6**	***0.4***
Total**	**122.3**	**117.9**	**113.1**	**113.7**	***0.7***

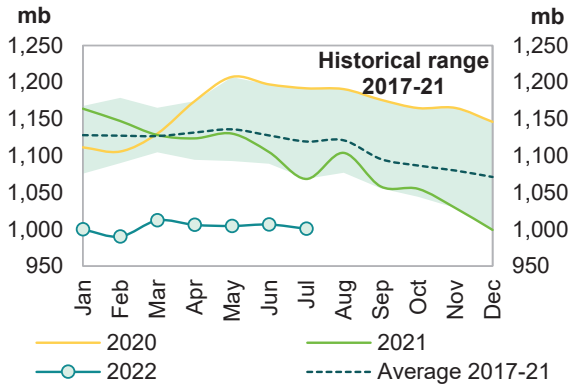
*Note: * At the end of the month. ** Includes crude oil and main products only.*
Sources: METI and OPEC.

EU-14 plus UK and Norway

Preliminary data for July showed that **total European commercial oil stocks** fell m-o-m by 5.8 mb to stand at 1,000.9 mb. At this level, they were 67.8 mb, or 6.3%, below the same month a year earlier, and 118.6 mb, or 10.6% lower than the latest five-year average. Crude and product stocks fell m-o-m by 3.0 mb and 2.8 mb, respectively.

European **crude inventories** fell in July to stand at 431.4 mb. This is 19.0 mb, or 4.2%, lower than the same month in 2021, and 54.2 mb, or 11.2%, below the latest five-year average. The drop in crude oil inventories came on the back of higher m-o-m refinery throughput in the EU-14, plus the UK and Norway, which increased by 180 tb/d to stand at 10.10 mb/d.

Graph 9 - 5: EU-14 plus UK and Norway's total oil stocks



Sources: Argus, Euroilstock and OPEC.

Total European product stocks also fell m-o-m by 2.8 mb to end July at 569.5 mb. This is 48.8 mb, or 7.9%, lower than the same month of the previous year, and 64.4 mb, or 10.2%, below the latest five-year average.

Gasoline stocks fell m-o-m by 0.7 mb in July to stand at 110.8 mb. At this level, they were 9.8 mb, or 9.7%, higher than the same time a year earlier, and 2.1 mb/d, or 1.9%, above the latest five-year average.

Distillate stocks also fell m-o-m by 1.1 mb in July to stand at 368.9 mb. This is 60.3 mb, or 14.1%, below the same month in 2021, and 61.8 mb, or 14.3%, less than the latest five-year average.

Residual fuel stocks also fell m-o-m by 1.0 mb in July to stand at 59.5 mb. This is 2.4 mb, or 3.8%, lower than the same month in 2021, and 6.9 mb, or 10.4%, below the latest five-year average.

Meanwhile, **naphtha stocks** remained unchanged in July, ending the month at 30.3 mb. This is 4.1 mb, or 15.4% higher than July 2021 levels, and 2.2 mb, or 7.9%, higher than the latest five-year average.

Table 9 - 4: EU-14 plus UK and Norway's total oil stocks, mb

EU stocks	Jul 21	May 22	Jun 22	Jul 22	Change Jul 22/Jun 22
Crude oil	**450.3**	**428.5**	**434.4**	**431.4**	***-3.0***
Gasoline	101.1	110.8	111.5	110.8	*-0.7*
Naphtha	26.2	29.6	30.3	30.3	*0.0*
Middle distillates	429.2	373.0	370.0	368.9	*-1.1*
Fuel oils	61.9	62.9	60.5	59.5	*-1.0*
Total products	**618.3**	**576.2**	**572.3**	**569.5**	***-2.8***
Total	**1,068.7**	**1,004.7**	**1,006.6**	**1,000.9**	***-5.8***

Sources: Argus, Euroilstock and OPEC.

Singapore, Amsterdam-Rotterdam-Antwerp (ARA) and Fujairah

Singapore

In July, **total product stocks in Singapore** fell m-o-m by 0.7 mb to 43.6 mb. This is 3.7 mb, or 7.8%, lower than the same month in 2021.

Light distillate stocks rose m-o-m by 2.2 mb in June to stand at 17.7 mb. This is 4.0 mb, or 29.6%, higher than the same month of the previous year.

By contrast, **residual fuel oil stocks** fell m-o-m by 2.9 mb, ending July at 18.0 mb. This is 4.7 mb, or 20.7%, lower than in July 2021.

Meanwhile, **middle distillate stocks** remained unchanged m-o-m in July to stand at 7.9 mb. This is 3.0 mb, or 27.6%, lower than a year earlier.

ARA

Total product stocks in ARA rose m-o-m in July by 0.9 mb, for the second consecutive months. At 40.2 mb, they were 1.1 mb, or 2.7%, lower than the same month in 2021.

Gasoline stocks in July rose by 1.4 mb m-o-m to stand at 11.7 mb, which is 5.1 mb, or 76.7%, higher than the same month of the previous year.

Jet oil stocks also rose by 0.2 mb m-o-m to stand at 6.5 mb. This is 2.5 mb, or 28.1%, lower than levels seen in July 2021.

By contrast, **gasoil stocks** fell by 0.2 mb m-o-m, ending July at 11.1 mb. This is 4.5 mb, or 29%, lower than levels seen in July 2021.

Fuel oil stocks also fell by 0.6 mb m-o-m in July to stand at 7.4 mb, which is 0.2 mb, or 2.4%, higher than in July 2021.

Fujairah

During the week ending 29 August 2022, **total oil product stocks in Fujairah** rose w-o-w by 0.19 mb to stand at 21.97 mb, according to data from Fed Com and S&P Global Platts. At this level, total oil stocks were 4.29 mb higher than the same time a year ago.

Light distillate stocks fell by 1.15 mb w-o-w to stand at 7.27 mb in the week to 29 August 2022, which is 1.51 mb higher than the same period a year ago. By contrast**, middle distillate stocks** rose by 0.22 mb to stand at 3.02 mb, which is 0.65 mb lower than a year ago. **Heavy distillate stocks** also rose w-o-w by 1.12 mb to stand at 11.68 mb, which is 3.43 mb higher than the same time last year.

Balance of Supply and Demand

Demand for OPEC crude in 2022 remained unchanged from the previous MOMR to stand at 28.9 mb/d, which is around 0.9 mb/d higher than in 2021. According to secondary sources, OPEC crude production averaged 28.4 mb/d in 1Q22, which is 0.3 mb/d lower than the demand for OPEC crude. In 2Q22, OPEC crude production averaged 28.6 mb/d, which is 0.2 mb/d lower than demand for OPEC crude.

Demand for OPEC crude in 2023 remained unchanged from the previous MOMR to stand at 29.8 mb/d, which is around 0.9 mb/d higher than in 2022.

Balance of supply and demand in 2022

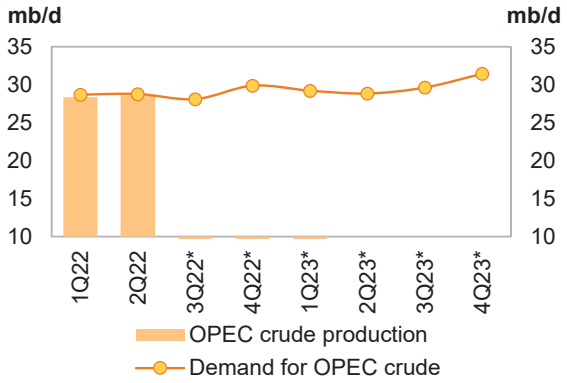
Demand for OPEC crude in 2022 remained unchanged from the previous MOMR to stand at 28.9 mb/d, which is around 0.9 mb/d higher than in 2021.

Compared with the previous assessment, both 2Q22 and 4Q22 were revised up by 1.0 mb/d, while 3Q22 was revised down by 0.2 mb/d. Meanwhile, 1Q22 remained unchanged compared with the previous month.

Compared with the same quarters in 2021, demand for OPEC crude in 1Q22 and 2Q22 is estimated to be higher by 2.6 mb/d and 1.8 mb/d, respectively, while both 3Q22 and 4Q22 are forecast to be lower by 0.6 mb/d and 0.2 mb/d, respectively.

According to secondary sources, OPEC crude production averaged 28.4 mb/d in 1Q22, which is 0.3 mb/d lower than the demand for OPEC crude. In 2Q22, OPEC crude production averaged 28.6 mb/d, which is 0.2 mb/d lower than demand for OPEC crude.

Graph 10 - 1: Balance of supply and demand, 2022–2023*



*Note: * 3Q22-4Q23 = Forecast. Source: OPEC.*

Table 10 - 1: Supply/demand balance for 2022*, mb/d

	2021	1Q22	2Q22	3Q22	4Q22	2022	Change 2022/21
(a) World oil demand	**96.92**	**99.36**	**98.63**	**99.67**	**102.42**	**100.03**	***3.10***
Non-OPEC liquids production	63.67	65.33	64.48	66.17	67.12	65.78	*2.11*
OPEC NGL and non-conventionals	5.28	5.35	5.38	5.41	5.43	5.39	*0.11*
(b) Total non-OPEC liquids production and OPEC NGLs	**68.96**	**70.68**	**69.86**	**71.57**	**72.56**	**71.17**	***2.22***
Difference (a-b)	**27.97**	**28.68**	**28.77**	**28.10**	**29.87**	**28.85**	***0.89***
OPEC crude oil production	**26.35**	**28.36**	**28.59**				
Balance	**-1.62**	**-0.32**	**-0.18**				

*Note: * 2022 = Forecast. Totals may not add up due to independent rounding. Source: OPEC.*

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Flagship report — September 2022

About this report

The IEA Oil Market Report (OMR) is one of the world's most authoritative and timely sources of data, forecasts and analysis on the global oil market – including detailed statistics and commentary on oil supply, demand, inventories, prices and refining activity, as well as oil trade for IEA and selected non-IEA countries.

Highlights

- Growth in global oil demand continues to decelerate, weighed down by renewed Chinese lockdowns and an ongoing slowdown in the OECD. This is partly offset by large-scale switching from gas to oil, estimated to average 700 kb/d during 4Q22 and 1Q23, double the level of a year ago. World oil demand is forecast to rise by 2 mb/d in 2022 and 2.1 mb/d in 2023, marginally lower than in last month's Report.

- World oil production rose 790 kb/d in August to 101.3 mb/d, with a strong recovery in Libya and smaller gains from Saudi Arabia and the UAE offset by losses in Nigeria, Kazakhstan and Russia. From August through December, growth is forecast to slow, edging up by just 280 kb/d to 101.6 mb/d. In 2022, global production is forecast to rise by 4.8 mb/d, to 100.1 mb/d, and by 1.7 mb/d in 2023 to 101.8 mb/d.

- Persistent demand weakness in China considerably slowed the pace of a summer ramp-up in refining activity. After reaching a post-Covid peak in August of 81.4 mb/d, refinery throughputs are expected to fall in September-October on seasonal maintenance. With lower runs, refined product inventories are now unlikely to see any substantial builds for the remainder of the year.

- Russian total oil exports rose by 220 kb/d in August to 7.6 mb/d, down 390 kb/d from pre-war levels. Estimated export revenues fell by $1.2 bn to $17.7 bn. Russian crude oil imports into the EU/UK have fallen by 880 kb/d since the start of the year to 1.7 mb/d, while imports from the US have risen by 400 kb/d to 1.6 mb/d. Iraq, Norway, Guyana and Saudi Arabia have also increased shipments to the EU.

- Global observed inventories fell by 25.6 mb in July on a drawdown in crude stocks in China and oil on the water as well as from IEA government stocks. OECD industry stocks rose by 43.1 mb to 2 705 mb, narrowing the deficit versus the five-year average to 274.9 mb. IEA member countries released nearly 180 mb of public stocks from March through August, with over 50 mb to be delivered through October.

- Brent futures lost $34/bbl and backwardation fell 65% in just three months following a June peak, reflecting a seasonal slowdown in refinery purchases and increased supplies, as well as escalating concerns about the world economy. Growing pessimism about an Iran deal offered some support to prices that saw Brent recover to over $93/bbl at the time of writing. Freight rates remain stubbornly high.

Balancing act

Brent crude oil futures slipped below $90/bbl in early September, the lowest level since January and more than $34/bbl below a June peak. This is the largest 90-day decline since March-April 2020 and is only exceeded prior to 2020 by market routs in 2014-15 and 2008-09. Yet, diesel and jet fuel markets remain exceptionally tight, as reflected in current pricing.

For now, a deteriorating economic environment and recurring Covid lockdowns in China continue to weigh on market sentiment. Nevertheless, world oil demand is forecast to grow by 2 mb/d in 2022 and 2.1 mb/d next year. Jet fuel dominates growth, while road transport demand wanes. Robust oil use for power generation in the Middle East and in Europe due to record natural gas and electricity prices is providing additional support.

At the same time, more oil is hitting the market. IEA member countries released nearly 180 mb of government stocks from March through August, with a further 52 mb scheduled for the next two months. Moreover, world oil supply increased by 790 kb/d in August to 101.3 mb/d – up more than 5 mb/d on a year ago. Russian oil production and exports have proved resilient, with August levels only 400-450 kb/d below pre-war levels. Despite a 2 mb/d drop in Russian crude and oil products shipments to Europe, the US, Japan and Korea since the start of the year, the rerouting of flows to India, China, Türkiye and others has mitigated upstream losses.

However, the EU embargo on Russian crude oil and product imports that comes into effect in December 2022 and February 2023, respectively, is expected to result in deeper declines. An additional 1 mb/d of products and 1.4 mb/d of crude will have to find new homes. An EU ban on maritime services may force further reallocations from third countries not agreeing to the proposed G7 price cap. Russian total oil production is forecast to decline to 9.5 mb/d by February 2023, a 1.9 mb/d drop compared to February 2022.

Such losses would still leave the market oversupplied in 2H22, by close to 1 mb/d, and roughly balanced in 2023. But product markets, especially diesel, are expected to remain in deficit due to downstream capacity constraints outside of China. Global diesel markets have tightened this year, with demand robust and as lower Chinese export quotas have sharply reduced its sales abroad. More recently, newly introduced taxes in India have discouraged exports from Asia's largest supplier.

The EU has so far largely maintained Russian diesel import volumes at around 600 kb/d, but from next February these volumes will need to be replaced by other sources. Three large refinery projects in Kuwait, Nigeria and Mexico coming online by the end of 2023 will eventually increase global diesel availability. The proposed price cap mechanism would also need to work in order to assure overall diesel supply for the global market is met and so that European importers can switch to flows from the US, Middle East and India. Failing that, and assuming Russia will not be able to ship diesel in significant quantities outside the price cap, European, Latin American and African importers could be competing for a rather smaller pool of available flows.

IEA World Oil Supply and Demand Forecasts: Summary (Table)

2022-09-14 08:00:00.9 GMT

By Kristian Siedenburg

(Bloomberg) -- Following is a summary of world oil supply and demand forecasts from the International Energy Agency in Paris:

	4Q 2023	3Q 2023	2Q 2023	1Q 2023	4Q 2022	3Q 2022	2Q 2022	1Q 2022	2023	2022
	Demand									
Total Demand	103.3	102.6	101.0	100.2	100.9	99.9	98.4	99.5	101.8	99.7
Total OECD	47.1	46.9	45.9	46.3	46.8	46.3	45.4	45.8	46.6	46.1
Americas	25.3	25.4	25.2	24.9	25.1	25.1	25.0	24.8	25.2	25.0
Europe	13.9	14.1	13.6	13.4	13.9	14.0	13.4	13.2	13.7	13.6
Asia Oceania	7.9	7.4	7.2	8.0	7.8	7.2	7.0	7.9	7.6	7.5
Non-OECD countries	56.2	55.7	55.1	53.9	54.1	53.7	53.1	53.7	55.2	53.6
FSU	4.8	4.8	4.5	4.5	4.7	4.9	4.7	4.7	4.7	4.8
Europe	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
China	16.5	16.1	15.9	15.4	15.5	14.9	14.2	15.4	16.0	15.0
Other Asia	14.9	14.2	14.5	14.5	14.1	13.4	14.0	14.1	14.5	13.9
Americas	6.2	6.2	6.1	5.9	6.1	6.1	6.1	5.9	6.1	6.1
Middle East	8.8	9.5	9.3	8.7	8.8	9.6	9.2	8.5	9.1	9.0
Africa	4.2	4.0	4.1	4.1	4.1	4.0	4.1	4.2	4.1	4.1
	Supply									
Total Supply	n/a	n/a	n/a	n/a	n/a	n/a	98.7	98.7	n/a	n/a
Non-OPEC	66.7	66.7	66.1	65.4	66.3	66.1	64.7	64.9	66.2	65.5
Total OECD	31.3	31.0	30.7	30.4	30.4	29.6	28.9	28.8	30.8	29.4
Americas	27.4	27.2	26.9	26.5	26.6	26.0	25.4	25.0	27.0	25.7
Europe	3.5	3.3	3.3	3.4	3.3	3.1	3.0	3.3	3.4	3.2
Asia Oceania	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Non-OECD	30.0	29.9	30.0	30.1	30.7	30.8	30.5	31.4	30.0	30.8
FSU	12.5	12.4	12.5	12.7	13.4	13.5	13.4	14.4	12.5	13.7
Europe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
China	4.2	4.3	4.3	4.3	4.2	4.2	4.2	4.2	4.3	4.2
Other Asia	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.8	2.6	2.7
Americas	6.0	6.0	5.9	5.9	5.8	5.7	5.5	5.4	6.0	5.6
Middle East	3.3	3.3	3.3	3.2	3.2	3.2	3.2	3.2	3.3	3.2
Africa	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Processing Gains	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.3
Total OPEC	n/a	n/a	n/a	n/a	n/a	n/a	34.1	33.8	n/a	n/a
Crude	n/a	n/a	n/a	n/a	n/a	n/a	28.7	28.5	n/a	n/a
Natural gas										
liquids NGLs	5.5	5.5	5.4	5.4	5.4	5.4	5.4	5.3	5.4	5.3
Call on OPEC crude										
and stock change *	31.2	30.5	29.5	29.4	29.2	28.5	28.4	29.3	30.1	28.8

NOTE: Figures are in million of barrels per day. (*) equals total demand minus non-OPEC supply and OPEC natural gas liquids.

IEA changed the way it measures OPEC supply, adopting the industry-standard approach of counting most of Venezuela's Orinoco heavy oil as "crude oil."

SOURCE: International Energy Agency

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IEA: August Crude Oil Production in OPEC Countries (Table)
2022-09-14 08:00:00.11 GMT
By Kristian Siedenburg
(Bloomberg) -- Following is a summary of oil production in OPEC countries from the International Energy Agency in Paris:

	Aug. 2022	July 2022	Aug. MoM
Total OPEC	29.72	29.04	0.68
Total OPEC10	25.43	25.27	0.16
Algeria	1.02	1.02	0.00
Angola	1.18	1.18	0.00
Congo	0.27	0.26	0.01
Equatorial Guinea	0.08	0.10	-0.02
Gabon	0.20	0.19	0.01
Iraq	4.54	4.53	0.01
Kuwait	2.80	2.77	0.03
Nigeria	0.98	1.08	-0.10
Saudi Arabia	10.96	10.81	0.15
UAE	3.40	3.33	0.07
Iran	2.52	2.49	0.03
Libya	1.08	0.65	0.43
Venezuela	0.69	0.63	0.06

NOTE: Figures are in million of barrels per day. Monthly level change calculated by Bloomberg. Production data excludes condensates.
OPEC10 excludes Iran, Libya and Venezuela.
SOURCE: International Energy Agency

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IEA REPORT WRAP: China Lockdowns Shave Oil Demand Growth
2022-09-14 09:25:19.119 GMT
By Stephen Voss
(Bloomberg) -- Summary of stories from IEA's monthly Oil Market Report on Wednesday:
* IEA sees biggest China oil demand drop in over three decades
** Little change to outright 2022, 2023 world demand est.
** Growth outlook for 2022 curbed by 110k b/d in report
** China oil demand -2.7% y/y in 2022; +6.5% in 2023
** Russia oil output seen at 9.5m b/d by February; -1.9m y/y
* See summary of key IEA world oil supply demand forecasts

** Click here for detailed quarterly forecast table
* OPEC crude output rose 680k b/d in August, to 29.72m b/d: IEA
** Led by increase in Libya, Saudi volumes
** See full table for the 13 members
** The broader, OPEC+ group raised production by 510k b/d
* Russia earns less despite higher oil flows in August
* US poised to replace Russia as Europe's top crude supplier
* Saudi refining runs hit record, China's revised lower
* 3Q refining runs revised lower, minimizing fuel stockbuilds
* Gas-to-oil switching to double to 700k b/d; German ramp up
* NOTE: The US EIA issued its monthly short-term energy outlook on Sept. 7 and OPEC already issued its own monthly report on Tuesday

--With assistance from James Herron, Grant Smith, Kristian Siedenburg, Jack Wittels, Alaric Nightingale and Sherry Su.
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IEA Sees Biggest China Oil Demand Drop in Over Three Decades (1)
2022-09-14 08:58:33.79 GMT
By Grant Smith
(Bloomberg) -- China faces its biggest annual drop in oil demand in more than three decades as Covid-19 lockdowns and a property crisis weigh on growth in the world's No. 2 consumer, the International Energy Agency said.
Chinese oil demand will decline by 420,000 barrels a day, or 2.7%, this year in the first annual drop since a 1% retreat in 1990, the Paris-based adviser said. The pullback that year is the only previous retreat in IEA records dating back to 1984.
The country has re-imposed restrictions as part of a Covid Zero strategy, with lockdowns hitting locations like megacity Chengdu, with 21 million inhabitants. Meanwhile, home prices have fallen for 11 straight months despite government relief efforts.
The projected decline in China prompted the IEA to trim global oil demand forecasts in its latest monthly market report. The country has been the engine of world oil consumption during the past two decades, managing to expand even during the 2008-2009 financial crisis and 2020 pandemic, according to IEA data.
"For now, a deteriorating economic environment and recurring Covid lockdowns in China continue to weigh on market sentiment," said the agency, which advises most major economies.

World oil consumption will increase by 2 million barrels a day this year -- about 110,000 a day less than previously forecast -- to average 99.7 million barrels a day, the IEA said. Demand will expand by about the same amount in 2023, it said.

OPEC+ Pivot

Crude futures have tumbled almost 25% over the past three months -- trading near $93 a barrel in London on Wednesday -- on signs of a global economic slowdown.
With the economic backdrop darkening, the OPEC+ alliance of producers led by Saudi Arabia has pivoted from increasing supply back to tightening it, and signaled that it could make further cutbacks in the months ahead.
The Chinese downturn is being partially offset by "robust" use of oil in many countries for power generation, as they switch away from costly natural gas, the IEA said. About 700,000 barrels a day will be absorbed by this in the fourth quarter and in early 2023, double the levels seen a year ago.
Still, the agency noted a split between markets for crude oil -- which face a projected surplus of 1 million barrels a day in the second half of the year -- and the refined products used by consumers.

Tight Diesel

Overall oil supplies have been maintained as IEA members like the US release emergency stockpiles, and as Russian exports prove surprisingly resilient to an international backlash following the invasion of Ukraine, the agency said.
Yet supplies of diesel, used for trucks, and jet fuel remain "exceptionally tight," it said. Diesel markets have been constricted as China and India limit exports.
Oil markets generally could still be tightened in the months ahead as European Union sanctions on Russian sales take effect in early December, the agency cautioned.

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IEA World Oil Supply/Demand Key Forecasts
2022-09-14 08:00:00.19 GMT
By Kristian Siedenburg
(Bloomberg) -- World oil demand 2023 forecast was unrevised at 101.8m b/d in Paris-based Intl Energy Agency's latest monthly

report.
* 2022 world demand was unrevised at 99.7m b/d
* Demand change in 2023 est. 2.1% y/y or 2.1m b/d
* Non-OPEC supply 2023 was revised to 66.2m b/d from 66.3m b/d
* Call on OPEC crude 2023 was revised to 30.1m b/d from 30.0m b/d
* Call on OPEC crude 2022 was unrevised at 28.8m b/d
** OPEC crude production in Aug. rose by 680k b/d on the month to 29.72m b/d
* Detailed table: FIFW NSN RI6WACGQITJ4 <GO>
* NOTE: Fcasts based off IEA's table providing one decimal point

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OPEC+ Crude Output Rose 510K B/D in August as Libya Recovered
2022-09-14 08:00:00.6 GMT
By James Herron
(Bloomberg) -- OPEC+ crude output climbed by 510k b/d in August on a strong recovery in Libya's production and additional volumes from Saudi Arabia and the United Arab Emirates, the International Energy Agency said in its monthly report.
* Output from OPEC countries climbed 680k b/d to 29.72m b/d; non-OPEC partners fell by 170k b/d to 14.95m b/d:
** Russian output slipped by about 50k b/d to 9.77m b/d
** Saudi crude production was 10.96m b/d, leaving it with 1.3m b/d of spare capacity
** Kazakhstan dropped 160k b/d to 1.24m b/d after issues at Kashagan
** Nigeria pumped just 980k b/d of crude, losing its status as Africa's largest producer as it fell behind Angola and Libya
** The UAE supplied 3.4m b/d to the market, "significantly above" its OPEC+ quota
* Total OPEC+ production was 3.4m b/d below target

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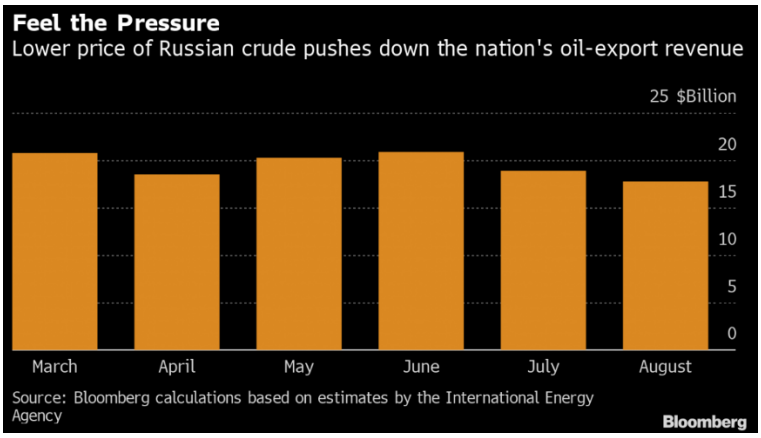
Dylan Griffiths

Russia Earns Less Despite Higher August Oil Flows, IEA Says (1)
2022-09-14 08:30:56.914 GMT
By Bloomberg News

(Bloomberg) -- Russia's oil-export revenue contracted to $17.7 billion in August, the lowest since at least March, as a decline in crude prices more than offset higher supplies abroad, according to the International Energy Agency.

That's a drop of $1.2 billion from a month earlier, even as Russia's daily crude and oil products exports rose by 220,000 barrels to 7.6 million barrels, the IEA estimated.

"Russian oil revenues may take a further hit when EU sanctions on Russian oil imports go into effect starting from December," the IEA said in its monthly report on Wednesday.



The European Union is set to halt most crude purchases from Russia from Dec. 5, aiming to reduce the flow of petrodollars to the Kremlin after its invasion of Ukraine. From Feb. 5, an EU ban on Russian oil-product shipments takes effect. Another blow to Russia's oil-export revenues could come from the price cap that Group of Seven nations plan to set.

While Russian officials, including President Vladimir Putin, pledged to halt exports to countries that introduce such a measure and re-direct flows to those nations that continue to work on market terms, the price cap could further increase the discount for remaining buyers of Russian fuel.

In August, the average price for benchmark Urals crude fell 4.7% from a month earlier to $74.73 a barrel, according to Russia's Finance Ministry.

Russia's federal budget, which gets over a third of its revenue from oil and gas, received 671.9 billion rubles ($11.1 billion) in August, the lowest inflow of petrodollars in 14 months, according to Bloomberg calculations based on Finance Ministry data.

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US Poised to Replace Russia As Europe's Top Crude Supplier: IEA
2022-09-14 08:00:00.8 GMT
By Sherry Su
(Bloomberg) -- Gap between Europe's crude imports from Russia and US has narrowly sharply over the past few months and US is well-placed to replace Russia as the top supplier to Europe after December when Russian oil ban kicks in, the IEA said in its monthly Oil Market Report.
* "The United States is the main contender to become Europe's biggest supplier of crude oil as refiners scramble to source alternative supplies ahead of a looming EU sanctions deadline," IEA said
** By August, the gap between imports of Russian and US barrels narrowed to just 40k b/d, from a 1.3m b/d pre-war average
** US crude oil made up for almost half of lost Russian volumes in Europe while increased inflows from Norway, up by 310k b/d, contributed to replacing another one third of foregone Russian crude oil
* While Russia narrowly kept its lead as the biggest source of crude oil supply to EU countries except the UK, its share in their total imports has fallen from 27% to 17%, according to IEA
* Starting from December, EU countries will need to replace an additional 1.4m b/d of Russian crude oil volumes vs August
** When Kazakh volumes recover to normal levels, it could provide 400k b/d to help offset Russian losses. US crude output is set to increase by about 300k b/d towards the end of the year
* In August, total oil exports from Russia rebounded by 220k b/d to 7.6m b/d. Crude exports rose 190k b/d to 5m b/d; product exports were relatively stable at 2.6m b/d, IEA said
** Russia's estimated revenues fell by $1.2b to $17.7b mainly due to falling oil prices

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Saudi Refining Runs Hit Record, China's Revised Lower: IEA
2022-09-14 08:00:00.1 GMT
By Jack Wittels
(Bloomberg) -- Saudi Arabia's refinery throughputs hit a record high in July of 2.85m b/d, the International Energy Agency said in its monthly Oil Market Report.
* Utilization rates reached 88%, the highest since the start-up of the Jazan refinery
* Meanwhile, instead of an expected recovery, Chinese refinery throughput plunged further in July

** Runs fell by 520k b/d m/m to 12.8m b/d, resulting in a 1.4m b/d y/y drop
* Figures for Chinese refinery throughputs were lowered by 365k b/d for 2022 and 35k b/d for 2023
** "With these changes, the 2022 annual decline is set to reach an unprecedented 800k b/d, compared to a drop in demand of 420k b/d"
** Gap is accounted for by lower product exports

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Refining Runs Revised Lower, Minimising Fuel Stockbuilds: IEA
2022-09-14 08:00:00.7 GMT
By Jack Wittels
(Bloomberg) -- The IEA's 3Q estimate for global refining throughputs was revised down by 420k b/d to 80.85m b/d on persistent weakness in China, it said in its monthly Oil Market Report.
* "This brings throughputs in line with estimated demand for refined products, minimizing product stock builds for the quarter as a whole"
** July and August monthly balances imply inventory increases
** But with runs falling 1.1m b/d in September at the start of seasonal maintenance, "most of the earlier stock builds could be absorbed back into the market"

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IEA Sees Gas-to-Oil Doubling to 700k b/d; German Ramp Up
2022-09-14 08:00:00.0 GMT
By Alaric Nightingale
(Bloomberg) -- Gas-to-oil switching set to rise to 700k b/d in both 4Q and 1Q, double the rate of a year ago amid soaring energy prices, the IEA says in its monthly report on the oil market.
* Sees shift underpinning global oil demand and notes that several major industrial consumers, especially in Germany, have announced switching to maintain their operations
* Mentions Shell, BASF and Evonik and manufacturers Michelin,

Saint Gobain and Carl Zeiss
* “Many of these applications are for heat or steam production, where relative efficiency is less of an obstacle than for power generation and typically plan to use gasoil, fuel oil or liquefied petroleum gas”
* A deepening of Europe’s gas crisis would likely add to oil use, but could also serve to destroy demand in comparable quantities by disrupting industry and reducing chemical plant operations, limiting upside: IEA

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Dan Tsubouchi @Energy_Tidbits · 4h

Tropical Storm Fiona path reminds hurricane risk to GoM #Oil #NatGas #LNG #Refinery infra tends to increase if hurricanes are south of Puerto Rico & Dominican Republic. See 👇 excerpt SAF Group Dec 5, 2021 Energy Tidbits. Hoping people are safe in PRI/DOM. #OOTT

Excerpt SAF Group Dec 5, 2021 Energy Tidbits Memo https://safgroup.ca/news-insights/

Oil & Natural Gas – Puerto Rico tends to be the marker for GoM hurricane risk
Is normally not a perfect correlation but the 2021 Atlantic hurricane season was for the early indicator for risk to the GoM oil and gas being if the tropical storm/hurricane hits north of Puerto Rico or not. This year, all the storms/hurricanes that were north of Puerto Rico went into the Atlantic and all that were south of Puerto Rico went into the GoM. Below is NOAA's 2021 tracking map.

Figure 32: North Atlantic Storm Tracking Map

Source: National Hurricane Center

Figure 33: Caribbean Sea

Source: Google Maps

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Dan Tsubouchi @Energy_Tidbits · 5h

Looks like Japan trying to average down its #LNG import prices. Aug LNG imports from Russia 0.70 bcf/d, up YoY vs 0.22 bcf/d in Aug 2021. MOF doesn't provide all by country split so don't know how much AUS, NGA, or who makes up balance. #NatGas #OOTT

Japan LNG Imports Aug By Country			
	Aug 2022	Aug 2021	
	bcf/d	bcf/d	YoY%
Asia	1.93	2.26	-14.6%
ASEAN	1.84	2.26	-18.5%
Middle East	1.39	1.95	-28.4%
Russia	0.70	0.22	212.5%
US	0.52	0.84	-38.4%
China	0.09	0.00	-
Balance	3.24	2.22	46.1%
Total	9.71	9.75	-0.4%
Source: Japan Ministry of Finance			
Prepared by SAF Group			

1 3

Dan Tsubouchi @Energy_Tidbits · 6h

ICYMI. See 👇 @jimcramer are we going into worldwide recession, @FedEx CEO Subramaniam "i think so but again these numbers don't portend very well""seeing volume decline in every segment around the world" "weekly numbers are not looking so good" "US is slowing down too" #Oil #OOTT

SAF created transcript of FedEx CEO Raj Subramaniam comments with CNBC's Jim Cramer on Mad Money on Sept 15, 2022 https://www.cnbc.com/2022/09/15/fedex-ceo-says-he-expects-the-economy-to-enter-a-worldwide-recession.html

Items in "italics" are SAF Group created transcript

Cramer *"... that's got to be more than just Asia and services?"*

Subramaniam *"no, no, we're seeing the volume decline in every segment around the world. And so, since the start of our second quarter, the weekly numbers are not looking so good. So we just assume at this point that the economic conditions are not very good. But it basically allows us then to fully go into cost cutting mode and take those actions that we can then restructure FedEx (intelligible word)"*

Cramer *"Raj, are we going into a worldwide recession?*

Subramaniam *"Well, I'm not an economist but"*

Cramer *"You know more than an economist. Come on. They just push papers, you actually look at things."*

Subramaniam *"Well, I think so."*

Cramer *"you think we are going into a worldwide recession"*

Subramaniam *"I think so. But again, these numbers don't portend very well"*

Cramer *"US in the last few weeks as bad as China in the last few weeks?"*

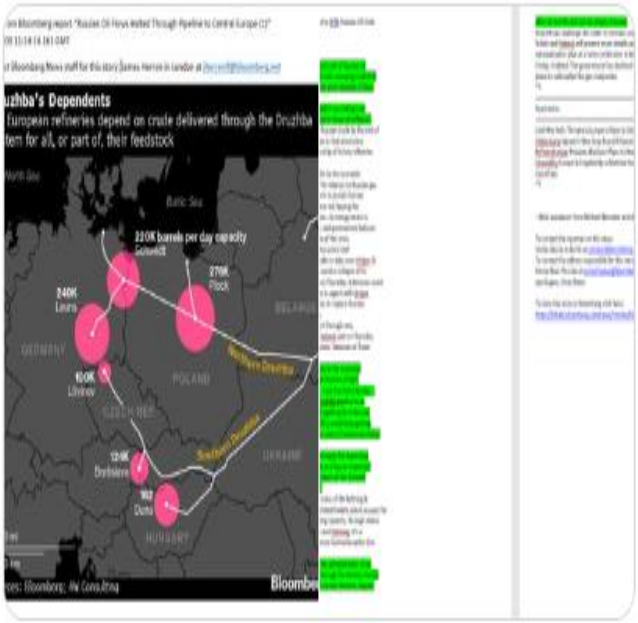
Subramaniam *"The US consumer is definitely spending less. The US has been somewhat insulated because of the US dollar is the currency of choice for the world so there is some insulation there. But I do see the US is slowing down too".*

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

SAF

Dan Tsubouchi @Energy_Tidbits · 7h

Buckle up! EU's energy challenge is about to crank up with EU import bans on RUS #Oil Dec 5, RUS #PetroleumProducts Feb 5. DE looks to follow as just seized #Rosneft unit incl Schwedt refinery. How will Putin retaliate/escalate? Thx @nicola_news @ja_herron. #OOTT



1 2 2

Dan Tsubouchi @Energy_Tidbits · 23h

Gotta believe new #Shell CEO Sawan will be recommending FID for #LNGCanada brownfield 1.8 bcfd Phase 2. See 👇 Feb 21 thread, #LNG outlook only stronger since Sawan's showcasing of LNG Canada. What's good for LNG Canada is great for West Cdn #NatGas valuations. #OOTT

> **Dan Tsubouchi** @Energy_Tidbits · Feb 21
>
> Was #Shell showcasing #LNGCanada or just highlighting its positives today? @Shell expects average IRR of 14-18% for its pre-FID projects, which includes #LNGCanada Phase 2. #LNGCanada "is set to deliver the lowest carbon intensity in the entire industry". #OOTT #NatGas #LNG twitter.com/Energy_Tidbits...
>
> **Shell Integrated Business Deep Dive Feb 21, 2022 Wael Sawan.**
>
> Items in "*italics*" are SAF Group created transcript
>
> SL6. Approx 8:36am MT. Sawan *"That brings me to the future. Our current integrated gas business is doing what we said we would do and is on the right trajectory. But we are not yet where we want to be. We have opportunities that we are pursuing to do even better, with our existing assets, but also to position our growth portfolio to one with even stronger returns with lower carbon emissions. Let me expand on that a bit more. For our capital spend, we need to be even more focused with a continued emphasis on value over volume. We have a capital budget of $4 to $5 billion a year in the short to medium term. We are making good progress on our two LNG capacity expansion projects under construction. In Canada, Canada LNG surpassed recently the 50% completion mark last October, after three years of construction. The project remains dedicated to have the first cargo by the middle of this decade." He then speaks of Nigeria and that construction there is now firmly underway, and then says "both these projects are competitively positioned for LNG growth markets in Asia. The same goes for most of our long term project funnel. We have several attractive expansion and backfill projects. A limited number of greenfield LNG projects and several promising low carbon new gaseous projects in early stages of development. For the pre-FID projects, we have an expected average internal rate of return of between 14% and 18%, and a unit technical cost below $5/mmbtu. With most of these projects clearly having lower costs than the average in the industry. These are good numbers, but you will understand that we strive to push the IRR to the higher end and to push the unit costs down even further. But the long term role of gas depends on efforts to abate emissions and develop cleaner pathways for gas. This is why we continually try to reduce the carbon / intensity of our new projects. Take LNG Canada currently under construction. It will run on hydropower and is set to deliver the lowest carbon intensity in the entire industry."*
>
> 
>
>
> Prepared by SAF Group https://safgroup.ca/news-insights/

8 14

Dan Tsubouchi @Energy_Tidbits · Sep 15

Huge relief to US economy and spill over impact on CAN including Cdn medium/heavy oil - tentative labor agreement to avoid US rail strike. #OOTT

whitehouse.gov

Statement by President Joe Biden on Tentative Railway Labor Agreem...

The tentative agreement reached tonight is an important win for our economy and the American people. It is a win for tens of thousands of...

2 4

Dan Tsubouchi @Energy_Tidbits · Sep 14

US shale #Oil growth not as strong as expected earlier this year. #Trafigura @saadrahim 'we're gong to be lucky to hit 600, 650" thousand b/d growth in 2022. Hard to disagree, See 👇 @EIAgov weekly oil production data shows +0.3 mmb/d in 2022 to date. See #OOTT

SAF Group created transcript of comments by Trafigura Chief Economist Saad Rahim on Paretopodden "the role of trading houses in today's world: Pareto Securities' Energy Analyst sits down with Trafigura" on Sept 14, 2022. Host Sebastian Baartvedt and Pareto energy expert Nadia Wiggen https://play.acast.com/s/paretopodden/the-role-of-trading-houses-in-todays-world-pareto-securities

Items in "italics" are SAF Group created transcript

13:40 min mark. *"... so we have not seen that reaction function from shale that people were expecting, which was, if you had said to people at the beginning of the year hey guys oil prices will be $120 at some point this year, everyone would say I'll give you a million barrels a day of US production. We're going to be lucky to hit 600, 650."*

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

Figure 17: EIA's Estimated Weekly US Oil Production

	Week 1		Week 2		Week 3		Week 4		Week 5	
Year-Month	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
2020-Jan	01/03	12,900	01/10	13,000	01/17	13,000	01/24	13,000	01/31	12,900
2020-Feb	02/07	13,000	02/14	13,000	02/21	13,000	02/28	13,100		
2020-Mar	03/06	13,000	03/13	13,200	03/20	13,000	03/27	13,000		
2020-Apr	04/03	12,400	04/10	12,300	04/17	12,200	04/24	12,200		
2020-May	05/01	11,900	05/08	11,600	05/15	11,500	05/22	11,400	05/29	11,200
2020-Jun	06/05	11,100	06/12	10,900	06/19	11,000	06/26	11,000		
2020-Jul	07/03	11,000	07/10	11,000	07/17	11,100	07/24	11,100	07/31	11,000
2020-Aug	08/07	10,700	08/14	10,700	08/21	10,800	08/28	9,700		
2020-Sep	09/04	10,000	09/11	10,900	09/18	10,700	09/25	10,700		
2020-Oct	10/02	11,000	10/09	10,500	10/16	9,000	10/23	11,100	10/30	10,500
2020-Nov	11/06	10,900	11/13	10,900	11/20	11,000	11/27	11,100		
2020-Dec	12/04	11,100	12/11	11,000	12/18	11,000	12/25	11,000		
2021-Jan	01/01	11,000	01/08	11,000	01/15	11,000	01/22	10,900	01/29	10,900
2021-Feb	02/05	11,000	02/12	10,900	02/19	9,700	02/26	10,000		
2021-Mar	03/05	10,900	03/12	10,900	03/19	11,000	03/26	11,100		
2021-Apr	04/02	10,900	04/09	11,000	04/16	11,000	04/23	10,900	04/30	10,900
2021-May	05/07	11,000	05/14	11,000	05/21	11,000	05/28	10,900		
2021-Jun	06/04	11,000	06/11	11,200	06/18	11,100	06/25	11,100		
2021-Jul	07/02	11,300	07/09	11,400	07/16	11,400	07/23	11,200	07/30	11,200
2021-Aug	08/06	11,300	08/13	11,400	08/20	11,400	08/27	11,300		
2021-Sep	09/03	10,000	09/10	10,300	09/17	10,000	09/24	11,200		
2021-Oct	10/01	11,100	10/08	11,400	10/15	11,300	10/22	11,300	10/29	11,500
2021-Nov	11/05	11,500	11/12	11,400	11/19	11,500	11/26	11,600		
2021-Dec	12/03	11,700	12/10	11,700	12/17	11,600	12/24	11,800	12/31	11,800
2022-Jan	01/07	11,700	01/14	11,700	01/21	11,600	01/28	11,900		
2022-Feb	02/04	11,600	02/11	11,600	02/18	11,600	02/25	11,600		
2022-Mar	03/04	11,600	03/11	11,600	03/18	11,600	03/25	11,700		
2022-Apr	04/01	11,800	04/08	11,800	04/15	11,900	04/22	11,900	04/29	11,900
2022-May	05/06	11,900	05/13	11,900	05/20	11,900	05/27	11,900		
2022-Jun	06/03	11,900	06/10	12,000	06/17	12,000	06/24	12,100		
2022-Jul	07/01	12,100	07/08	12,000	07/15	11,900	07/22	12,100	07/29	12,100
2022-Aug	08/05	12,200	08/12	12,100	08/19	12,000	08/26	12,100		
2022-Sep	09/02	12,100	09/09	12,100						

Source: EIA

10 25

Dan Tsubouchi @Energy_Tidbits · Sep 14

#Trafigura case for a serious upcycle in #Oil. Prices spike to where causes demand destruction, but because haven't had enough time to catch up on investment, each subsequent low is actually higher. See 👇 SAF Group transcript. Thx @saadrahim @paretosec. #OOTT

SAF Group created transcript of comments by Trafigura Chief Economist Saad Rahim on Paretopodden "the role of trading houses in today's world: Pareto Securities' Energy Analyst sits down with Trafigura" on Sept 14, 2022. Host Sebastian Baartvedt and Pareto energy expert Nadia Wiggen https://play.acast.com/s/paretopodden/the-role-of-trading-houses-in-todays-world-pareto-securities

Items in "italics" are SAF Group created transcript

9:00 min mark. Pareto *"... you believe that you believe we are in the start of a serious upcycle in oil. And saw in your presentation this morning you describe the current market as spike. I think it's time we debate."* Rahim *"... for me, I don't think these things are mutually exclusive. I think you can have a series of spikes that actually when you put them together, effectively are a cycle. Or at least an upcycle. If you are in a position where you're ultimately, the spikes I was referring to because of the underinvestment, you get to a point where prices spike to a level that then causes demand destruction. And you come off, but because you haven't had enough time to catch up on investment, your lows. Each subsequent low is actually higher. Right, so again if you put all those series together you maybe end up in a cycle."*

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

2 12 39

Dan Tsubouchi @Energy_Tidbits · Sep 14

Hmmm! Will public know if Xi/Putin meeting Thurs sees China take on additional Russian #Oil & #PetroleumProducts. China could make some big $ if it then pivots away from zero-Covid at Oct 16 congress! Any surplus cargos could be flipped for profit like doing for #LNG. #OOTT

> **Dan Tsubouchi** @Energy_Tidbits · Sep 14
>
> Better watch out if Xi opens up China post Oct congress. @IEA OMR took down CN demand. New Q3/22 is 14.9 mbd (was 15.6). Q4/22 is 15.5 mbd (was 15.8), Q1/23 is 15.4 mbd (was 15.8), Q2/23 is 15.9 mbd (was 16.1), Q3/23 is 16.1 mbd (was 16.3), Q4/23 is 16.5 mbd (was 16.8). #OOTT

1 1

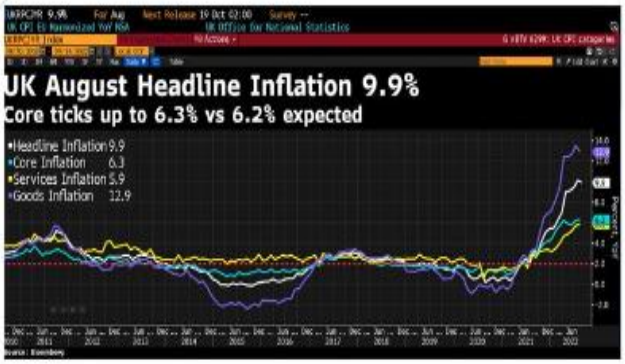

Dan Tsubouchi @Energy_Tidbits · Sep 14
Better watch out if Xi opens up China post Oct congress. @IEA OMR took down CN demand. New Q3/22 is 14.9 mbd (was 15.6). Q4/22 is 15.5 mbd (was 15.8), Q1/23 is 15.4 mbd (was 15.8), Q2/23 is 15.9 mbd (was 16.1), Q3/23 is 16.1 mbd (was 16.3), Q4/23 is 16.5 mbd (was 16.8). #OOTT
3
5


Dan Tsubouchi @Energy_Tidbits · Sep 14
Hmmm! @IEA OMR describes EU Dec 5/Feb 5 bans means "an additional 1 mb/d of products and 1.4 mb/d of crude will have to find new homes". Agreed, but also could have described it as EU will have to go get replacement barrels or cut consumption. #OOTT
3
9

SAF

Dan Tsubouchi @Energy_Tidbits · Sep 14

Who doesn't love a good graph. UK inflation 9.9% in Aug, down from 10.1% in July. Two graphs from just finished #Bloomberg early edition @mattmiller1973 @kaileyleinz @annaedwardsnews. #OOTT



Source: Bloomberg

1 2

Dan Tsubouchi @Energy_Tidbits · Sep 13

40% prob for potential cyclone status. Forecasting Atlantic hurricane paths is impossible even for experts. But hurricane risk to GoM #Oil #NatGas #LNG #Refinery tends to increase if hurricanes are south of Puerto Rico. See 👇 excerpt SAF Group Dec 5, 2021 Energy Tidbits #OOTT

Excerpt SAF Group Dec 5, 2021 Energy Tidbits https://safgroup.ca/news-insights/

Oil & Natural Gas – Puerto Rico tends to be the marker for GoM hurricane risk

Is normally not a perfect correlation but the 2021 Atlantic hurricane season was for the early indicator for risk to the Gold oil and gas being if the tropical storm/hurricane hits north of Puerto Rico or not. This year, all the storms/hurricanes that were north of Puerto Rico went into the Atlantic and all that were south of Puerto Rico went into the Gold. Below is NOAA's 2021 tracking map.

Figure 32: North Atlantic Storm Tracking Map

Source: National Hurricane Center

Figure 33: Caribbean Sea

3 7

Dan Tsubouchi @Energy_Tidbits · Sep 13

#EnergyTransition is happening, but need a plan that doesn't cause chaos for 2020s.#Chevron CEO Wirth "And I think the instability we're seeing in certain markets around the world today is a signal that we can't count on tomorrow's energy system until it is built." #NatGas #OOTT

Excerpt from Bloomberg transcript of Chevron CEO Mike Wirth with CNN anchor Poppy Harlow on Sept 13

HARLOW: The U.N. climate report said it is now or never to address climate change. They said, we're on a fast track to climate disaster. A third of Pakistan is under water right now. So, on a scale of one to ten, one being not concerned, ten being a five-alarm fire, where is your concern level about climate change?

WIRTH: It is difficult to put these things on a scale for me. We take it very seriously. And our objective is to deliver lower carbon energy to supply a growing economy. We also need to keep the economy running. And I think the instability we're seeing in certain markets around the world today is a signal that we can't count on tomorrow's energy system until it is built.

4 6

Dan Tsubouchi @Energy_Tidbits · Sep 13

#Chevron CEO Wirth on an #PetroleumProducts export ban. "risk in an action like that has unintended consequences. And, in fact, the U.S. is both an exporter & importer of products" "I think there's a risk that it could take prices up, not down". US imports >2 mmbd products #OOTT

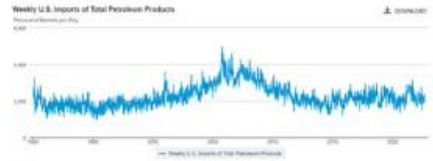
Excerpt from Bloomberg transcript of Chevron CEO Mike Wirth with CNN anchor Poppy Harlow on Sept 13

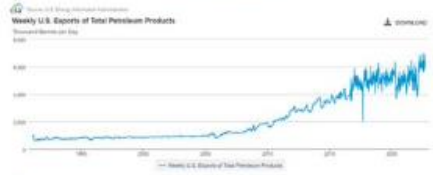
HARLOW: Energy Secretary Granholm wrote you a letter a few weeks ago and asked Chevron and other big suppliers not to export more fuel and instead to, quote, focus on building inventories here in the United States. This is after a number of Democrats in the Congress called on you guys to flat out stop exporting oil out of the United States. Would a ban like that actually bring down prices for American consumers, because that is their argument?

WIRTH: The risk in an action like that has unintended consequences. And, in fact, the U.S. is both an exporter and importer of products. An export ban runs the risk of taking supplies that are needed in other parts of world and reducing those, which can drive oil prices up, which then can affect the price of imports into this country.

HARLOW: Which means it doesn't get cheaper here is what you're saying?

WIRTH: I think there's a risk that it could take prices up, not down.





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Dan Tsubouchi @Energy_Tidbits · Sep 13

ICYMI. See 👇 @DeutscheBank CEO recession coming in DE. A very tough future as "30 years of presumed calm will now be followed by a period of heightened volatility with economic uncertainty, regular crises & geopolitical conflicts that are also likely to drag on for decades. #OOTT

> **Dan Tsubouchi** @Energy_Tidbits · Sep 7
>
> 1/2. Must Read @DeutscheBank CEO. RUS/UKR "destroyed a number of certainties on which we build our economic system over the past decades". NEXT UP, "awkward question on how to deal with China" in light of increasing CN/US isolation/tension, reducing China dependency will .. #OOTT
>
> Show this thread

1 1

Dan Tsubouchi @Energy_Tidbits · Sep 13

Wonder how #Scholz plans to do this? re NO #NatGas US #LNG "they charge prices for this" "We will take further measures to get those prices down FROM THE SOURCE and make them competitive and affordable again for the German industry". Thx @mcnienaber. #OOTT

(Bloomberg) -- Germany will implement a power price cap quickly to help consumers and companies cope with soaring electricity costs, Chancellor Olaf Scholz said, adding that Berlin is also looking into ways how to push down heating and gas prices.

"We will now push this through with great speed, so that we can relieve the burden on consumers as well as on companies when it comes to electricity prices," Scholz said in a speech at a BDA employers association conference in Berlin.

"We have to change the market design so that it can work as a market again and does not produce high costs in a way which is not justified by production," Scholz said. "We will make sure that we can do the same for the heating and gas market, that is of course a different challenge."

Scholz hinted, however, that a general cap on natural gas might not be the best way forward as such a measure could lead to reduced supply from the world market.

"With gas, for example, we are talking about supplies from friendly Norway, from the United States, from many other countries in the world, they are supplying us and they charge prices for this," Scholz added.

"We will take further measures to get those prices down from the source and make them competitive and affordable again for the German industry," Scholz said. The government plans to discuss possible instruments with experts from industry, trade unions and universities.

The European Union is also considering intervening in the energy markets to rein in energy costs and provide liquidity to a market that was brought into chaos after Russia curbed supplies to Europe amid its war in Ukraine. The controversial idea of trying to cap gas prices was postponed for more talks and measures are expected to be revealed on Wednesday.

Energy prices in Europe have been declining, in part, because of the prospect that the region will try to control markets. Benchmark gas futures declined more than 20% this month so far.

The introduction of price caps is seen as a negative intervention by some analysts. Price caps could jeopardize security of supplies, since in the competitive global market, energy flows go in the direction of those who pay the most. Capping gas prices could result in volume shortages, worsening the crisis, Timera Energy said in a report on Monday.

7

Dan Tsubouchi @Energy_Tidbits · Sep 12

#JCPOA unlikely in near term. "What we've seen over the last week or so in Iran's response to the proposal put forward by the #EU is clearly a step backward and makes prospects for an agreement in the near-term I would say unlikely" says @SecBlinken. Thx @business Tim Smith #OOTT

2 4

Dan Tsubouchi @Energy_Tidbits · Sep 12

Anyone hear if shippers are allowed new #CrudebyRail loadings ahead of potential Fri strike? Will railroads risk CBR stuck somewhere as @USDOTFRA ".. the movements of hazardous materials (including dangerous goods) such as #Petroleum, chemical, and nuclear products". #OOTT

https://www.aar.org/news/railroads-make-plans-to-secure-hazmat-and-other-security-sensitive-shipments-due-to-labor-uncertainty/

Other Service Disruptions Possible Over Next Week

Washington, D.C. – September 9, 2022 – In light of the possibility of a rail labor strike, the six Class I freight railroads participating in national bargaining will begin to take steps to manage and secure the shipments of hazardous and security-sensitive materials, such as chlorine used to purify drinking water and chemicals used in fertilizer, starting as early as Monday, September 12. Railroads are taking all measures necessary to handle sensitive cargo in accordance with federal regulations to ensure that no such cargo is left on an unattended or unsecured train in the event of a work stoppage due to an impasse in labor negotiations. Additionally, other freight customers may also start to experience delayed or suspended service over the course of next week, as the railroads prepare for the possibility that current labor negotiations do not result in a resolution and are required to safely and securely reduce operations.

While these preparatory actions are necessary, they do not mean a work stoppage is certain. Railroads will continue meeting throughout the weekend with the remaining unions to work toward tentative agreements. The railroads want, and continue to advocate for, a prompt resolution that would provide historic wage increases to rail employees – and allow the railroads to continue servicing customers and prevent further disruption to the struggling supply chain.

###

https://railroads.dot.gov/divisions/hazardous-materials/hazardous-materials

U.S. Department of Transportation
Federal Railroad Administration

Hazardous Materials

Under authority delegated to FRA by the Secretary of Transportation, the Hazardous Materials Division administers a safety program that oversees the movement of hazardous materials (including dangerous goods), such as petroleum, chemical, and nuclear products, throughout the Nation's rail transportation system, including shipments transported to and from international organizations. The division also has authority to oversee the movement of a package marked to indicate compliance with a Federal or international hazardous materials standard, even if such a package does not contain a hazardous material.

> **Dan Tsubouchi** @Energy_Tidbits · Sep 12
>
> if strike happens and cdn crude by rail gets hit, it will hit WCS diffs. #OOTT twitter.com/Energy_Tidbits...

Dan Tsubouchi @Energy_Tidbits · Sep 12

Proud to be at SAF Group. CEO Dunfield "what we have done and will continue to do is observe inefficiencies that exist in the Cdn marketplace. be patient around deployment. be patient strategies until we see arbitrage in the marketplace". P.S. it's worked!

1 2

Dan Tsubouchi @Energy_Tidbits · Sep 12

if strike happens and cdn crude by rail gets hit, it will hit WCS diffs. #OOTT

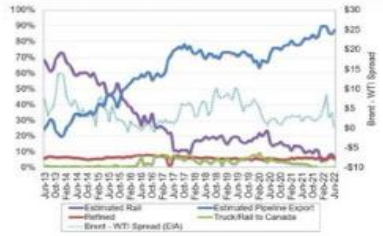
> **Dan Tsubouchi** @Energy_Tidbits · Sep 12
>
> Can Biden let a potential US rail strike on Fri last? Cdn crude by rail exports 103 kbd to US. Gas price hits as West Coast refineries get 154 kbd from US Bakken & 30 kbd from CAN. Frac programs would be hit with frac sand by rail. #OOTT #NatGas

PADD 3	0	0	0	0	0	0	0
PADD 4	0	0	0	0	0	0	0
PADD 5	0	0	0	0	0	0	0
United States	31	0	0	0	154	186	0
Canada	5	16	53	0	30	103	NA
Total	36	16	53	0	184	289	NA

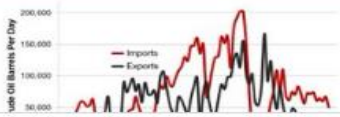
NA = data not available
PADD = Petroleum Administration for Defense District
Notes: Includes movements to and from Canada. A zero may indicate volume of less than 0.5 thousand barrels per day.
Source: U.S. Energy Information Administration estimates based on analysis of data from the Surface Transportation Board and others.

Source: EIA

Estimated Williston Basin Oil Transportation



Williston Basin Truck/Rail Imports and Exports with Canada



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Dan Tsubouchi @Energy_Tidbits · Sep 12

Can Biden let a potential US rail strike on Fri last? Cdn crude by rail exports 103 kbd to US. Gas price hits as West Coast refineries get 154 kbd from US Bakken & 30 kbd from CAN. Frac programs would be hit with frac sand by rail. #OOTT #NatGas

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PADD 5	0	0	0	0	0	0	0
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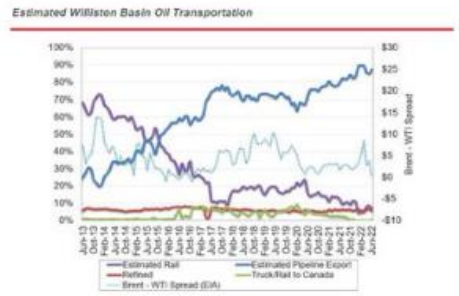
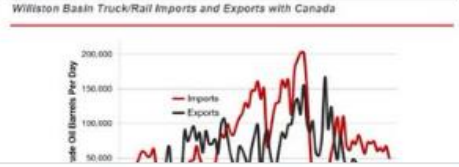
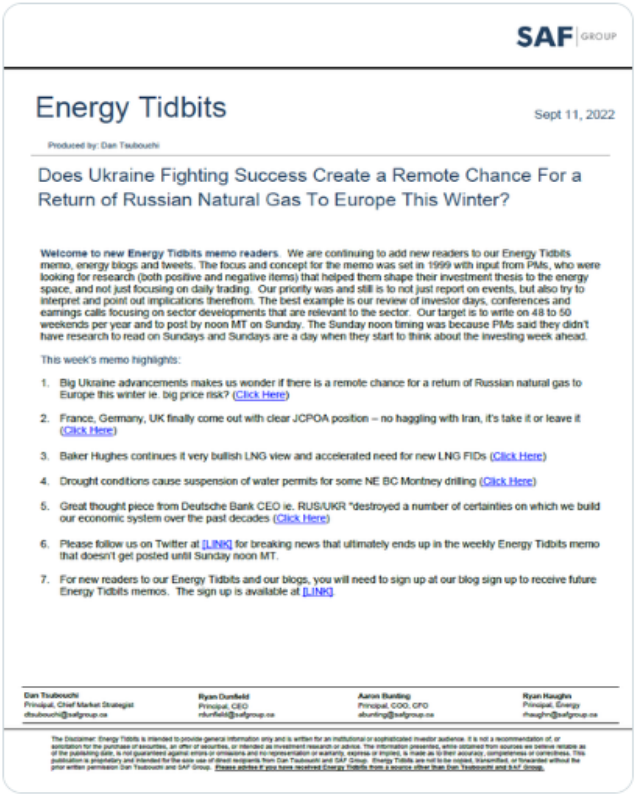




2 9 23

Dan Tsubouchi @Energy_Tidbits · Sep 11

Our weekly SAF Sept 11, 2022 Energy Tidbits memo is posted on SAF Group website. this 63-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

Sept 11, 2022

Produced by: Dan Tsubouchi

Does Ukraine Fighting Success Create a Remote Chance For a Return of Russian Natural Gas To Europe This Winter?

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. Our target is to write on 48 to 50 weekends per year and to post by noon MT on Sunday. The Sunday noon timing was because PMs said they didn't have research to read on Sundays and Sundays are a day when they start to think about the investing week ahead.

This week's memo highlights:

1. Big Ukraine advancements makes us wonder if there is a remote chance for a return of Russian natural gas to Europe this winter ie. big price risk? (Click Here)
2. France, Germany, UK finally come out with clear JCPOA position – no haggling with Iran, it's take it or leave it (Click Here)
3. Baker Hughes continues it very bullish LNG view and accelerated need for new LNG FIDs (Click Here)
4. Drought conditions cause suspension of water permits for some NE BC Montney drilling (Click Here)
5. Great thought piece from Deutsche Bank CEO ie. RUS/UKR "destroyed a number of certainties on which we build our economic system over the past decades (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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