Energy Tidbits

IEA OMR: Building Near-Term Global Oil Stocks Then "*Global Demand is Set to Surge by 3.2 mb/d from 1Q23 to 4Q23*"

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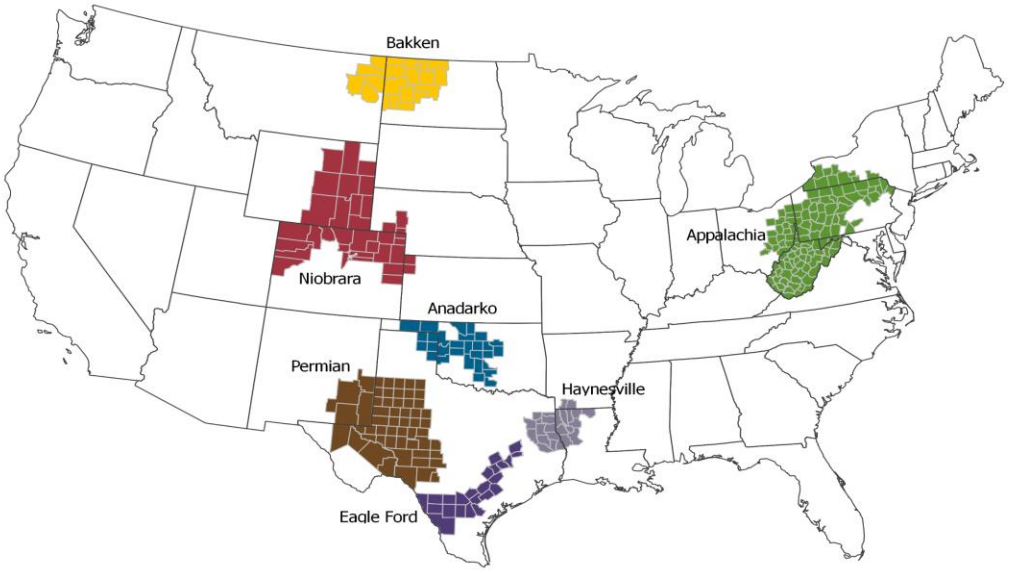
Independent Statistics & Analysis

U.S. Energy Information Administration

March 2023

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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Year-over-year summary

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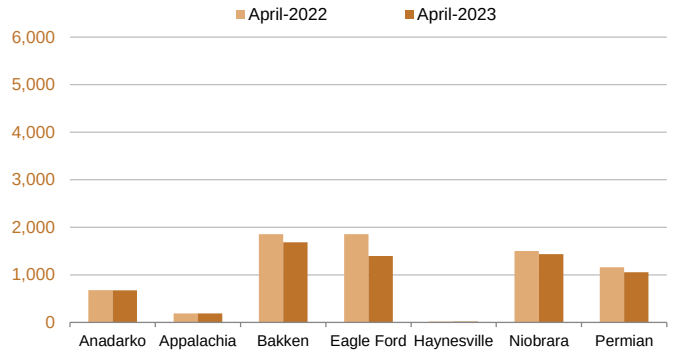
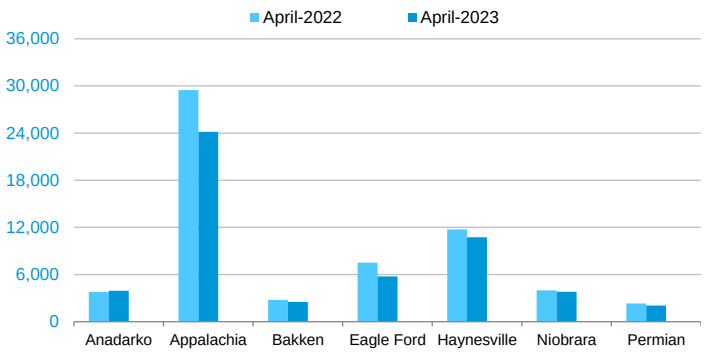
March 2023

drilling data through February
projected production through April

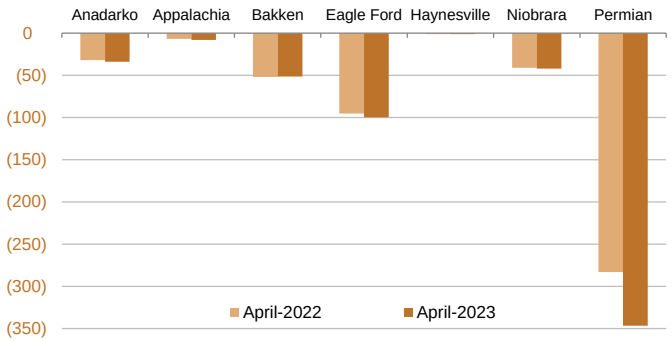
New-well oil production per rig
barrels/day



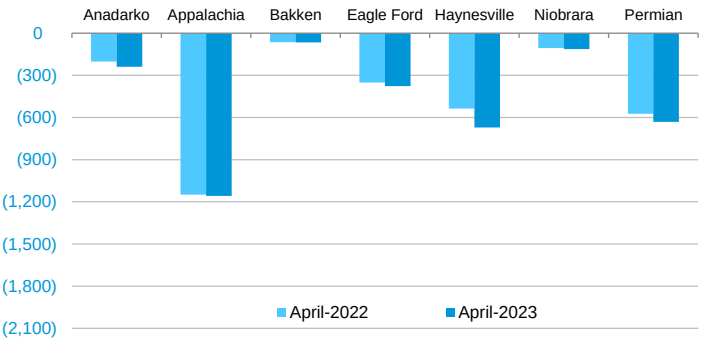
New-well gas production per rig
thousand cubic feet/day



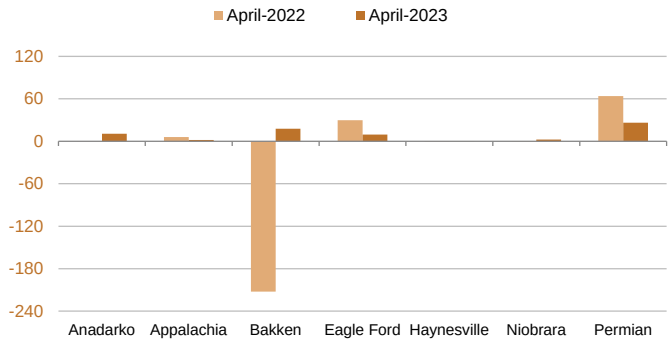
Legacy oil production change
thousand barrels/day



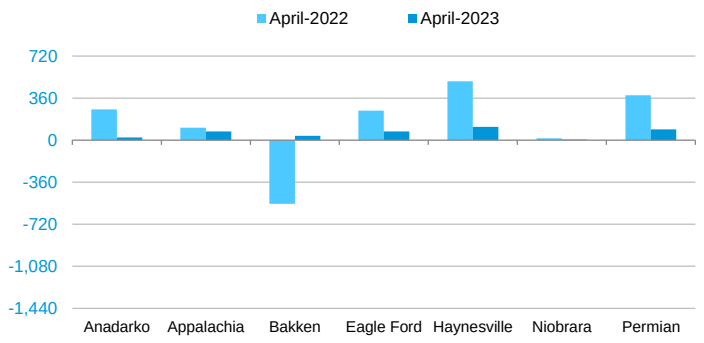
Legacy gas production change
million cubic feet/day



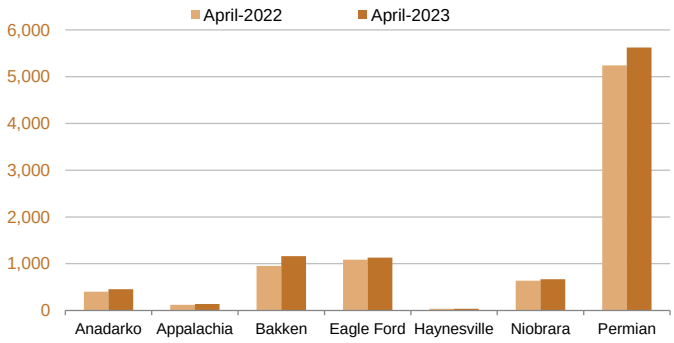
Indicated monthly change in oil production (Apr vs. Mar)
thousand barrels/day



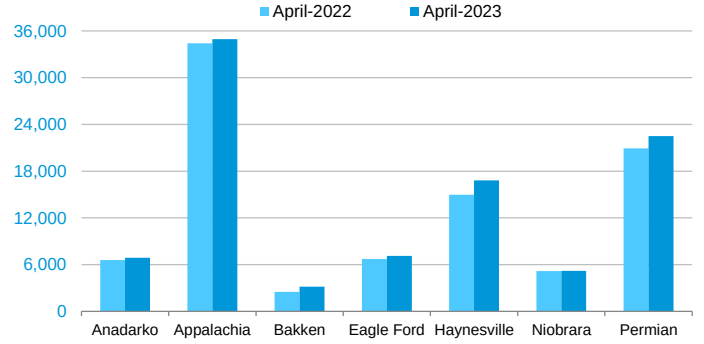
Indicated monthly change in gas production (Apr vs. Mar)
million cubic feet/day



Oil production
thousand barrels/day



Natural gas production
million cubic feet/day



Anadarko Region

Drilling Productivity Report

March 2023

drilling data through February
projected production through April

Oil +1
barrels/day
month over month

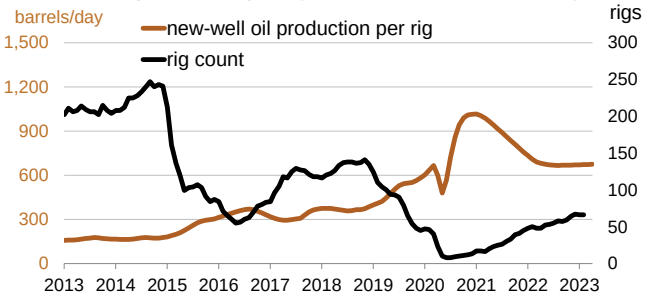
673 *April*
672 *March*
barrels/day

Monthly additions from one average rig

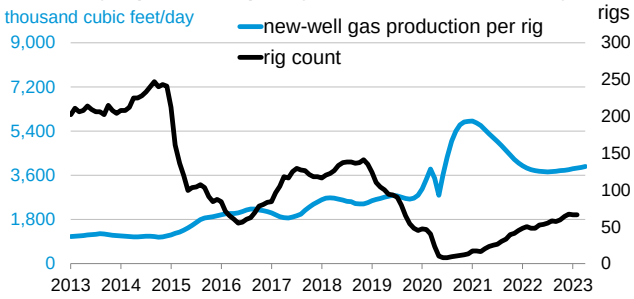
April **3,952**
March **3,921**
thousand cubic feet/day

Gas +31
thousand cubic feet/day
month over month

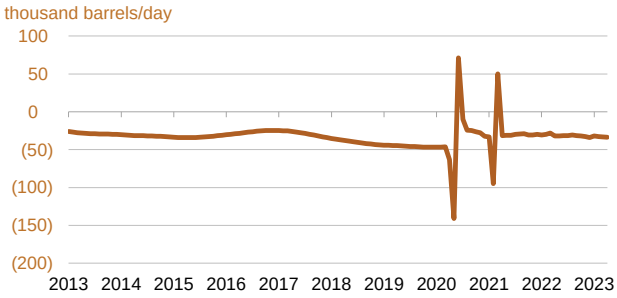
Anadarko Region
New-well oil production per rig



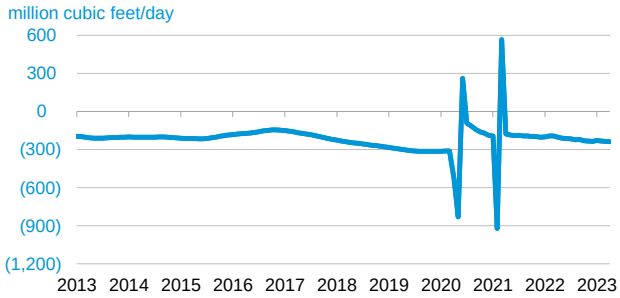
Anadarko Region
New-well gas production per rig



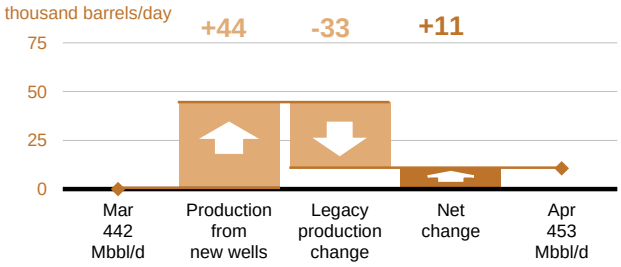
Anadarko Region
Legacy oil production change



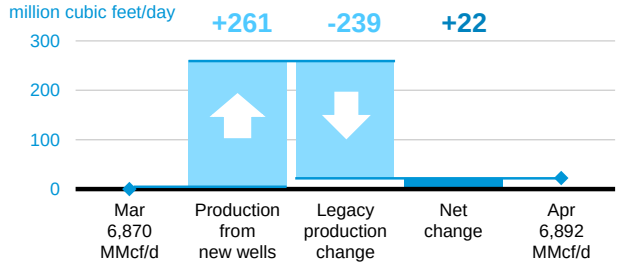
Anadarko Region
Legacy gas production change



Anadarko Region
Indicated change in oil production (Apr vs. Mar)

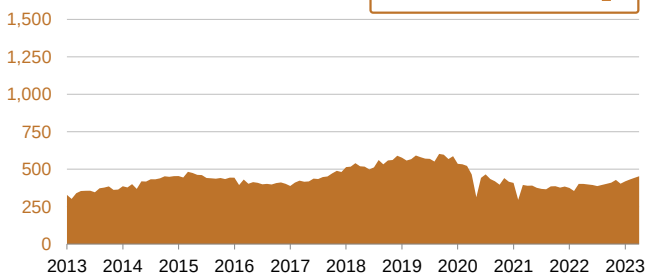


Anadarko Region
Indicated change in natural gas production (Apr vs. Mar)



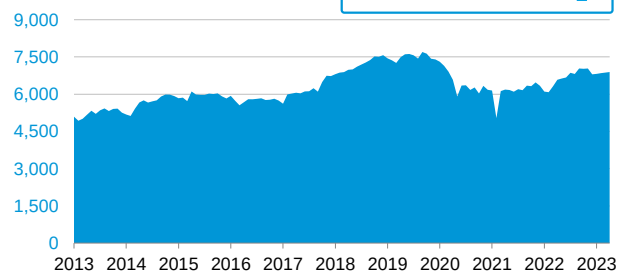
Anadarko Region
Oil production

Oil +11
thousand barrels/day
month over month



Anadarko Region
Natural gas production

Gas +22
million cubic feet/day
month over month



Appalachia Region
Drilling Productivity Report

March 2023

drilling data through February
projected production through April

Oil +1
barrels/day
month over month

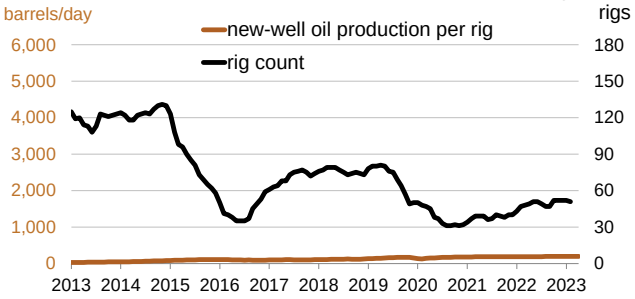
191 *April*
190 *March*
barrels/day

Monthly additions from one average rig

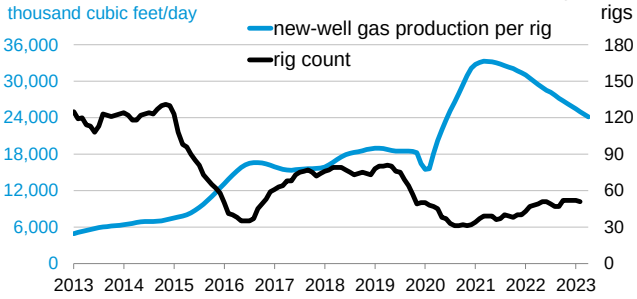
April **24,161**
March **24,578**
thousand cubic feet/day

Gas -417
thousand cubic feet/day
month over month

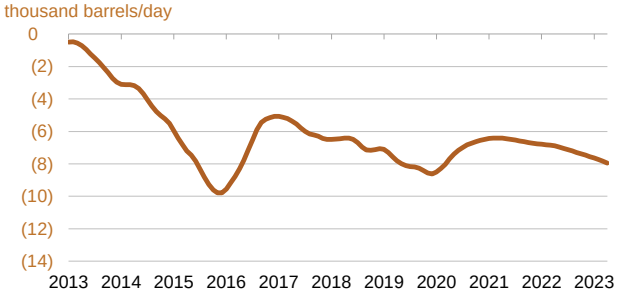
Appalachia Region
New-well oil production per rig



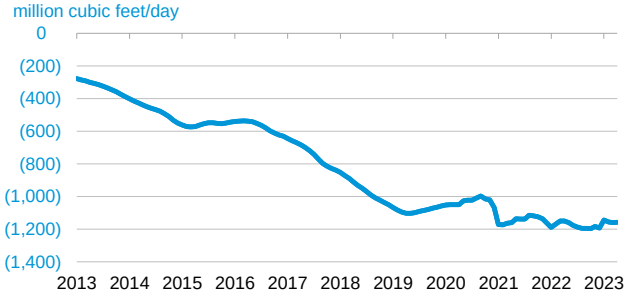
Appalachia Region
New-well gas production per rig



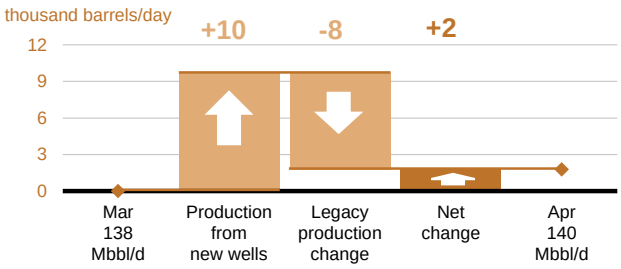
Appalachia Region
Legacy oil production change



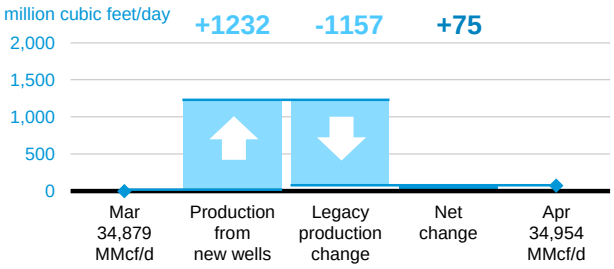
Appalachia Region
Legacy gas production change



Appalachia Region
Indicated change in oil production (Apr vs. Mar)

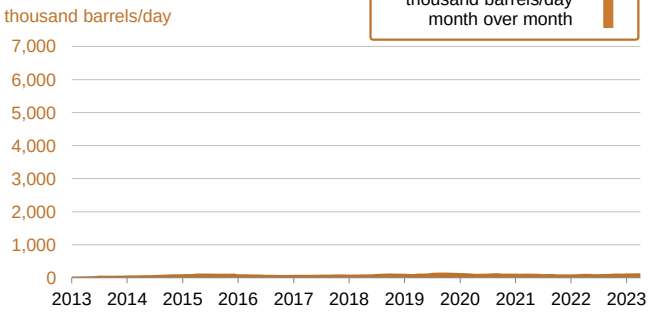


Appalachia Region
Indicated change in natural gas production (Apr vs. Mar)



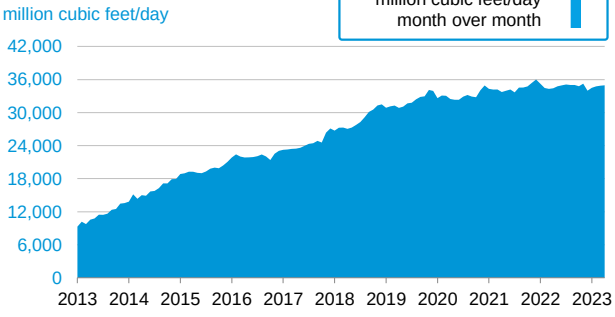
Appalachia Region
Oil production

Oil +2
thousand barrels/day
month over month



Appalachia Region
Natural gas production

Gas +75
million cubic feet/day
month over month



Bakken Region

Drilling Productivity Report

March 2023

drilling data through February
projected production through April

Oil +1
barrels/day
month over month

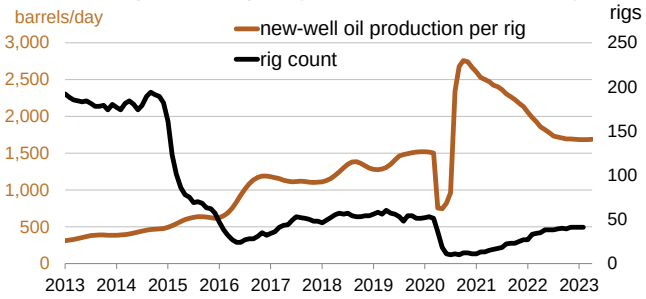
1,685 *April*
1,684 *March*
barrels/day

Monthly additions from one average rig

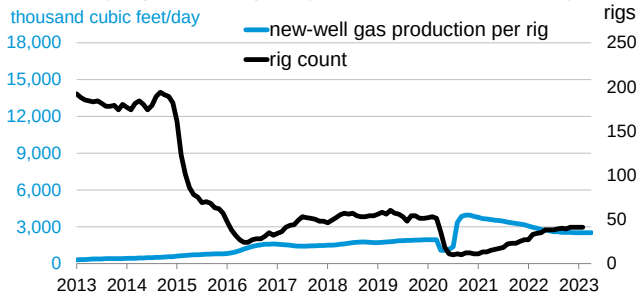
April **2,508**
March **2,507**
thousand cubic feet/day

Gas +1
thousand cubic feet/day
month over month

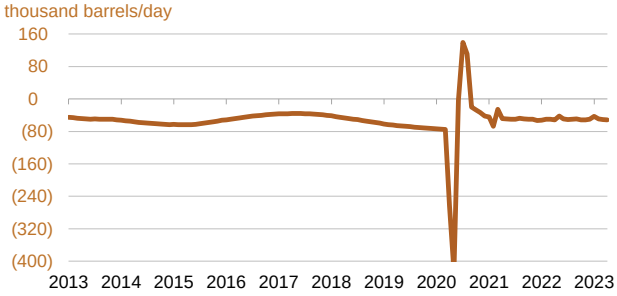
Bakken Region
New-well oil production per rig



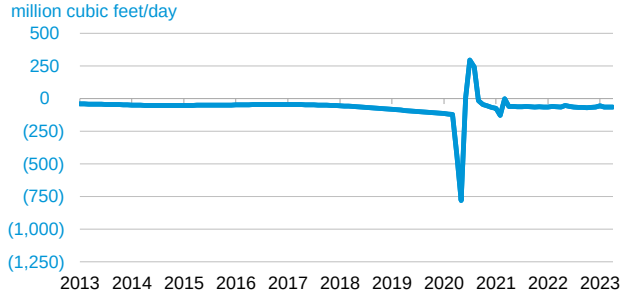
Bakken Region
New-well gas production per rig



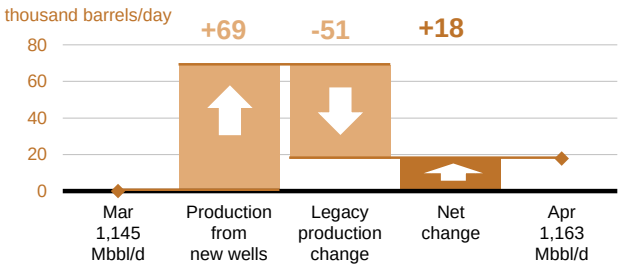
Bakken Region
Legacy oil production change



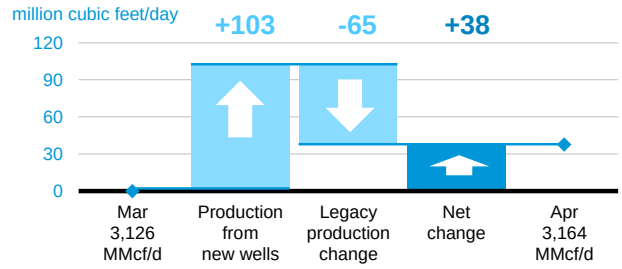
Bakken Region
Legacy gas production change



Bakken Region
Indicated change in oil production (Apr vs. Mar)

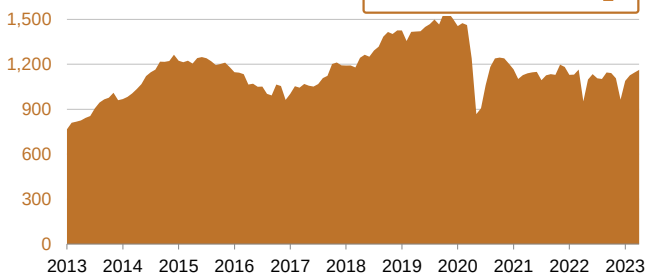


Bakken Region
Indicated change in natural gas production (Apr vs. Mar)



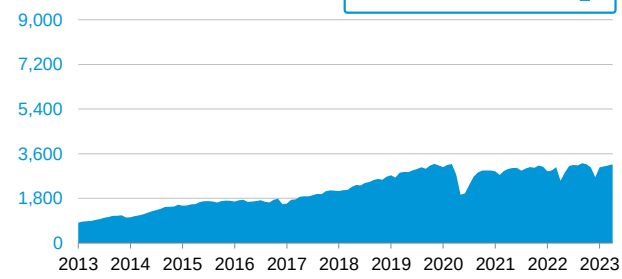
Bakken Region
Oil production

Oil +18
thousand barrels/day
month over month



Bakken Region
Natural gas production

Gas +38
million cubic feet/day
month over month



Eagle Ford Region

Drilling Productivity Report

March 2023

drilling data through February
projected production through April

Oil -15
barrels/day
month over month

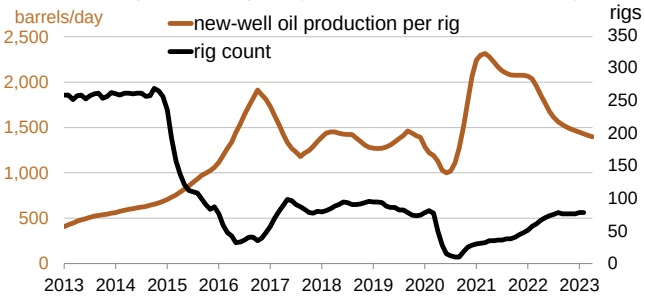
1,398 *April*
1,413 *March*
barrels/day

Monthly additions from one average rig

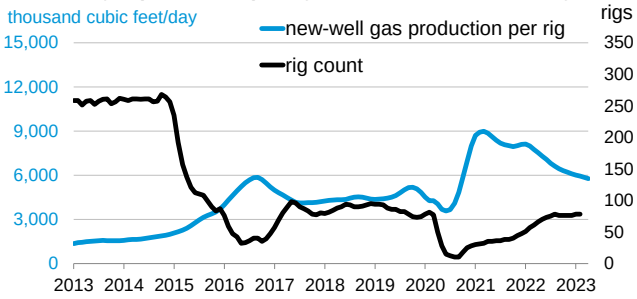
April **5,771**
March **5,847**
thousand cubic feet/day

Gas -76
thousand cubic feet/day
month over month

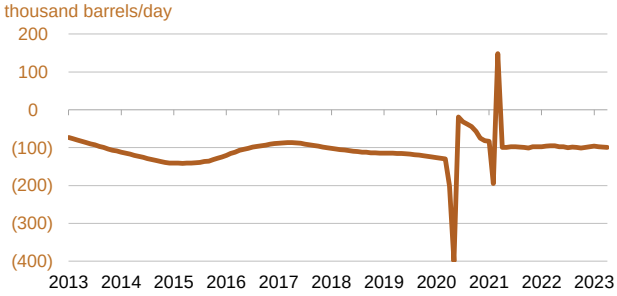
Eagle Ford Region
New-well oil production per rig



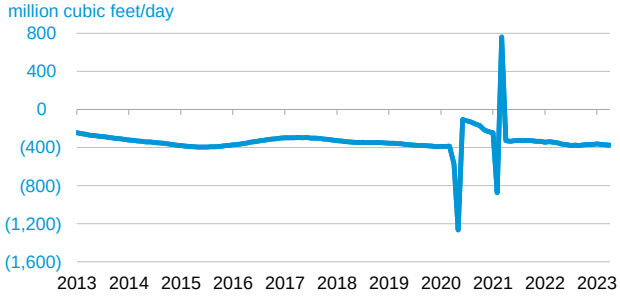
Eagle Ford Region
New-well gas production per rig



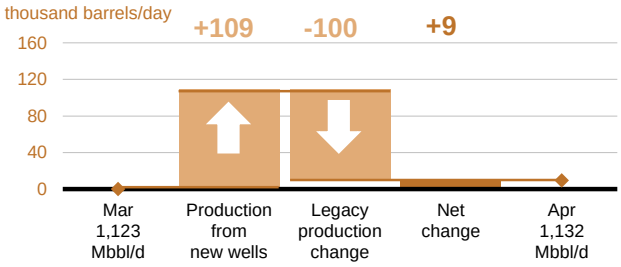
Eagle Ford Region
Legacy oil production change



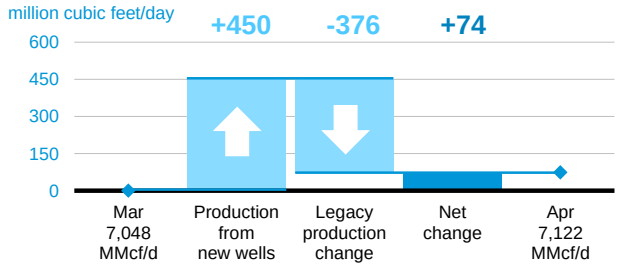
Eagle Ford Region
Legacy gas production change



Eagle Ford Region
Indicated change in oil production (Apr vs. Mar)

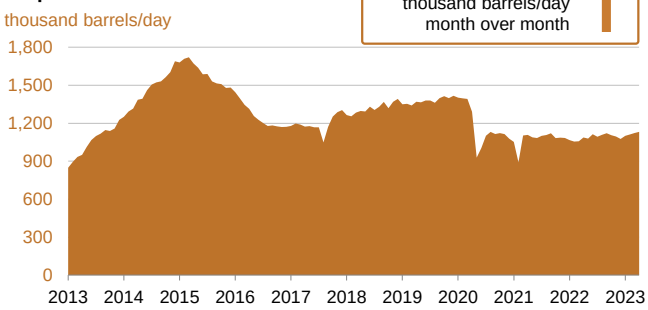


Eagle Ford Region
Indicated change in natural gas production (Apr vs. Mar)



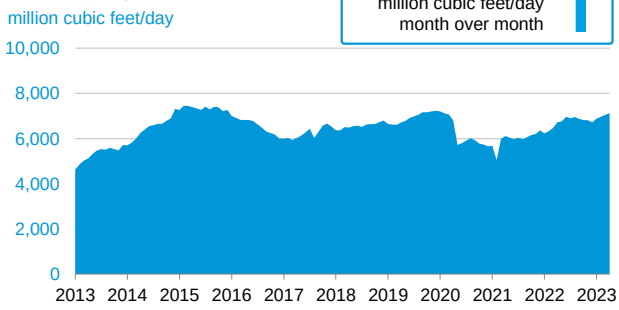
Eagle Ford Region
Oil production

Oil +9
thousand barrels/day
month over month



Eagle Ford Region
Natural gas production

Gas +74
million cubic feet/day
month over month



Haynesville Region

Drilling Productivity Report

March 2023

drilling data through February
projected production through April

Oil 0 barrels/day month over month

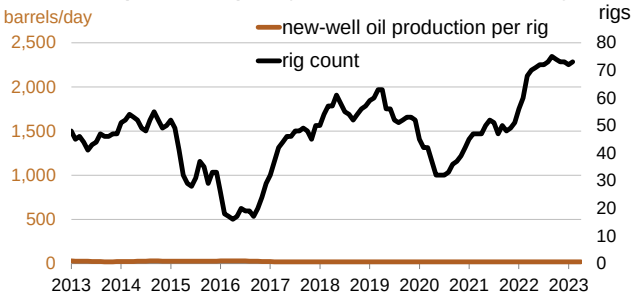
19 *April*
19 *March*
barrels/day

Monthly additions from one average rig

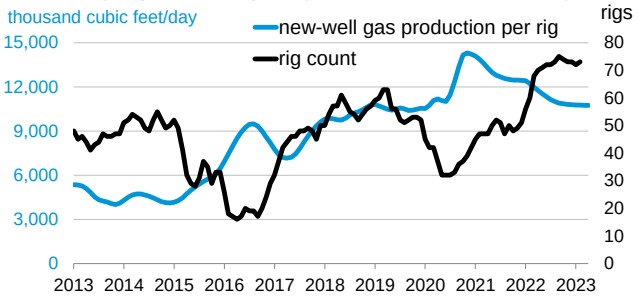
April **10,732**
March **10,743**
thousand cubic feet/day

Gas -11 thousand cubic feet/day month over month

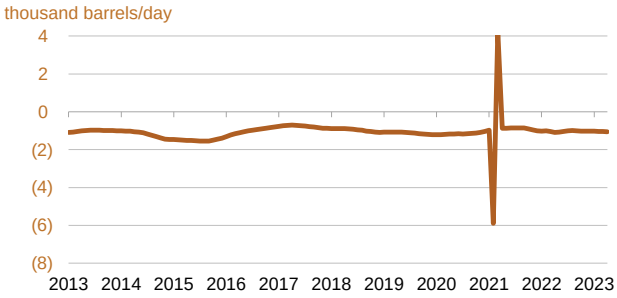
Haynesville Region
New-well oil production per rig



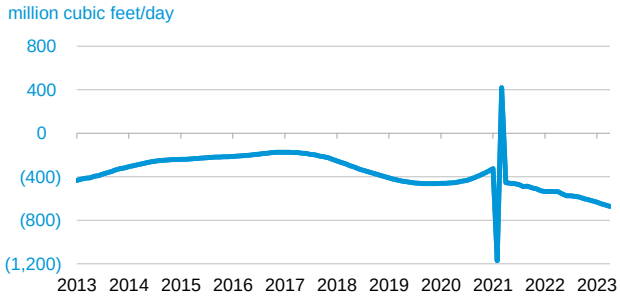
Haynesville Region
New-well gas production per rig



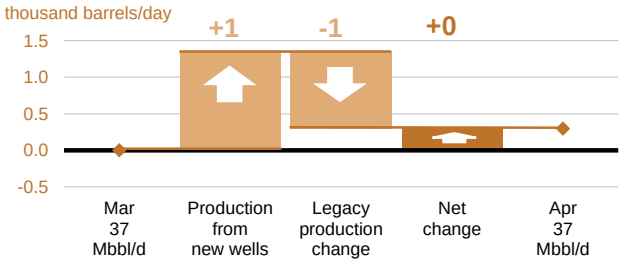
Haynesville Region
Legacy oil production change



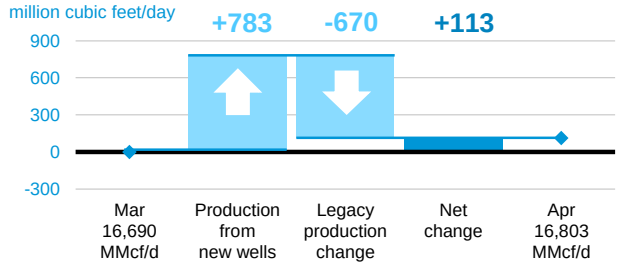
Haynesville Region
Legacy gas production change



Haynesville Region
Indicated change in oil production (Apr vs. Mar)

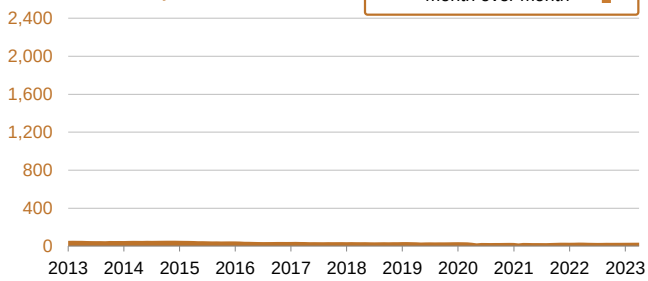


Haynesville Region
Indicated change in natural gas production (Apr vs. Mar)



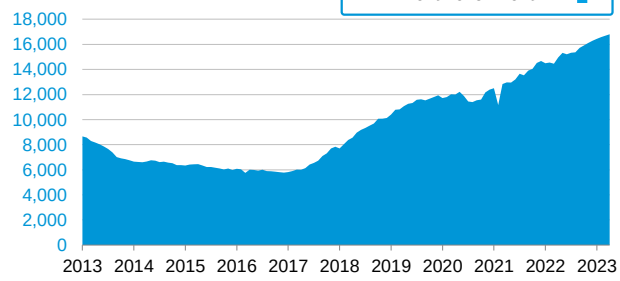
Haynesville Region
Oil production

Oil +0 thousand barrels/day month over month



Haynesville Region
Natural gas production

Gas +113 million cubic feet/day month over month



Niobrara Region

Drilling Productivity Report

March 2023

drilling data through February
projected production through April

Oil +14
barrels/day
month over month

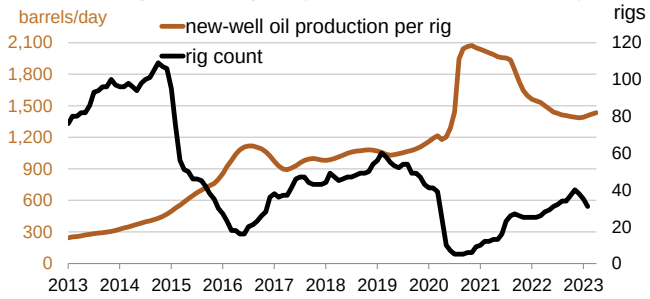
1,434 *April*
1,420 *March*
barrels/day

Monthly additions from one average rig

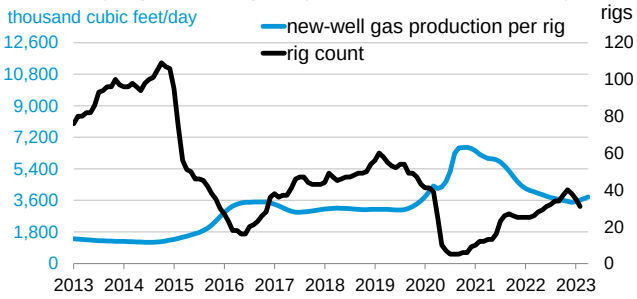
April **3,798**
March **3,705**
thousand cubic feet/day

Gas +93
thousand cubic feet/day
month over month

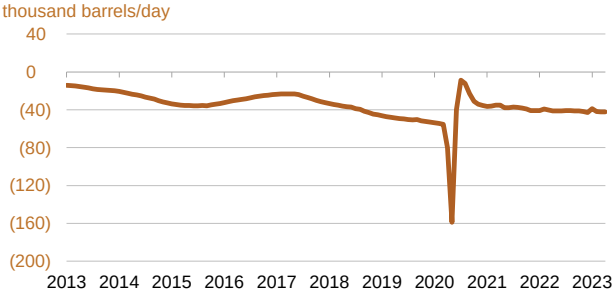
Niobrara Region
New-well oil production per rig



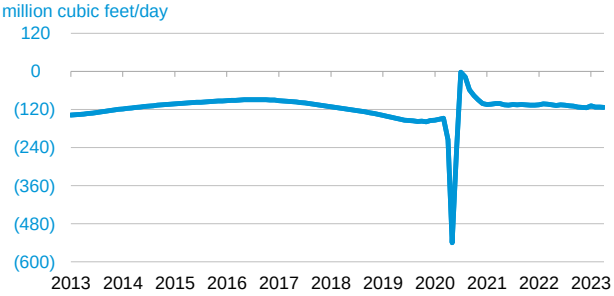
Niobrara Region
New-well gas production per rig



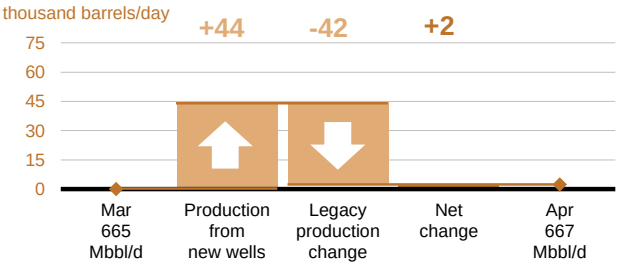
Niobrara Region
Legacy oil production change



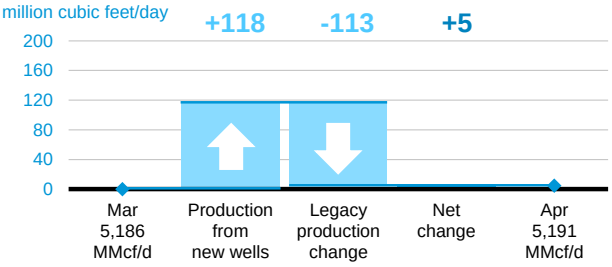
Niobrara Region
Legacy gas production change



Niobrara Region
Indicated change in oil production (Apr vs. Mar)

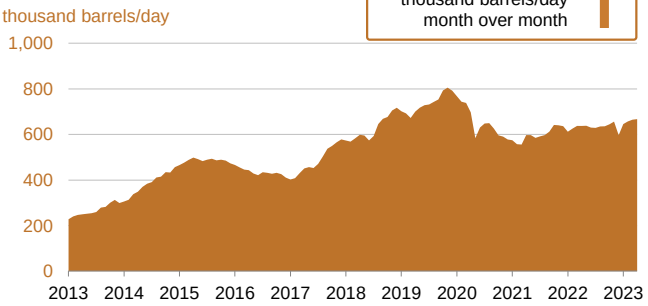


Niobrara Region
Indicated change in natural gas production (Apr vs. Mar)



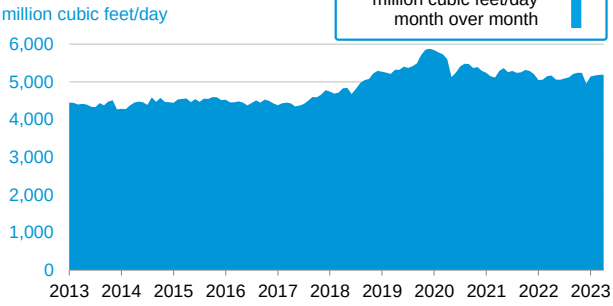
Niobrara Region
Oil production

Oil +2
thousand barrels/day
month over month



Niobrara Region
Natural gas production

Gas +5
million cubic feet/day
month over month



Permian Region

Drilling Productivity Report

March 2023

drilling data through February
projected production through April

Oil -1
barrels/day
month over month

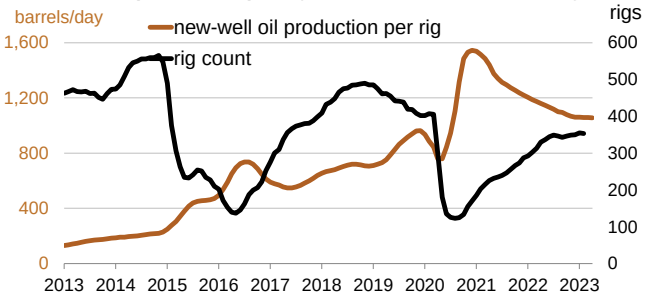
1,056 *April*
1,057 *March*
barrels/day

Monthly additions from one average rig

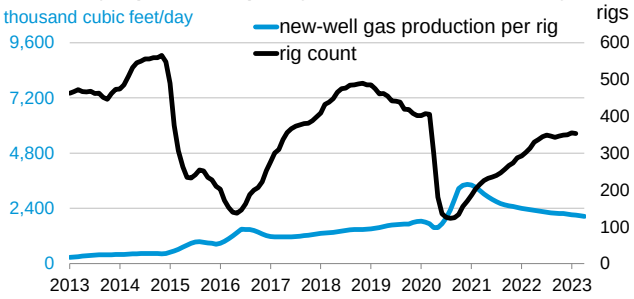
April **2,052**
March **2,073**
thousand cubic feet/day

Gas -21
thousand cubic feet/day
month over month

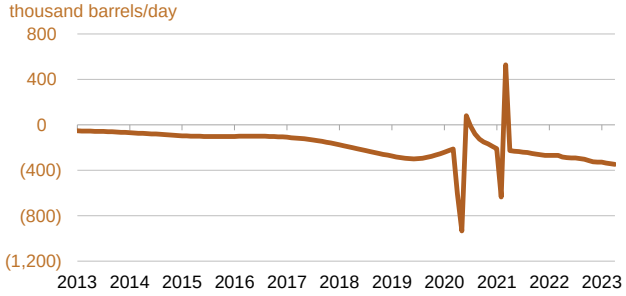
Permian Region
New-well oil production per rig



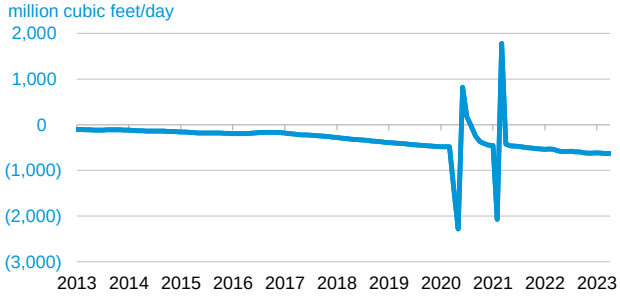
Permian Region
New-well gas production per rig



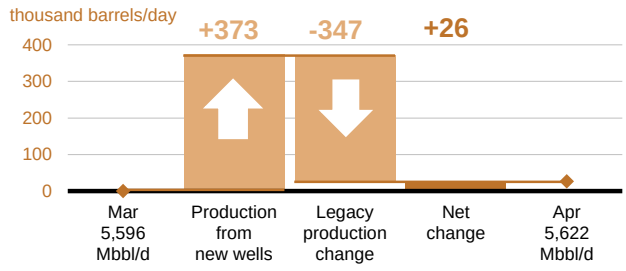
Permian Region
Legacy oil production change



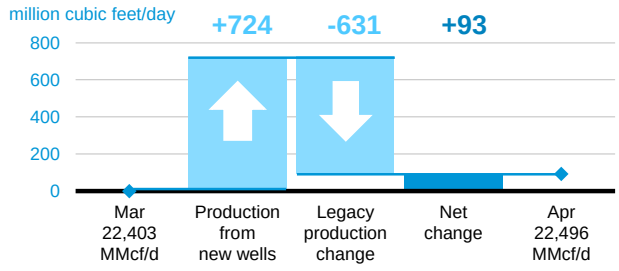
Permian Region
Legacy gas production change



Permian Region
Indicated change in oil production (Apr vs. Mar)

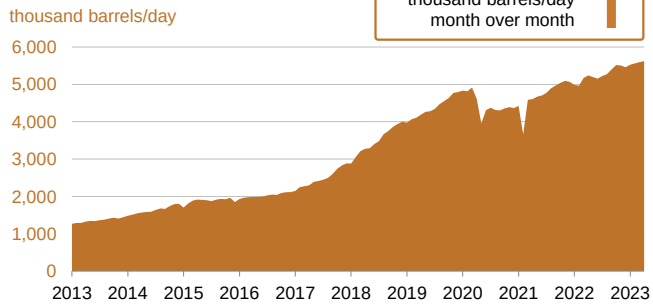


Permian Region
Indicated change in natural gas production (Apr vs. Mar)



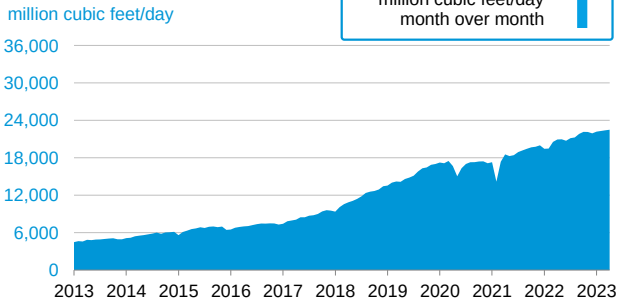
Permian Region
Oil production

Oil +26
thousand barrels/day
month over month



Permian Region
Natural gas production

Gas +93
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 January 2023

- **Top five countries of destination, representing 58.6% of total U.S. LNG exports in January 2023**
  - United Kingdom (63.0 Bcf), Turkiye (39.3 Bcf), Netherlands (36.5 Bcf), France (34.1 Bcf), and South Korea (24.5 Bcf)
- **336.9 Bcf of exports in January 2023**
  - 0.8% decrease from December 2022
  - 4.7% less than January 2022
- **102 cargos shipped in January 2023**
  - Sabine Pass (41), Cameron (33), Corpus Christi (19), Cove Point (6), Elba (3), and Freeport (0)
  - 112 cargos in December 2022
  - 108 cargos in January 2022

1a. Table of Exports of Domestically-Produced LNG Delivered by Region (Cumulative from February 2016 through January 2023)

Region	Number of Countries Receiving Per Region	Volume Exported (Bcf)	Percentage Receipts of Total Volume Exported (%)	Number of Cargos*
East Asia and Pacific	8	4,542.2	32.6%	1343
Europe and Central Asia	15	6,035.6	43.3%	1890
Latin America and the Caribbean**	13	2,148.9	15.4%	767
Middle East and North Africa	5	376.6	2.7%	110
South Asia	3	833.8	6.0%	248
Sub-Saharan Africa	0	0.0	0.0%	0
Total LNG Exports	**44**	**13,937.1**	**100.0%**	**4,358**

*Split cargos counted as both individual cargos and countries

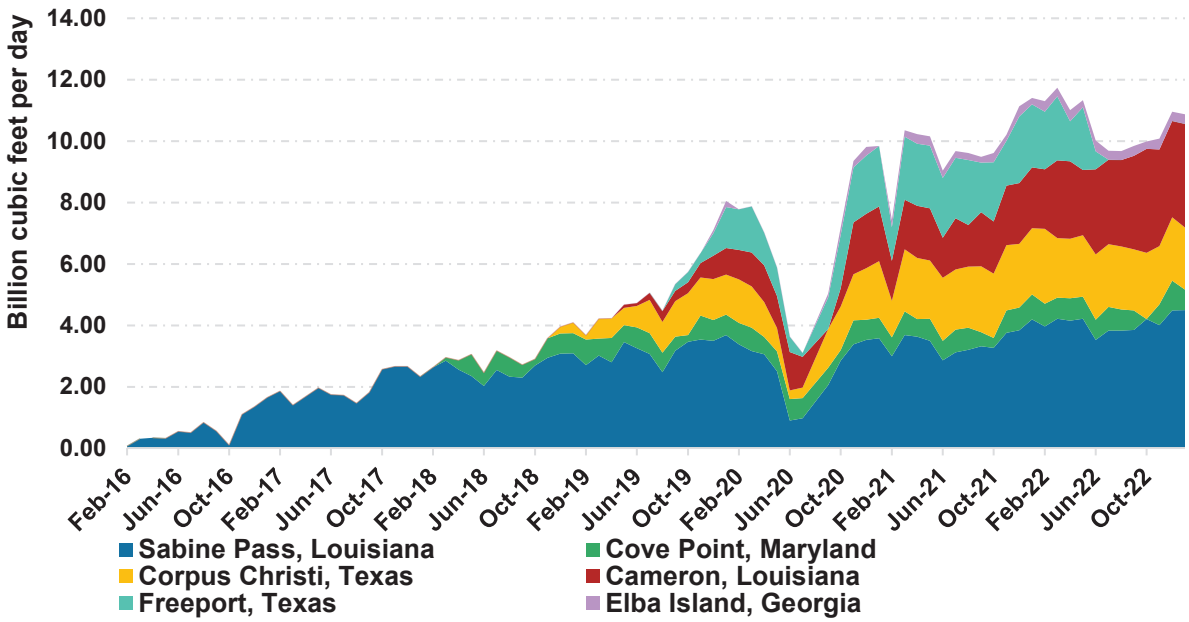
**Number of cargos does not include the shipments by ISO container

1b. Shipments of Domestically-Produced LNG Delivered – by Country
(Cumulative from February 2016 through January 2023)

	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	502	1,746.3	12.5%
2.	Japan*	East Asia and Pacific	369	1,260.3	9.0%
3.	Spain*	Europe and Central Asia	339	1,064.9	7.6%
4.	United Kingdom*	Europe and Central Asia	317	1,052.3	7.6%
5.	France*	Europe and Central Asia	308	1,005.9	7.2%
6.	China*	East Asia and Pacific	293	1,000.2	7.2%
7.	Netherlands*	Europe and Central Asia	231	771.3	5.5%
8.	India*	South Asia	188	637.0	4.6%
9.	Turkiye*	Europe and Central Asia	197	631.6	4.5%
10.	Brazil*	Latin America and the Caribbean	217	608.3	4.4%
11.	Mexico*	Latin America and the Caribbean	165	550.1	3.9%
12.	Chile*	Latin America and the Caribbean	133	422.6	3.0%
13.	Taiwan*	East Asia and Pacific	104	327.1	2.3%
14.	Italy*	Europe and Central Asia	101	321.5	2.3%
15.	Poland*	Europe and Central Asia	85	280.3	2.0%
16.	Portugal*	Europe and Central Asia	84	268.3	1.9%
17.	Argentina*	Latin America and the Caribbean	110	265.2	1.9%
18.	Greece*	Europe and Central Asia	75	178.7	1.3%
19.	Dominican Republic*	Latin America and the Caribbean	67	161.4	1.2%
20.	Kuwait	Middle East and North Africa	45	156.4	1.1%
21.	Lithuania	Europe and Central Asia	50	154.0	1.1%
22.	Belgium*	Europe and Central Asia	45	145.3	1.0%
23.	Pakistan*	South Asia	40	128.9	0.9%
24.	Jordan*	Middle East and North Africa	36	124.2	0.9%
25.	Croatia	Europe and Central Asia	40	119.6	0.9%
26.	Singapore*	East Asia and Pacific	33	107.4	0.8%
27.	Thailand*	East Asia and Pacific	25	86.6	0.6%
28.	Bangladesh*	South Asia	20	67.8	0.5%
29.	Jamaica*	Latin America and the Caribbean	26	57.4	0.4%
30.	Panama*	Latin America and the Caribbean	31	54.7	0.4%
31.	United Arab Emirates	Middle East and North Africa	15	51.1	0.4%
32.	Israel*	Middle East and North Africa	9	28.0	0.2%
33.	Colombia*	Latin America and the Caribbean	18	24.2	0.2%
34.	Germany	Europe and Central Asia	6	21.4	0.2%
35.	Malta*	Europe and Central Asia	11	20.1	0.1%
36.	Egypt*	Middle East and North Africa	5	16.9	0.1%
37.	Indonesia*	East Asia and Pacific	16	10.7	0.1%
38.	Malaysia	East Asia and Pacific	1	3.7	0.0%
39.	Finland	Europe and Central Asia	1	0.3	0.0%
	Total Exports by Vessel		**4,358**	**13,932.1**	
	Germany	Europe and Central Asia	1	0.0	0.0%
40.	Antigua and Barbuda	Latin America and the Caribbean	34	0.0	0.0%
41.	Nicaragua	Latin America and the Caribbean	1	0.0	0.0%
42.	Haiti	Latin America and the Caribbean	129	0.4	0.0%
43.	Barbados	Latin America and the Caribbean	305	1.3	0.0%
	Jamaica	Latin America and the Caribbean	142	1.6	0.0%
44.	Bahamas	Latin America and the Caribbean	661	1.7	0.0%
	Total Exports by ISO		**1273**	**5.0**	
	Total Exports by Vessel and ISO		**5,631**	**13,937.1**	

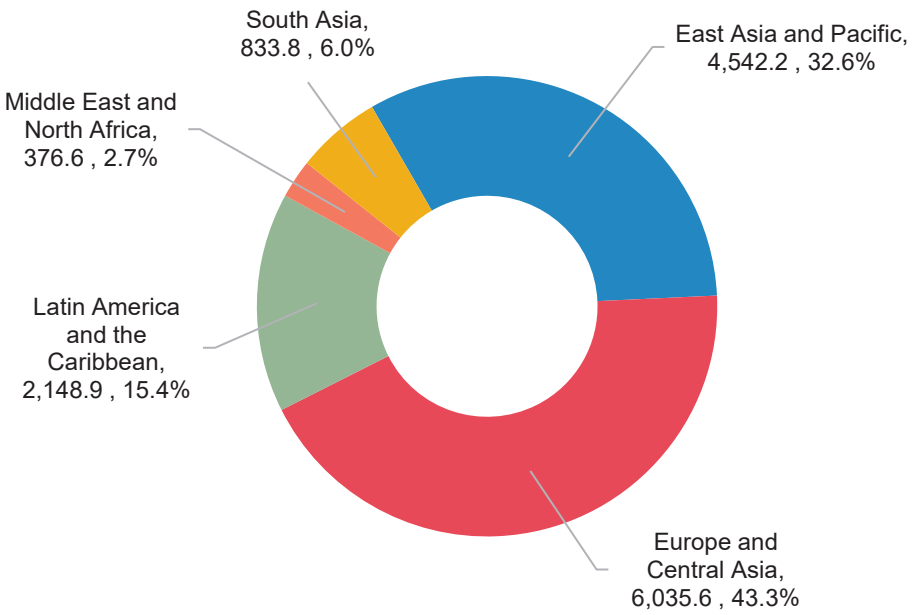
Note:
Volume and Number of Cargos are the cumulative totals of each individual Country of Destination by Region starting from February 2016.
Jamaica has received U.S. LNG exports by both vessel and ISO container. The volumes are totaled separately
* Split cargos counted as both individual cargos and 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 Point of Exit
(February 2016 through January 2023)



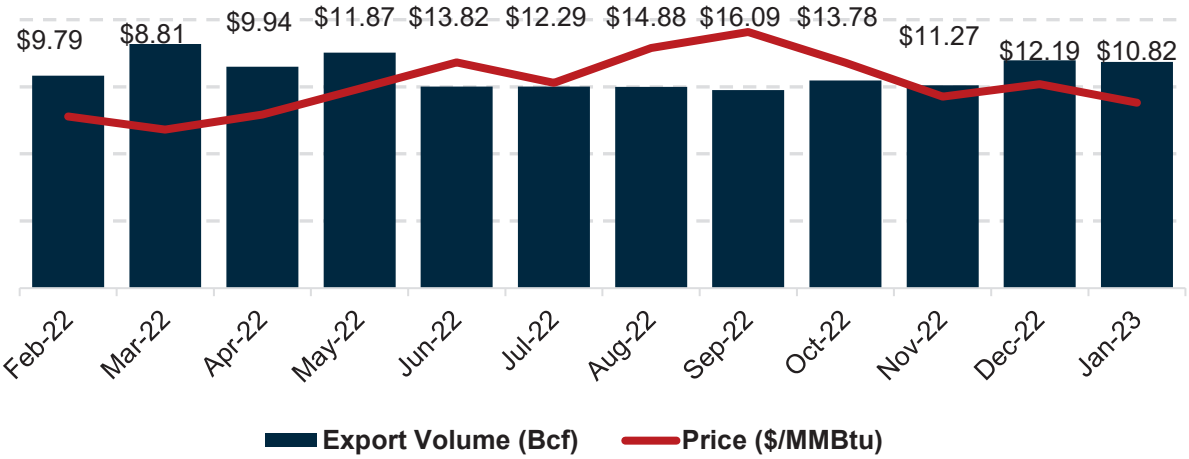
The Cameron, LA point of exit includes exports from Cameron LNG and Venture Global Calcasieu Pass.

1d. Domestically-Produced LNG Exported by Region
(Cumulative from February 2016 through January 2023)
(Bcf, %)



1f. Domestically-Produced LNG Exported – Volume (Bcf) and Weighted Average price ($/MMBtu) by Point of Exit per month

	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Total
Sabine Pass, LA	110.9	130.5	124.6	130.7	105.7	118.5	118.7	115.6	130.4	120.1	139.2	139.2	**1,484.1**
	$9.81	$7.92	$8.80	$10.93	$12.90	$10.50	$12.71	$13.71	$10.85	$9.26	$10.43	$8.67	**$10.47**
Cove Point, MD	20.9	21.4	21.8	22.2	19.7	24.2	21.4	18.8	0	20.4	29.8	20.8	**241.5**
	$9.74	$8.57	$9.32	$10.85	$12.33	$11.28	$12.36	$13. 61	0	$10.10	$10.98	$8.67	**$10.69**
Corpus Christi, TX	68.2	60.1	58.3	62.0	63.7	63.1	63.4	59.8	66.8	57.0	64.1	62.6	**749.1**
	$10.66	$9.81	$10.48	$11.95	$13. 57	$12.17	$14.70	$15.99	$12.42	$10.36	$10.60	$10.74	**$11.96**
Cameron, LA	54.4	78.6	75.4	65.8	83.3	85.2	87.2	91.1	104.9	94.1	97.1	104.8	**1021.9**
	$8.72	$9.76	$12.33	$14.85	$16.05	$15.15	$18.92	$19.89	$18.38	$14.82	$16.34	$14.33	**$15.31**
Freeport, TX	52.5	64.5	39.3	63.5	17.3	0	0	0	0	0	0	0	**237.1**
	$9.60	$8.42	$9.07	$11.23	$12.83	0	0	0	0	0	0	0	**$9.86**
Elba Island, GA	9.6	8.7	10.8	6.9	10.7	9.1	9.2	9.7	7.4	10.6	9.4	9.4	**111.6**
	$10.40	$10.12	$7.93	$9.66	$11.40	$12.20	$11.58	$14.31	$12.53	$9.62	$10.14	$8.81	**$10.68**
Total	**316.4**	**363.8**	**330.1**	**351.1**	**300.4**	**300.2**	**299.9**	**295.1**	**309.4**	**302.3**	**339.6**	**336.9**	**3,845.3**
	$9.79	**$8.81**	**$9.94**	**$11.87**	**$13.82**	**$12.29**	**$14.88**	**$16.09**	**$13.78**	**$11.27**	**$12.19**	**$10.82**	**$12.03**



Notes:

Prices are free on board (FOB) and are inclusive of all costs of the LNG up to the point of export, including commodity costs and liquefaction fees.

Does not include re-exports of previously-imported LNG. See table 2c for re-exports data.

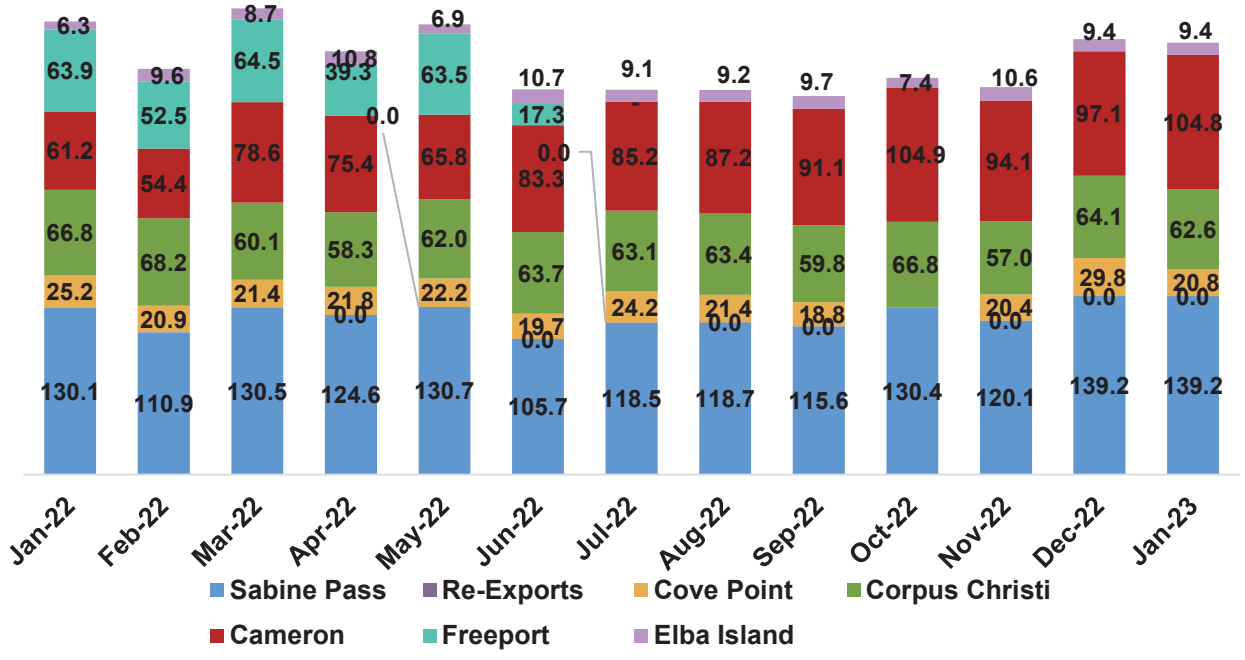
Totals may not equal sum of components because of independent rounding.

The Cameron, LA point of exit includes exports from Cameron LNG and Venture Global Calcasieu Pass.

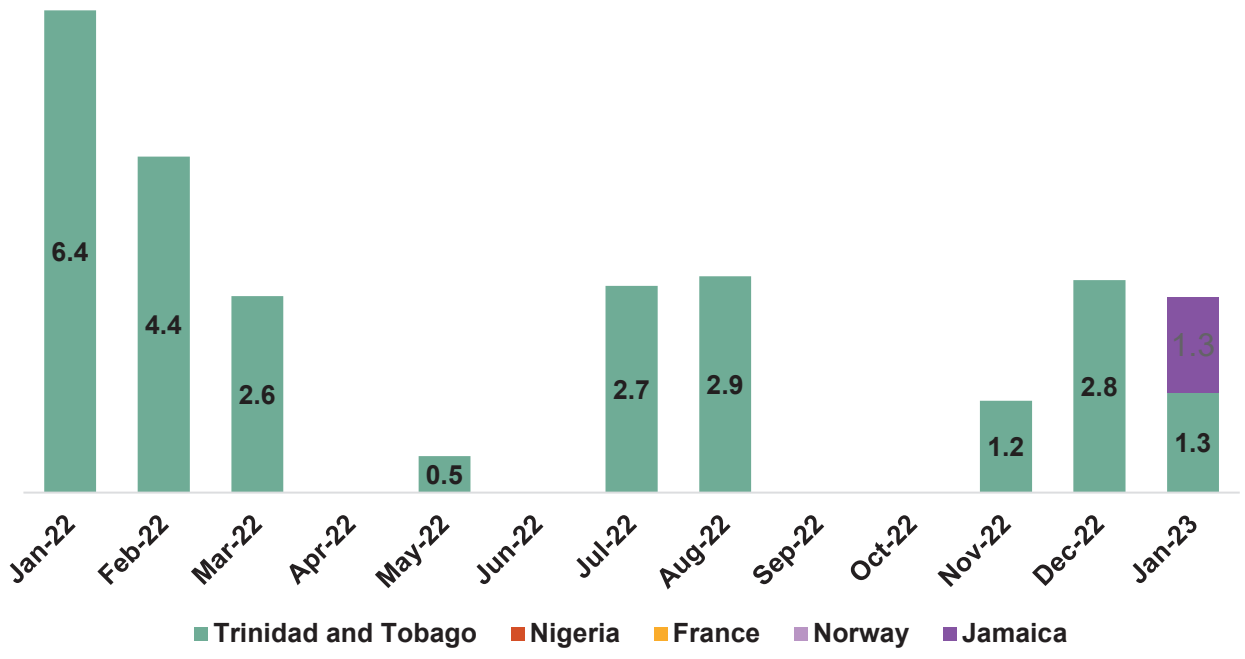
W - Withheld to avoid disclosure of individual company data.

DOE has a confidentiality policy for certain data elements collected on Form FE-746R that allows DOE to publish a monthly volume-weighted average price for each point of LNG import or export, but not a price for each individual imported or exported LNG cargo. For additional information, please see the Federal Register Notice concerning this Information Collection Extension at https://www.federalregister.gov/documents/2018/08/30/2018-18829/information-collection-extension.

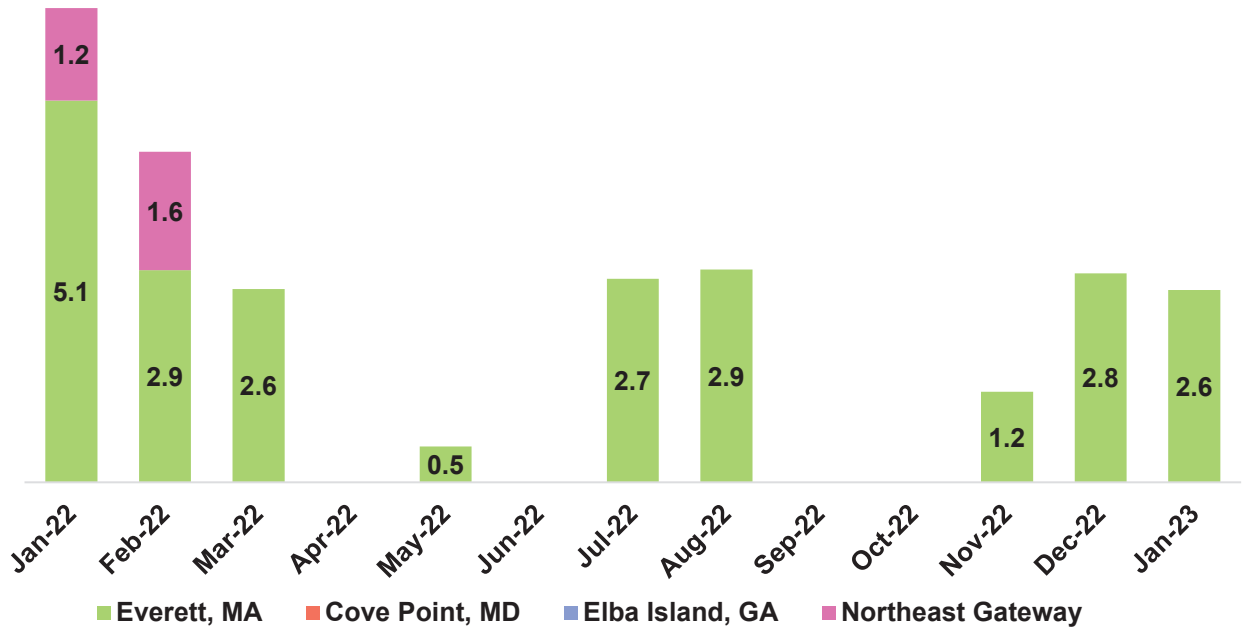
U.S. LNG by Vessel – Export and Re-Export Volumes
(Bcf)



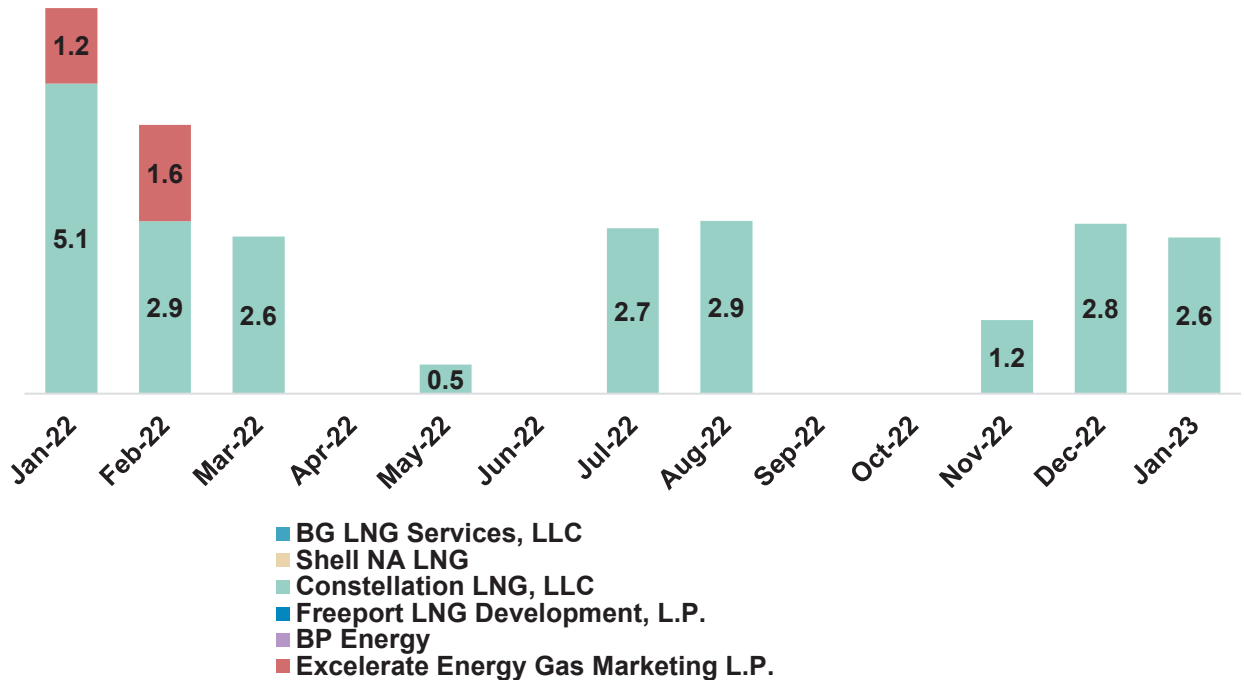
U.S. LNG Import Volume by Source Country
(Bcf)



U.S. LNG Import Volume by Terminal
(Bcf)



U.S. LNG Import Volume by Company
(Bcf)



https://ventureglobalIng.com/press/venture-global-announces-final-investment-decision-and-financial-close-for-phase-two-of-plaquemines-lng/

MARCH 13, 2023

VENTURE GLOBAL ANNOUNCES FINAL INVESTMENT DECISION AND FINANCIAL CLOSE FOR PHASE TWO OF PLAQUEMINES LNG

VENTURE GLOBAL ANNOUNCES FINAL INVESTMENT DECISION AND FINANCIAL CLOSE FOR PHASE TWO OF PLAQUEMINES LNG

- *$7.8 billion project financing for Phase Two completes approximately $21 Billion Plaquemines LNG project, the largest project financing ever done.*
- *Company issues full notice to proceed on construction for Phase Two.*
- *Plaquemines Phase Two is the first project to take FID in 2023 and is expected to be the next new LNG capacity in North America.*

Arlington, Virginia– Today Venture Global LNG is announcing a final investment decision (FID) and successful closing of the $7.8 billion project financing for the second phase of the Plaquemines LNG facility. Together, phase one and phase two represent approximately $21 billion of investment, the largest project financing ever done. The proceeds of the debt and equity financing fully fund the balance of construction and commissioning of the second phase of the 20MTPA nameplate capacity project. Today, the company also issued a full notice to proceed to KZJV to continue construction on phase two of Plaquemines LNG. “Venture Global is proud to announce a positive Final Investment Decision (FID) for phase two of Plaquemines LNG, less than 10 months after sanctioning phase one,” said **Mike Sabel, CEO of Venture Global LNG**. “Our company’s continued ability to commercialize, obtain financing and build our projects in an extremely competitive market is a testament to our team’s proven track record of discipline and execution. I would like to thank our customers, lenders, advisors, construction partners and local partners in Louisiana for their continued support. Our team will continue to deliver on our mission to bring more clean, low-cost US LNG to the global market in the coming years to support the world’s rapidly growing demand for energy.”

Plaquemines LNG has received all necessary permits, including FERC authorization and non-FTA export authorization from the U.S. Department of Energy. Plaquemines LNG phase two customers include ExxonMobil, Chevron, EnBW, New Fortress Energy, China Gas, PETRONAS and Excelerate

Energy. Marketing is actively underway for the company's third facility, CP2 LNG, and SPAs have been signed by CP2 LNG with Exxon Mobil, Chevron, EnBW, INPEX, China Gas and New Fortress Energy.

The lender group for the construction financing includes the world's leading banks. The lenders who provided funding at closing are: BBVA, Banco Santander, Bank of America, Bank of China, Caixa Bank, Deutsche Bank, Goldman Sachs, ICBC Standard, ING, J.P. Morgan Chase, LBBW, Mizuho, MUFG, Natixis, Royal Bank of Canada, Sumitomo Mitsui Banking Corporation, The Bank of Nova Scotia, Wells Fargo Bank, National Bank of Canada, KfW Ipex-Bank, Helaba, DZ Bank and Regions Bank.

ING, Santander, Mizuho, Scotia, and SMBC served as Lead Banks to Venture Global for the transaction. Latham & Watkins LLP served as counsel to Venture Global and Skadden, Arps, Slate, Meagher & Flom LLP served as counsel to the lenders.

About Venture Global LNG

Venture Global is a long-term, low-cost provider of U.S. LNG sourced from resource rich North American natural gas basins. Venture Global's first facility, Calcasieu Pass, commenced producing first LNG in January 2022. The company is also constructing or developing an additional 60 MTPA of production capacity in Louisiana to provide clean, affordable energy to the world. The company is developing Carbon Capture and Sequestration (CCS) projects at each of its LNG facilities.

Exxon Weighs Resuming Mozambican LNG Project With Bigger Output
2023-03-17 16:54:09.444 GMT
By Matthew Hill
(Bloomberg) -- Exxon Mobil Corp. is considering resuming a liquefied natural gas project in Mozambique, but with an even bigger capacity than the one it shelved partly because of an Islamic State-linked insurgency.
In a statement published Friday in Mozambican newspaper O Pais, the US energy giant called for expressions of interest to design and build an LNG plant producing as much as about 18 million tons a year. Earlier plans envisaged a 15.2 million-ton project.
Exxon's announcement comes after TotalEnergies SE said last month that it's considering restarting its own LNG export venture Mozambique's Cabo Delgado province. The projects were halted two years ago following an attack on the town of Palma, but a mix of local and foreign troops have since made progress in containing the violence that's left more than 4,600 people dead.
The LNG projects offer an economic lifeline for impoverished Mozambique, with potential investments exceeding the southern African nation's annual output. The government has also been counting on LNG export revenues to service its debt, including a $900 million eurobond.
Exxon is part of a consortium with Eni SpA of Italy, which in November exported Mozambique's first LNG production from a floating vessel offshore. That plant has an annual capacity of 3.4 million tons.
The much larger onshore project would involve modules of 1.5 million tons, according to the company's statement. The deadline for submitting expressions of interest is the end of this month.
"Modular is attractive, and potentially the best solution in Mozambique, from the standpoint that it offers the opportunity to build at scale while also mitigating some of the security risks during construction," said Alex Munton, director of global gas service at Rapidan Energy Group.
*T
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Read more:
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Why Insurgency Places Mozambique's Gas Riches at Risk:
QuickTakeTotal's LNG-Project Revival Crucial for Mozambique to Pay DebtTotal Won't Export LNG From Mozambique Until 2027 at Earliest
*T

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Dylan Griffiths

Total Won't Export LNG From Mozambique Until 2027 at Earliest
2023-03-13 12:19:37.688 GMT
By Matthew Hill
(Bloomberg) -- TotalEnergies SE won't export LNG from Mozambique before 2027 at the earliest, as it considers whether to restart a project halted two years ago by an Islamic State-linked insurgency.

The French energy giant declared a force majeure — a legal pause in a contract due to unforeseen events — in April 2021, after IS-linked rebels raided a nearby town, killing dozens of people. The resumption of the $20 billion project is seen as crucial to Mozambique's economic future, and has gained greater global significance after Russia's invasion of Ukraine forced European nations to seek alternative supplies of fuel.

"From the time we restart to production, we need another four years to build the facility," Stephane Le Galles, project director at TotalEnergies, said during a visit to the site in northeastern Mozambique last week. That means exports of liquefied natural gas would only begin in "2027 at the best," he said.

Since the attack on Palma — the town closest to the project site — the Mozambican government has asked for military help from Rwanda and a regional bloc to contain the insurgency. The security situation has improved, especially along the coastal strip in the far north where the project is located.

For TotalEnergies to lift the force majeure, there are four or five conditions that need to be met, said Le Galles. Those include:

* Government officials returning to the nearby towns of Palma and Mocimboa da Praia.
* Keeping the cost of the project "as it was before."
* Improved security conditions.
* A positive assessment of the human rights conditions in the province.

It's impossible to say when these conditions will be met, according to Le Galles, adding that progress was in a "good direction." In February, TotalEnergies Chief Executive Officer Patrick Pouyanne visited the project and appointed human rights expert Jean-Christophe Rufin to assess the situation in Cabo Delgado province, before deciding on any restart.

Rufin spent a month in Mozambique, speaking to the government, communities and development agencies, and is in the final stages of producing a report, according to Laila Chilemba, vice president for socio-economic development at TotalEnergies's Mozambique unit. The report should be ready in "the next days," she said.

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EDF Keeps Nuclear Output Target Amid Expanded Reactor Checks (1)
2023-03-16 19:37:53.123 GMT

By Francois de Beaupuy
(Bloomberg) -- Electricite de France SA said it would maintain its French nuclear power production forecast for 2023 even as it expands its reactor inspection program following the discovery of new cracks in pipes at some units.
The utility plans to generate between 300 and 330 terawatt-hours this year, an increase from 2022 and unchanged from its previous forecast, according to a statement. Earlier on Thursday, France's nuclear safety authority said the company's proposal is going in the right direction but may need some changes to bring forward maintenance halts at five reactors.
EDF is confident it can stick to the production forecast, even if the company has to perform some "targeted" extra repairs, Regis Clement, deputy-head for nuclear production, told reporters. The plan is to complete 92% of the most urgent checks during planned stoppages this year and the remainder next year, he said.
The company has already signed contracts to have extra weld inspectors, as well as the ability to make additional repairs if needed, Clement said.
EDF's nuclear power production fell 23% last year to 279 terawatt-hours, the lowest since 1988, as a dozen reactors were halted for lengthy checks and pipe replacements following the discovery of stress-corrosion cracks in late 2021. That made Europe more dependent on fossil fuels just as Russia squeezed natural gas exports, raising concerns about energy shortages.
Read more: Cracking Under Pressure: The Race to Fix France's Nuclear Plants
Power prices in France and neighboring countries rose last week after the nuclear behemoth said it had found new pipe defects during checks and repairs at some plants. The nuclear safety authority subsequently asked the utility to take into account the new findings in its 2023 inspection plan, which already includes lengthy halts to repair or upgrade its reactors.
EDF's proposal to address these fresh concerns would increase the number of checks this year on pipe welds to 270, from 220 previously, Julien Collet, the authority's deputy director general of France's nuclear safety authority, told reporters. The watchdog still has questions about the timetable for outages at five reactors currently scheduled after the summer and into 2024, Collet said.
Because of the pipe-replacement works, EDF's nuclear output was 8% lower from January to February compared with a year earlier. March hasn't looked better as the company's workers regularly went on strike to protest a government plan to increase the retirement age. The labor actions are also halting or slowing maintenance work at more than half a dozen nuclear power stations across the country, according to a tally provided

by the CGT labor union.
All of this makes the company's 2023 nuclear output goal look challenging, Virginie Neumayer, a CGT union representative at the utility, told Bloomberg on Wednesday.

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To view this story in Bloomberg click here:
https://blinks.bloomberg.com/news/stories/RRMNXZT0AFB4

EDF Told to Review Reactor-Check Plans After New Crack Found (1)
2023-03-08 11:55:32.342 GMT

By Francois de Beaupuy
(Bloomberg) -- Electricite de France SA must review its program of reactor checks after finding yet another crack earlier this year, the country's nuclear safety authority said.
It's not clear how the review will affect nuclear output, which EDF expects to recover this year after plunging in 2022 amid multiple halts for repairs. The shutdowns, caused by stress corrosion cracks on cooling-system pipes, added pressure to Europe's strained energy system as Russian gas supplies dwindled.
EDF said last month it found a crack on a pipe at its Penly-1 reactor, which was already offline for maintenance and repairs. The defect is located near a weld that had been mended twice during construction of the plant, which was commissioned in the early 1990s.
The latest crack, as much as 23 millimeters (almost 1 inch) deep, means the resilience of the pipe can't be assured, the Autorite de Surete Nucleaire said in a statement Tuesday. Given that EDF hadn't previously expected that section to be prone to stress corrosion, it must now revise its strategy, the ASN said.
"The discovery of this materially worse-than-expected defect is likely to lead to more rigorous quality control and potentially longer outages," JPMorgan Chase & Co. analyst Vincent Ayral wrote in a note. "If this were to be the case, we would expect the French power-price outlook to increase," with some "spillover effect" into neighboring markets.
Read more: European Energy Prices Jump as French Nuclear Concerns Return
Following the discovery of corrosion cracking at a reactor in 2021, EDF opened a wide-ranging investigation. The probe found that the company's 16 newest units — including its two Penly reactors — were more prone to the phenomenon mostly because of the sinuous design of their emergency cooling pipes. Yet cracks may also be caused by welding and other defects.
The fissure at Penly-1 "was probably generated by a targeted double-repair operation during the initial pipe layout," EDF said Feb. 24. "This will lead to repairs to the affected area."
EDF is currently checking welds on other emergency cooling lines that have been mended in the past, according to the ASN.
The utility's nuclear output sank last year to the lowest since 1988 as it halted about a dozen of its 56 reactors to replace cracked pipes. Repairs continue at several units and more pipe replacements are planned later this year at a handful of plants, while the rest of the fleet is due to be progressively checked up until 2025.
Read more: Cracking Under Pressure - The Race to Fix France's Nuclear Plants

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BN 03/09 18:32 EDF Finds New Defects at Two Reactors, Stoking Power-Supply Woes
BN 03/09 18:03 *EDF FINDS THERMAL FATIGUE DEFECTS AT PENLY2, CATTENOM3 REACTORS

EDF Finds New Flaws at 2 Reactors, Stoking Power-Supply Woes (2)

2023-03-09 19:38:13.732 GMT

By Francois de Beaupuy
(Bloomberg) -- Electricite de France SA discovered new defects at two of its nuclear reactors that were halted for maintenance and repairs, raising fresh concerns that its electricity output will remain largely constrained this year after plunging in 2022.

Flaws tied to so-called thermal fatigue have been found on the pipes of the Penly-2 and Cattenom-3 reactors, the utility said in a statement. The pipes have been replaced as part of broader repairs related to “stress corrosion” cracks — a different type of faults — that are affecting emergency cooling pipes of some of the EDF’s atomic plants, according to the nuclear safety authority.

The nuclear giant has been forced to halt more than a dozen of its 56 reactors for months of repairs since it first found signs of such stress corrosion phenomenon in late 2021.

The announcement comes just days after the country’s nuclear safety authority asked EDF to revise its program of reactor checks following the utility’s discovery of a “significant” stress corrosion crack earlier this year on its Penly-1 reactor. EDF said it will propose an update of its reactor check strategy to the watchdog in the coming days.

The fresh setbacks could force EDF to carry out more extensive checks on its atomic plants, reviving concern that France will have to import large amounts of power this year. Last year, worries about electricity shortages combined with dwindling deliveries of Russian gas pushed European energy prices to records.

French power for delivery in 2024 jumped as much as 9% to 176.50 euros a megawatt-hour, the biggest increase since Jan. 20 on EEX.

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For Immediate Release
March 15, 2023
Lynn Helms, Ph.D., Director ND Department of Mineral Resources

NORTH Dakota | Mineral Resources
Be Legendary.™

North Dakota Department of Mineral Resources March Director's Cut and January 2023 Production Numbers

Oil Production Numbers

December	29,693,769 barrels	= 957,864 barrels/day (final)
New Mexico	50,857,480 barrels	= 1,640,564 barrels/day **+3%**
January	32,881,946 barrels	= 1,060,708 barrels/day **+11%** **RF +6.1%**
	1,519,037	all-time high Nov 2019
	1,022,986 barrels/day	= 96% from Bakken and Three Forks
	37,722 barrels/day	= 4% from Legacy Pools

Revised Revenue Forecast **1,000,000 barrels/day**

Crude Price ($barrel)	**ND Light Sweet**	**WTI**	**ND Market**	
December	73.89	76.52	75.21	**RF+0%**
January	73.35	78.16	75.76	**RF+1%**
Today	67.75	71.33	69.54	**Est. RF-7%**
All-time high (6/2008)	125.62	134.02	126.75	
Revised Revenue Forecast			**75.00**	

Gas Production and Capture

December - Final	81,948,643 MCF	=	2,643,505 MCF/Day	
94% Capture	76,647,186 MCF	=	2,472,490 MCF/Day	
January - Prelim	87,871,026 MCF	=	2,834,549 MCF/Day	**+7.23%**
95% Capture	83,084,273 MCF	=	2,680,138 MCF/Day	
			3,175,779 all-time high 9/2022	
			3,021,655 all-time high 9/2022	

Wells Permitted	Drilling
December	94
January	79
February	70

Rig Count		
December	44	
January	46	
February	46	
Today	45	All time high 218 in 5/29/2012
Federal Surface	1	
New Mexico	106	

Waiting on Completions	
December	450
January	469

Inactive	
December	2,613
January	1,998

Completed		
December	104 (Preliminary)	
January	67 (Preliminary)	
February	96 (Preliminary)	**RF+60%**
Revised Rev Forecast	30-40-50-60	

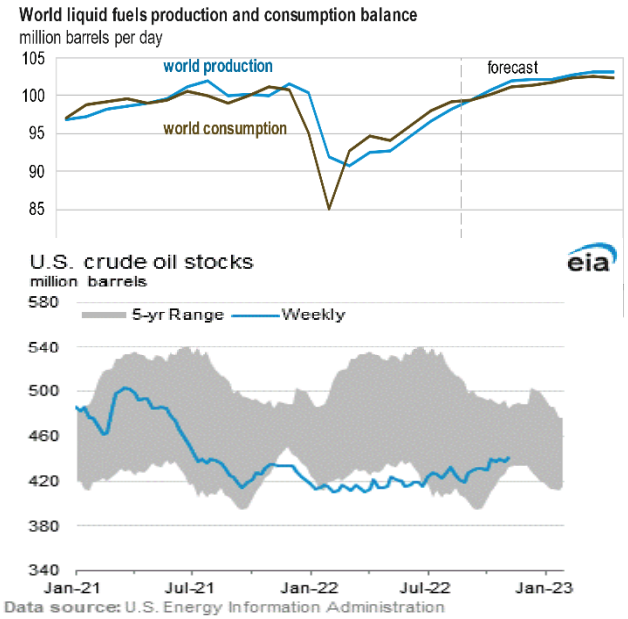
Producing		
December	17,233	
January	17,269 (Preliminary)	NEW all-time high 17,791 10/2022
	15,168 wells	88% are now unconventional Bakken/Three Forks Wells
	2,101 wells	12% produced from legacy conventional pools

Fort Berthold Reservation Activity

	Total	Fee Land	Trust Land
Oil Production (barrels/day)	146,949	50,125	96,824
Drilling Rigs	4	3	1
Active Wells	2,640	649	1,991
Waiting on Completion	19		
Approved Drilling Permits	246	31	215
Potential Future Wells	3,912	1,115	2,797

Comments:

The drilling rig count has stalled in the mid-forties, with a gradual increase expected over the next two years.



There are now 18 crews active.

OPEC+ is managing production month to month. Russia sanctions, China economic activity, and looming recessions continue to create significant price volatility.

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 had been reached.

Drilling activity is expected to increase slowly, with operators maintaining a permit inventory of approximately 12 months.

There is 1 survey active, 1 recording, 0 NDIC reclamation projects, 0 remediating, 1 permitted, 6 suspended.

US natural gas storage is 22% above the five-year average. Both US and world crude oil inventories are above normal while the US strategic petroleum reserve is at the lowest level since 1983.

The price of natural gas delivered to Northern Border at Watford City has increased to $2.08/MCF today but remains at the lowest level since the pandemic due to oversupply in the Midwest US even as LNG prices in Europe remain very high. Current oil to gas price ratio is 33 to 1. The state-wide gas flared volume from November to December

decreased 16.6 MMCFD to 154.4 MMCF per day, the statewide percent flared decreased to 5% while Bakken gas capture percentage increased to 95%. The historical high flared percent was 36% in 09/2011.

Gas capture details are as follows:

Statewide	95%
Statewide Bakken	95%
Non-FBIR Bakken	95%
FBIR Bakken	96%
Trust FBIR Bakken	96%
Fee FBIR	95%
Big Bend	93%
Deep Water Creek Bay	83%
Twin Buttes	71%
Charlson	87%

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

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 canceled the Q1 2022 lease sale but have now published a potential Q2 sales listing with a protest period ending 5/18/22.

North Dakota filed a motion for preliminary injunction on 1/6/23 and Judge Traynor issued an order for parties to show cause whether the preliminary injunction and mandamus cases should be consolidated.

MONTHLY UPDATE

MARCH 2023 PRODUCTION & TRANSPORTATION

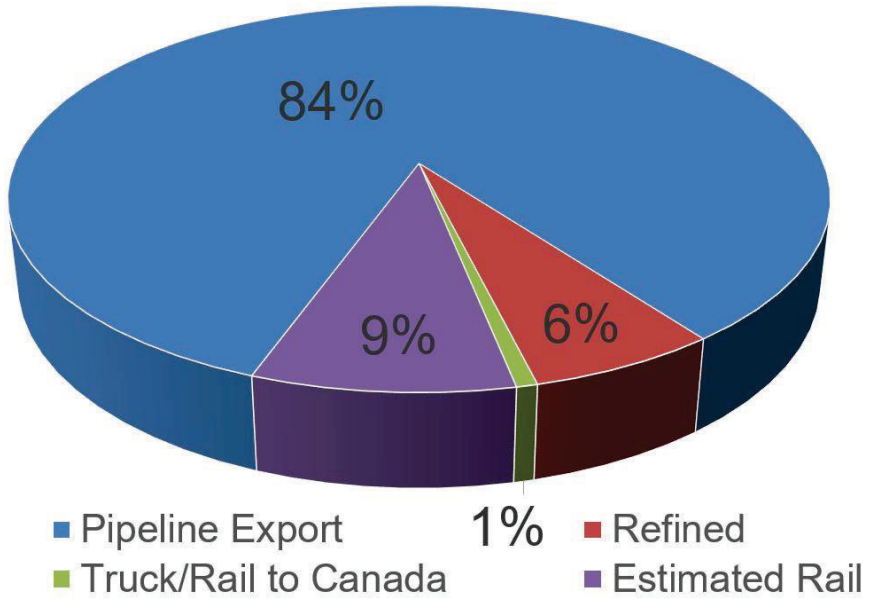
North Dakota Oil Production

Month	Monthly Total, BBL	Average, BOPD
Dec. 2022 - Final	29,693,769	957,864
Jan. 2023 - Prelim.	32,881,946	1,060,708

North Dakota Natural Gas Production

Month	Monthly Total, MCF	Average, MCFD
Dec. 2022 - Final	81,948,643	2,643,505
Jan. 2023 - Prelim.	87,871,026	2,834,549

Estimated Williston Basin Oil Transportation, Jan. 2023



CURRENT DRILLING ACTIVITY:

NORTH DAKOTA[1]

44 Rigs

EASTERN MONTANA[2]

1 Rigs

SOUTH DAKOTA[2]

0 Rigs

SOURCE (MAR 14, 2023):

1. ND Oil & Gas Division
2. Baker Hughes

PRICES:

Crude (WTI): $71.33

Crude (Brent): $77.45

NYMEX Gas: $2.57

SOURCE: BLOOMBERG (MAR 14 2023 3PM EST)

GAS STATS*

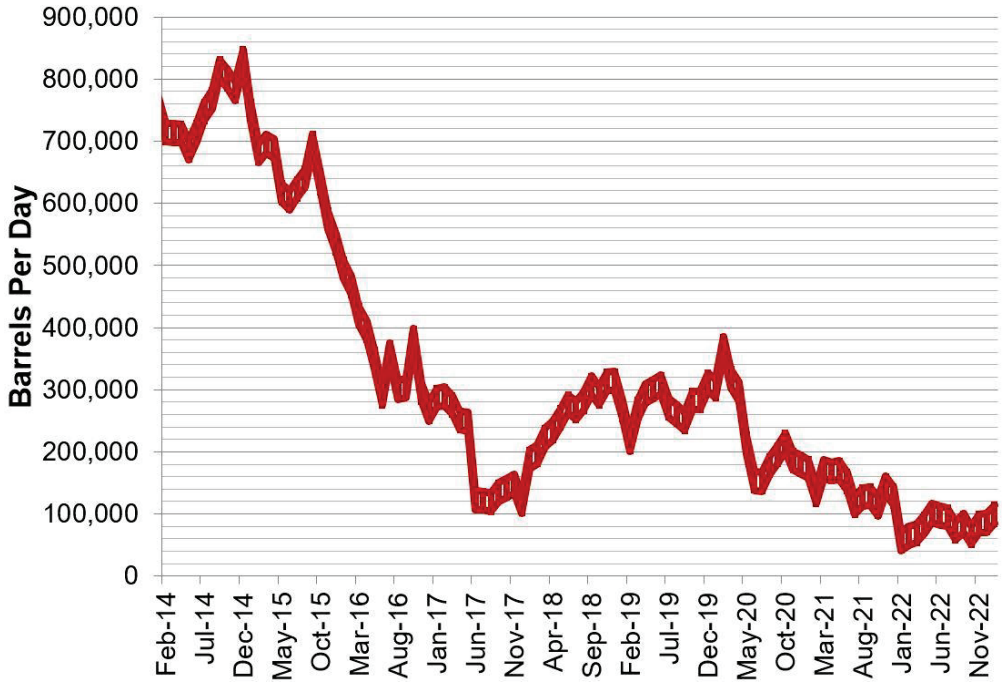
95% CAPTURED & SOLD

4% FLARED DUE TO CHALLENGES OR CONSTRAINTS ON EXISTING GATHERING SYSTEMS

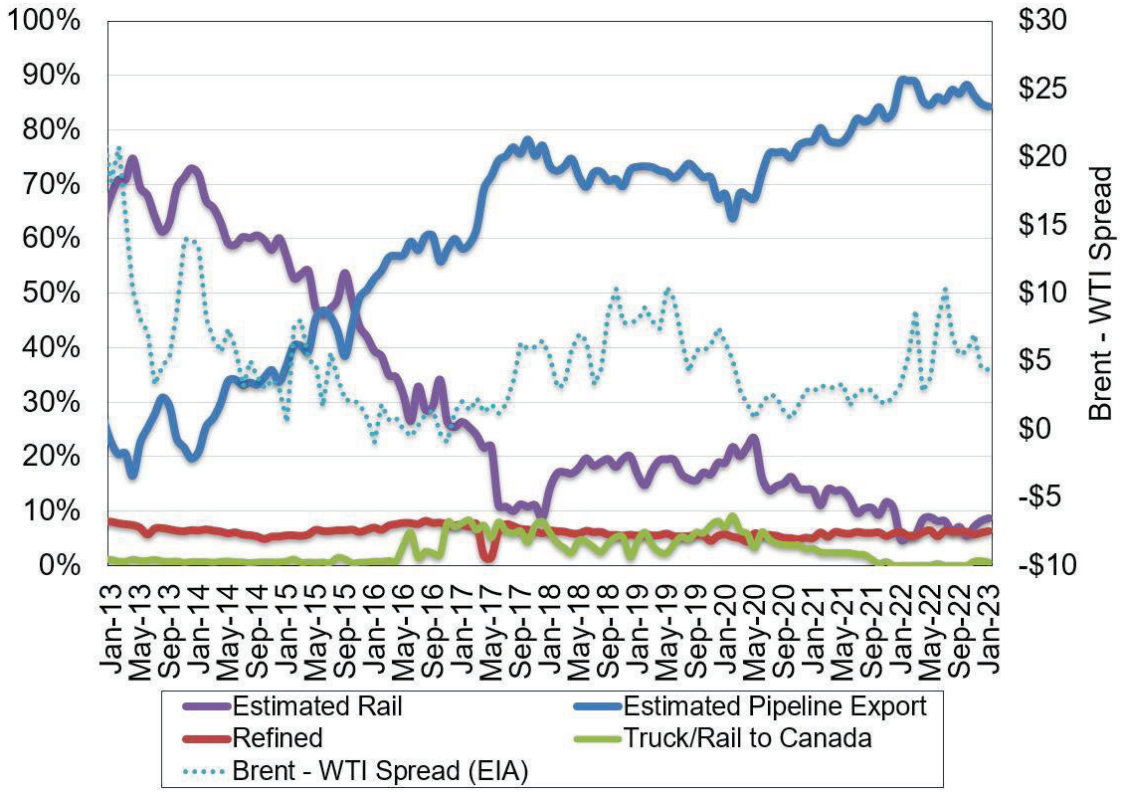
1% FLARED FROM WELL WITH ZERO SALES

JAN. 2023 NON-CONF DATA

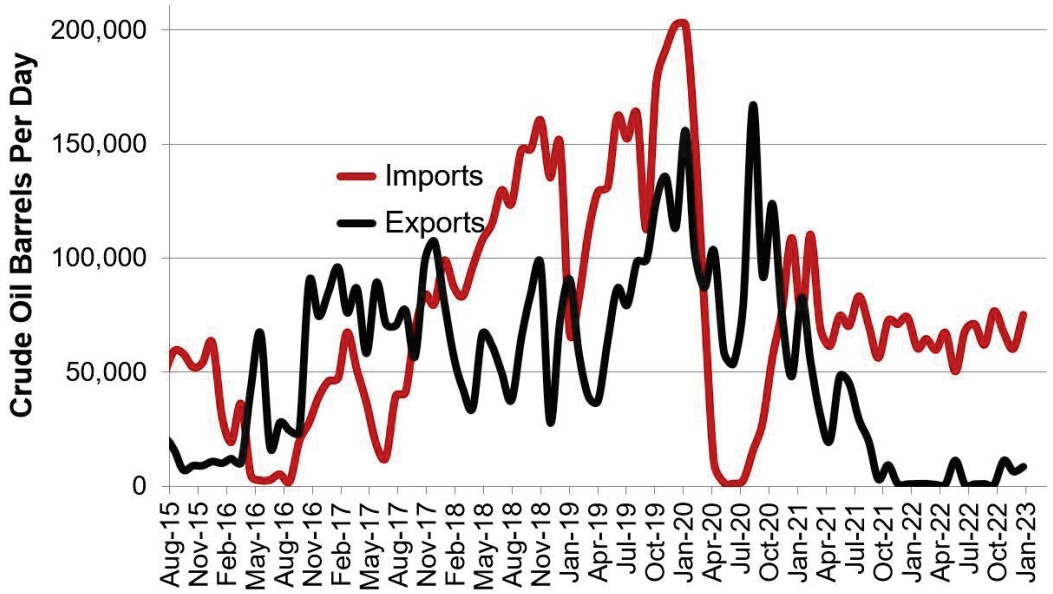
Estimated North Dakota Rail Export Volumes



Estimated Williston Basin Oil Transportation

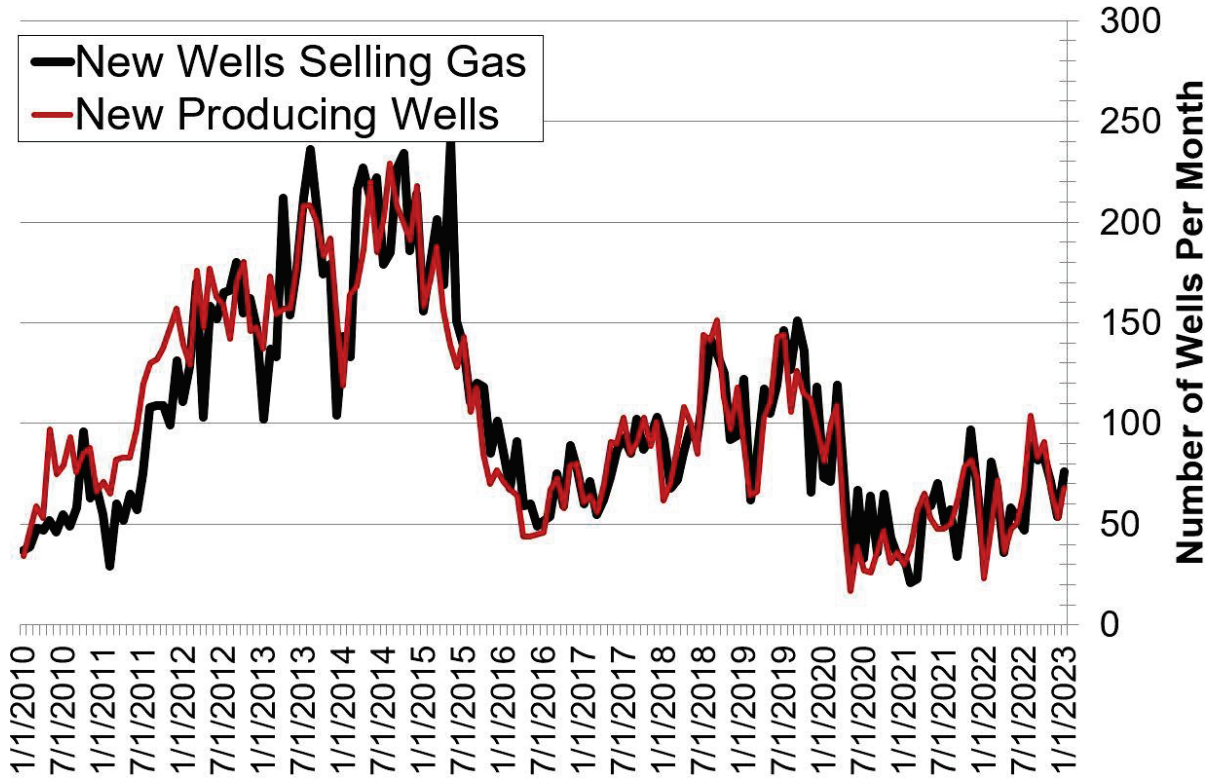


Williston Basin Truck/Rail Imports and Exports with Canada



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

2022

MONTH	ND	EASTERN MT*	SD	TOTAL
January	1,091,932	51,895	2,709	1,146,536
February	1,095,458	51,165	2,742	1,149,365
March	1,129,880	54,580	2,709	1,187,169
April	908,339	54,118	2,338	964,795
May	1,062,157	52,499	2,648	1,117,304
June	1,099,408	63,258	2,764	1,165,430
July	1,073,610	60,602	2,774	1,136,986
August	1,075,289	60,514	2,756	1,138,559
September	1,121,063	58,102	2,679	1,181,845
October	1,121,754	53,983	2,621	1,178,357
November	1,098,389	56,155	2,682	1,157,227
December	957,864		2,199	

2023

MONTH	ND	EASTERN MT*	SD	TOTAL
January	1,060,708			
February				
March				
April				
May				
June				
July				
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*

businesswire
A BERKSHIRE HATHAWAY COMPANY

ExxonMobil

ExxonMobil Boosts Fuel Supply with $2 Billion Beaumont Refinery Expansion

- Largest refinery expansion in U.S. since 2012, equivalent to adding a medium-sized refinery
- $2 billion project increases capacity for transportation fuels by 250,000 barrels per day
- Well executed from design to startup, global project comes online on time and on budget

ExxonMobil’s Beaumont refinery expansion will increase capacity for transportation fuels by 250,000 barrels per day at its Beaumont facility. The added volume in Beaumont brings total processing capacity to more than 630,000 barrels per day, making it one of the largest refineries in the United States. (Photo: Business Wire)

March 16, 2023 06:00 AM Eastern Daylight Time

IRVING, Texas--(BUSINESS WIRE)--ExxonMobil today announced the successful startup of its Beaumont refinery expansion project, which adds 250,000 barrels per day of capacity to one of the largest refining and petrochemical complexes along the U.S. Gulf Coast. Supported by the company’s growing crude production in the Permian Basin, the largest refinery expansion in more than a decade will help meet growing demand for affordable, reliable energy.

“ExxonMobil maintained its commitment to the Beaumont expansion even through the lows of the pandemic, knowing consumer demand would return and new capacity would be critical in the post-pandemic economic recovery,” said Karen McKee, president of ExxonMobil Product Solutions. “The new crude unit enables us to produce even more transportation fuels at a time when demand is surging. This expansion is the equivalent of a medium-sized refinery and is a key part of our plans to provide society with reliable, affordable energy products.”

The added volume in Beaumont increases its total processing capacity to more than 630,000 barrels per day, making it one of the largest refineries in the United States.

The refinery is connected to pipelines from ExxonMobil’s operations in the U.S. Permian Basin, providing the company with significant strategic advantages. Permian crude oil is processed at the Beaumont refinery where the company manufactures finished products, including diesel, gasoline, and jet fuel. With the completion of Wink to Webster and

Beaumont pipelines, the new crude unit will also be well-positioned to further capitalize on segregated crude from the Delaware Basin.

In 2022, ExxonMobil reached record production at its North American refineries and achieved its highest global throughput since 2012. The company's commitment and capability to meet society's energy needs includes its willingness to invest, even counter cyclically.

Construction on the Beaumont expansion began in 2019 and involved 1,700 contractors. ExxonMobil has hired more than 50 full-time employees to help with the operation of the expanded refinery. The company's extensive project management experience enabled the new crude and hydrotreater units to startup according to planned cost and schedule.

ExxonMobil's integrated operations in Beaumont also include chemical, lubricants and polyethylene plants. ExxonMobil has approximately 2,100 employees in the Beaumont area and its operations account for approximately 1 in every 7 jobs in the region.

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About ExxonMobil

ExxonMobil, one of the largest publicly traded international energy and petrochemical companies, creates solutions that improve quality of life and meet society's evolving needs.

The corporation's primary businesses - Upstream, Product Solutions and Low Carbon Solutions - provide products that enable modern life, including energy, chemicals, lubricants, and lower emissions technologies. ExxonMobil holds an industry-leading portfolio of resources, and is one of the largest integrated fuels, lubricants and chemical companies in the world.

In 2021, ExxonMobil announced Scope 1 and 2 greenhouse gas emission-reduction plans for 2030 for operated assets, compared to 2016 levels. The plans are to achieve a 20-30% reduction in corporate-wide greenhouse gas intensity; a 40-50% reduction in greenhouse gas intensity of upstream operations; a 70-80% reduction in corporate-wide methane intensity; and a 60-70% reduction in corporate-wide flaring intensity.

With advancements in technology and the support of clear and consistent government policies, ExxonMobil aims to achieve net-zero Scope 1 and 2 greenhouse gas emissions from its operated assets by 2050. To learn more, visit exxonmobil.com, the Energy Factor, and ExxonMobil's Advancing Climate Solutions.

Follow us on Twitter and LinkedIn.

Cautionary Statement

Statements related to outlooks; projections; descriptions of strategic, operating, and financial plans and objectives; statements of future ambitions and plans; and other statements of future events or conditions, are forward-looking statements. Forward-looking statements are based on current expectations, estimates, projections and assumptions at the time the statements are made. Actual future results, including project plans, schedules, costs, returns, and capacities; ultimate recoveries; operating performance and demand projections could differ materially due to changes in market conditions affecting the oil and gas industry or long-term oil and gas price levels; political or regulatory developments; reservoir performance; the availability of feedstocks; timely completion of development projects; technical or operating factors; the outcome of future commercial negotiations, including final agreed terms and conditions; unforeseen technical or operating difficulties and unplanned maintenance; and other factors discussed under the heading "Factors Affecting Future Results" in the Investor Information section of our website (www.exxonmobil.com) and in Item 1A of our most recent Form 10-K. The term "project" as used in this release can refer to a variety of different activities and does not necessarily have the same meaning as under any government payment transparency reports.

https://www.eni.com/en-IT/media/press-release/2023/03/eni-announces-new-discovery-offshore-mexico.html

Eni announces a new discovery offshore Mexico

17 MARCH 2023 - 10:00 AM CET

San Donato Milanese (Milan), 17 March 2023 – Eni announces a new discovery on the Yatzil exploration prospect in Block 7, located in the mid-deep water of the Cuenca Salina in the Sureste Basin, offshore Mexico. According to preliminary estimates, the new finding may contain around 200 million barrels of oil (MBoe) in place.

Yatzil-1 EXP is the second commitment well of Block 7 and the eight successful one drilled by Eni in the Sureste Basin. It is located approximately 65 kilometers off the coast, and 25-30 km away from other discoveries. The well was drilled by the Valaris DPS5 Semisub rig in a water depth of 284 meters and reached a total depth of 2,441 meters. Yatzil-1 EXP found in excess of 40 meters of net pay sands with good quality oil in the Upper Miocene sequences with excellent petrophysical properties confirmed by an extensive subsurface data collection.

The successful result comes after the Saasken and Sayulita discoveries in Block 10 and confirms the value of Eni's Mexican asset portfolio, contributing to the potential synergic cluster development of several prospects located nearby.

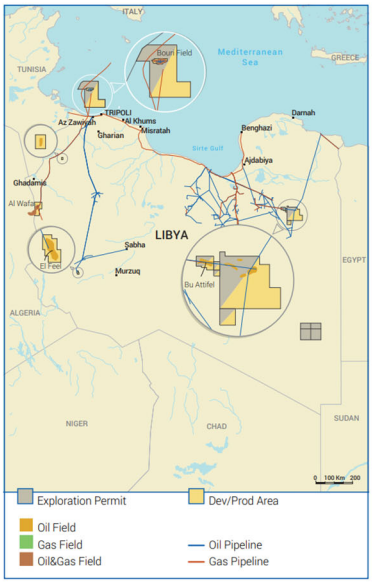
The Block 7 Joint Venture is composed by Eni, which is the operator with a 45% stake, Capricorn (30%) and Citla Energy (25%).

Mexico, a core country in Eni organic growth, is currently producing more than 30,000 barrels of oil equivalent per day (boed) from Area 1 phased development project, which is expected to be completed by 2025.

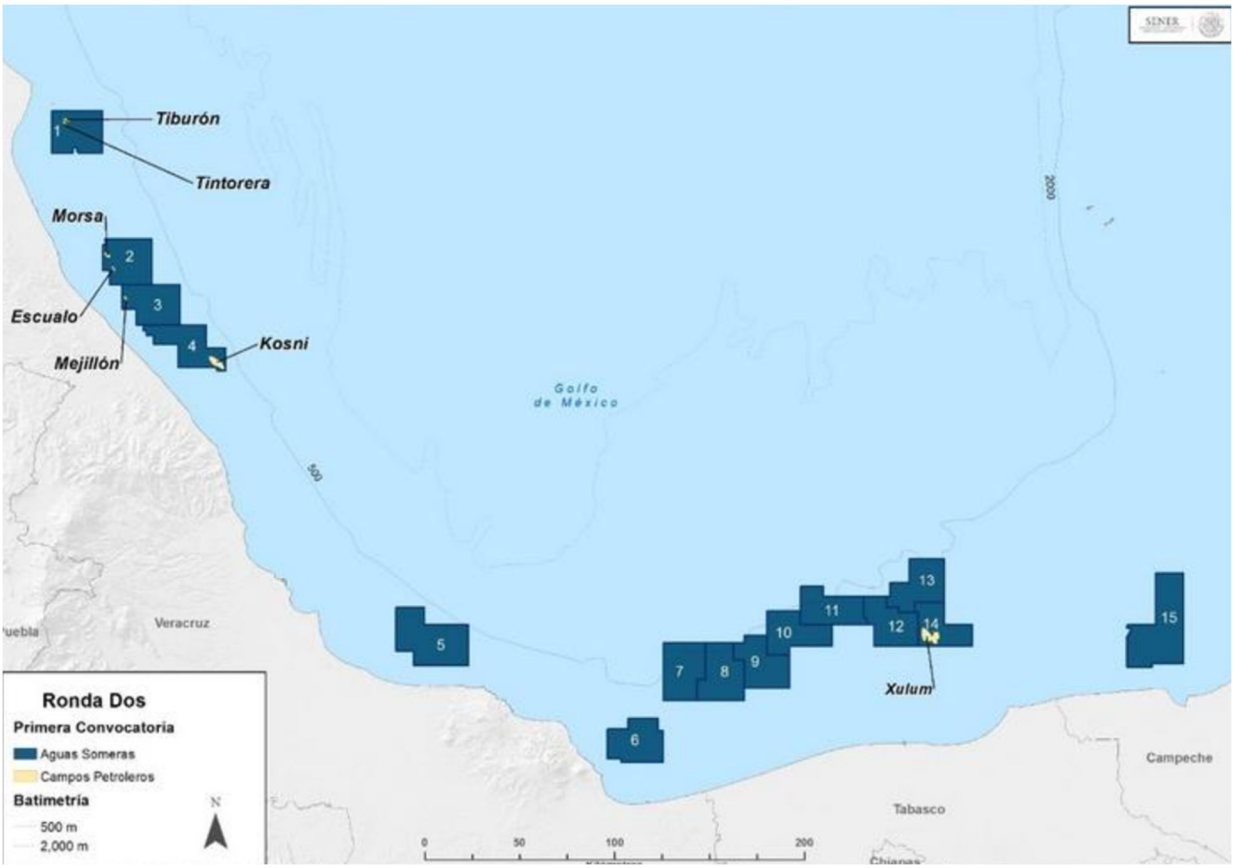
Eni has been present in Mexico since 2006 and established its wholly owned subsidiary Eni Mexico S. de R. L. de C.V. in 2015. Currently Eni holds rights in eight exploration and production blocks (six as the Operator), all located in the Sureste Basin in the Gulf of Mexico.

Lebanon

Libya



Mexico



https://www.riyadhair.com/pages/media-center/articles/articleOne.html

12 March 2023

HRH Crown Prince Announces “Riyadh Air” – New National Carrier to Further Expand Saudi Aviation Ecosystem Locally and Globally

- **Riyadh will be the company’s operational hub, and will connect the Saudi capital to over 100 destinations globally**
- **The new carrier will acquire modern aircraft equipped with the latest technology, and will adopt world class sustainability and safety practices**
- **Riyadh Air will usher in a new era for the travel and aviation industry globally and will provide tourists from around the world the opportunity to visit Saudi Arabia’s cultural and natural attractions**
- **The establishment of the airline is aligned with PIF’s mandate to further enable the aviation ecosystem in Saudi Arabia**

RIYADH, 12 March 2023 – His Royal Highness Crown Prince Mohammad bin Salman bin Abdulaziz, Prime Minister and Chairman of the Public Investment Fund (“PIF”), announced today the establishment of “Riyadh Air,” a PIF wholly owned company. The new national carrier will leverage Saudi Arabia’s strategic geographic location between the three continents of Asia, Africa and Europe, enabling Riyadh to become a gateway to the world and a global destination for transportation, trade, and tourism.

Riyadh Air will be chaired by His Excellency Yasir Al-Rumayyan, Governor of PIF, while Tony Douglas, who brings more than 40 years of experience in the aviation, transportation and logistics industries, has been appointed Chief Executive Officer. The airline’s senior management will include Saudi and international expertise.

Operating from Riyadh as its hub, the airline will usher in a new era for the travel and aviation industry globally. Riyadh Air will be a world-class airline, adopting the global best sustainability and safety standards across its advanced fleet of aircraft equipped with the latest cutting-edge technology. The airline is expected to add USD20 billion to non-oil GDP growth, and create more than 200,000 direct and indirect jobs.

As a wholly owned PIF subsidiary, the new national airline is set to benefit from PIF’s investment expertise and financial capabilities while expanding on the company’s operations to become a leading

national carrier. The new national airline represents PIF’s latest investment in the sector, along with the recently announced King Salman International Airport masterplan.

Riyadh Air aims to enhance customers’ journey while connecting them to over 100 destinations around the world by 2030; through offering an exceptional experience with an authentic, warm Saudi hospitality at its heart.

The airline will provide tourists from around the world the opportunity to visit Saudi Arabia’s cultural and natural attractions. Riyadh Air will also serve as a catalyst for the Saudi National Transport and Logistics Strategy and the National Tourism Strategy by increasing air transport options, raising cargo capacity and, in turn, growing international passenger traffic.

The establishment of Riyadh Air is part of PIF’s strategy to unlock the capabilities of promising sectors that can help drive the diversification of the local economy. It will enable a more financially resilient aviation ecosystem in Saudi Arabia, supporting the industry’s global competitiveness in line with Vision 2030.

Oil Market Highlights

Crude Oil Price Movements

The OPEC Reference Basket (ORB) value rose by 26¢, or 0.3%, m-o-m in February to average $81.88/b. The ICE Brent front-month contract declined by 37¢, or 0.4%, m-o-m to $83.54/b and the NYMEX WTI front-month contract fell by $1.30, or 1.7%, m-o-m to average $76.86/b. In contrast, the DME Oman front-month contract increased by $1.08, or 1.3%, m-o-m reaching $81.97/b. The front-month ICE Brent/NYMEX WTI spread widened again in February by 93¢ m-o-m to average $6.68/b. The market structure of ICE Brent and DME Oman strengthened in February and the first-to-third month spread moved into wider backwardation. However, the NYMEX WTI price structure remained in contango. Hedge funds and other money managers raised ICE Brent bullish positions m-o-m in February but cut WTI-related futures and options net-long positions in the first three weeks of the month.

World Economy

The world economic growth forecast for 2022 is revised up slightly to 3.2%, given the better-than-anticipated economic performance in 2H22 in various key economies. The 2023 global economic growth forecast remains unchanged at 2.6%. For the US, the economic growth forecast is unchanged, standing at 2.1% for 2022 and 1.2% for 2023. Similarly, the Euro-zone's economic growth forecast remains at 3.5% for 2022 and 0.8% for 2023. Japan's economic growth forecast for 2022 is revised down to 1%, following the release of the government's estimate, while the growth forecast for 2023 remains at 1.2% for 2023. China's economic growth forecast remains at 3% for 2022 and 5.2% for 2023. India's 2022 economic growth estimate is revised down slightly to 6.7%, considering official 2022 data, while the forecast for 2023 remains at 5.6%. Brazil's economic growth is adjusted based on the officially reported growth level of 2.9% for 2022 and remains at 1% for 2023. Russia's statistical office reported a contraction of 2.1% in 2022. This is expected to be followed by a smaller contraction of 0.5% in 2023. Although growth momentum is expected to carry over into 2023, the global economy will continue navigating through challenges amid high global inflation, likelihood of further rate hikes particularly in the Euro-zone and the US, high debt levels in many regions, and geopolitical uncertainties.

World Oil Demand

World oil demand growth in 2022 remains at 2.5 mb/d, broadly unchanged from last month's assessment. Oil demand for OECD Americas and OECD Europe is adjusted lower, reflecting weaker-than-expected demand, but oil demand in Asia Pacific and non-OECD countries is revised higher, reflecting better-than-expected improvements in these regions. For 2023, the world oil demand growth forecast remains unchanged at 2.3 mb/d, with the OECD Americas and OECD Europe revised slightly lower, while China is revised higher, with jet/kerosene and gasoline leading demand growth. OECD demand is expected to grow by 0.2 mb/d, while non-OECD is forecast to grow by 2.1 mb/d.

World Oil Supply

Non-OPEC liquids supply is estimated to have grown by 1.9 mb/d in 2022, broadly unchanged from the previous assessment. Minor downward revisions to OECD Europe and OECD Americas were largely offset by upward revisions to liquids production in the non-OECD. The main drivers of liquids supply growth for 2022 are seen to be the US, Russia, Canada, Guyana, China and Brazil, while the largest declines are expected from Norway and Thailand. For 2023, non-OPEC liquids production growth remains unchanged from last month and is forecast to grow by 1.4 mb/d. The main drivers of liquids supply growth are expected to be the US, Brazil, Norway, Canada, Kazakhstan and Guyana, while the decline is expected primarily in Russia. Nevertheless, large uncertainties remain over the impact of ongoing geopolitical developments, as well as the output potential for US shale in 2023. OPEC NGLs and non-conventional liquids are forecast to grow by 0.1 mb/d in 2022 to average 5.39 mb/d and by 50 tb/d to average 5.44 mb/d in 2023. OPEC-13 crude oil production in February increased by 117 tb/d m-o-m to average 28.92 mb/d, according to available secondary sources.

Product Markets and Refining Operations

Refinery margins in February underwent a counter seasonal downturn to show solid losses in all main trading hubs despite rising global offline capacities as maintenance work intensified. Most of the weakness stemmed from the middle section of the barrel, as a result of increased arrivals of middle distillates in Europe, mainly from the East. The high product availability in Europe, amid weaker US product exports and strong refinery product output levels in Asia, led to stock builds and caused jet fuel and gasoil margins to experience massive losses across all regions. Global refinery processing rates continued to decline in February, losing nearly 646 tb/d, according to preliminary estimates.

Tanker Market

Dirty freight rates improved in February, with m-o-m gains in VLCCs and Suezmaxes outpacing declines in Aframaxes. VLCCs picked up from a relatively lower base, as renewed demand for long-haul vessels strengthened rates. Rates on the Middle East-to-East route rose 22% m-o-m. Gains in Suezmax spot freight rates earned back some of the previous month's losses with rates on the US Gulf Coast-to-Europe route up 18% compared with the previous month. By contrast, Aframax rates fell from high levels. Spot freight rates on the intra-Med route declined 18% m-o-m. Clean rates edged up, as West of Suez rose 14% and East of Suez rates slipped 4%. Rates in the Atlantic basin claimed back some of the previous month's losses.

Crude and Refined Products Trade

Preliminary data shows US crude exports set a record high of 4.3 mb/d in February. US crude imports declined from a three-year high the month before to an average 6.4 mb/d in February. Preliminary aggregate customs data showed China's crude imports declined in January and February 2023 from the high levels seen in the previous three months to an average 10.4 mb/d. China's product exports were lower in the first two months of the year, averaging 1.6 mb/d, falling from an almost three-year high the month before, with losses seen across all major products. India's crude imports rose 2% in January to average 4.7 mb/d, as refiners returned from maintenance and boosted inflows of discounted Russian grades. India's product exports erased much of the gains seen the month before, averaging 1.1 mb/d, with declines across the barrel. Japan's crude imports fell from a four-month high in January to an average 2.7 mb/d. Japan's product imports, including LPG, were little changed in January after reaching an 11-month high the month before, and product exports recovered further. Preliminary estimates for February show OECD Europe bringing in alternate crudes from a variety of regions, with Russian imports limited to Turkey and southern Druzhba flows.

Commercial Stock Movements

Preliminary January 2023 data sees total OECD commercial oil stocks up by 34.9 mb m-o-m. At 2,802 mb, they were 147 mb higher than the same time one year ago, but 75 mb lower than the latest five-year average and 124 mb below the 2015–2019 average. Within the components, crude and product stocks rose m-o-m by 10.5 mb and 24.5 mb, respectively. At 1,372 mb, OECD crude stocks were 120 mb higher than the same time a year ago, but 4 mb lower than the latest five-year average and 59 mb lower than the 2015–2019 average. OECD product stocks stood at 1,430 mb, representing a surplus of 26 mb from the same time a year ago, but they were 71 mb lower than the latest five-year average and 65 mb below the 2015–2019 average. In terms of days of forward cover, OECD commercial stocks rose m-o-m by 0.8 days in January 2023 to stand at 60.8 days. This is 2.9 days above the January 2022 level, but 3.1 days less than the latest five-year average and 1.2 days lower than the 2015–2019 average.

Balance of Supply and Demand

Demand for OPEC crude in 2022 is revised down by 0.2 mb/d from last month's assessment to stand at 28.4 mb/d. This is around 0.5 mb/d higher than in 2021. Demand for OPEC crude in 2023 is revised down by 0.2 mb/d from the previous assessment to stand at 29.3 mb/d. This is around 0.8 mb/d higher than in 2022.

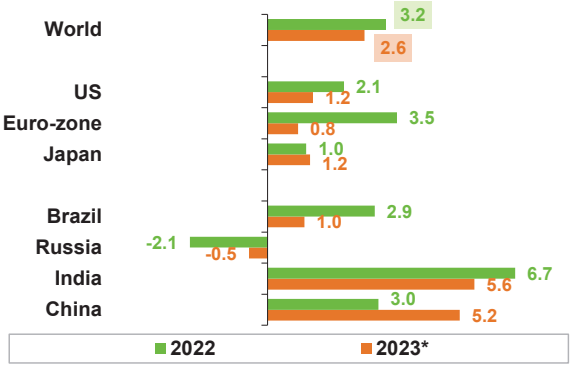
Feature Article

Assessment of the global economy

The world economic growth forecast for 2023 is expected at 2.6% y-o-y, following growth of 3.2% in 2022 (***Graph 1***). Despite this slight deceleration, the growth of 2.6% in 2023 remains a sound growth level when considering the many challenges that the global economy is facing. These challenges range from elevated worldwide inflation levels and subsequent monetary tightening measures, to the consequences of the geopolitical developments in Eastern Europe.

Despite these challenges, it is anticipated that the OECD economies will continue to be supported by healthy consumption and investment. In the emerging economies, China's reopening, following the lifting of the strict zero-COVID-19 policy, will add considerable momentum to global economic growth. Moreover, India is expected to perform well in 2023, on the back of the government's spending plans that include a rise in infrastructure spending and income tax cuts, as well as other measures. Brazil and Russia are forecast to face challenging environments in 2023 for different reasons, yet their economies are underpinned by robust commodity markets, structural reforms and fiscal support measures. Indeed, a stable global oil market, sustained by the successful efforts of the countries participating in the Declaration of Cooperation (DoC), will provide consumer nations with ample oil supply to fuel global economic growth.

Graph 1: GDP growth forecast for 2022–23, % change

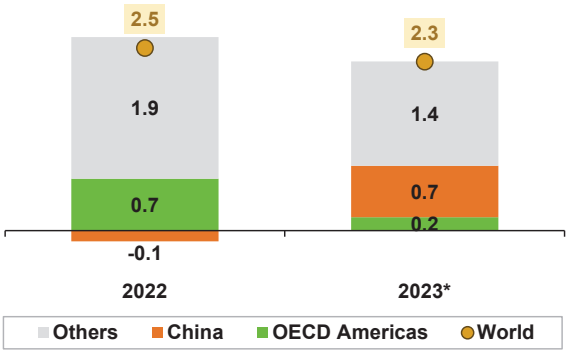


*Note: * 2023 = Forecast. Source: OPEC.*

While such growth forecast is perceived as balanced, there exist some upside potential and downside risks. Upside potential may come from the US Federal Reserve managing inflation towards 2H23 with sufficiently healthy underlying demand. Moreover, the Euro-zone's better-than-expected performance in 2H22 may continue into 2023. A stronger-than-anticipated rebound in China, with consumption accelerating significantly, following years of stringent lockdown measures, is another factor to be considered. Finally, a resolution of tensions in Eastern Europe would likely provide further upside potential. On the other hand, downside risks remain. Any negative impact from current monetary policies, or measures potentially ahead, could impact global debt markets, hence slowing global economic growth. The rapid rises in interest rates and global debt levels could cause significant negative spill-over effects, and may negatively impact the global growth dynamic. Finally, protracted geopolitical tensions in Eastern Europe could further add to the downside.

Overall, oil demand continues to be driven by the ongoing recovery in the travel and transportation sectors. Following estimated growth of 2.5 mb/d y-o-y in 2022, oil demand is forecast to grow by a healthy 2.3 mb/d y-o-y in 2023 to average at 101.9 mb/d (***Graph 2***). While the OECD is projected to fall slightly short of pre-COVID-19 levels in 2023, oil demand in the non-OECD region is estimated to have surpassed 2019 levels already in 2022.

Graph 2: World oil demand growth in 2022–23, mb/d



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

Given the ongoing high level of uncertainty with regard to the timing and extent of a full global economic recovery to pre-pandemic levels in all sectors, the OPEC and non-OPEC countries participating in the DoC continue to carefully monitor market developments and address challenges in order to ensure sustainable market stability for the benefit of the global economy.

World Oil Demand

World oil demand growth in 2022 is estimated at 2.5 mb/d y-o-y, broadly unchanged from last month's assessment. However, to reflect the historical data, oil demand in 4Q22 is adjusted down in OECD Americas and OECD Europe, while OECD Asia Pacific is adjusted slightly upwards. Similarly, oil demand in non-OECD countries is revised higher due to improvements in economic activity in some countries and a recovery in oil demand in China after the zero-COVID-19 policy was abandoned. Total world oil demand is estimated to have averaged 99.6 mb/d in 2022.

The forecast for 2023 world oil demand growth remains broadly unchanged from last month's assessment at 2.3 mb/d. However, oil demand growth is adjusted lower in 1Q23 and 2Q23 to account for an anticipated decline in the OECD region, due to an expected slowdown in economic activity in OECD Americas and OECD Europe. In the other hand, the oil demand in non-OECD countries iss revised higher due to improvements in economic activity in China after the zero-COVID-19 policy was discontinued, as well as expected improvements in Russian oil demand. Accordingly, in the non-OECD region, oil demand is projected to grow by 2.1 mb/d. For 2023, world oil demand is projected to average 101.9 mb/d. However, this forecast is subject to many uncertainties, including the trend and pace of global economic activity and ongoing geopolitical developments.

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

							Change 2022/21	
World oil demand	**2021**	**1Q22**	**2Q22**	**3Q22**	**4Q22**	**2022**	**Growth**	**%**
Americas	24.32	24.77	24.98	25.33	25.02	25.03	0.71	2.93
of which US	*20.03*	*20.38*	*20.41*	*20.62*	*20.43*	*20.46*	*0.42*	*2.12*
Europe	13.13	13.19	13.43	14.07	13.37	13.52	0.39	2.95
Asia Pacific	7.38	7.85	6.99	7.22	7.77	7.46	0.08	1.02
Total OECD	**44.83**	**45.81**	**45.40**	**46.63**	**46.16**	**46.00**	**1.17**	**2.62**
China	15.00	14.77	14.45	14.67	15.51	14.85	-0.15	-0.98
India	4.77	5.18	5.16	4.95	5.26	5.14	0.37	7.66
Other Asia	8.67	9.13	9.31	8.77	8.89	9.02	0.36	4.11
Latin America	6.23	6.32	6.36	6.55	6.49	6.43	0.20	3.28
Middle East	7.79	8.06	8.13	8.50	8.42	8.28	0.49	6.25
Africa	4.22	4.51	4.15	4.25	4.69	4.40	0.18	4.21
Russia	3.61	3.67	3.42	3.45	3.66	3.55	-0.07	-1.83
Other Eurasia	1.21	1.22	1.16	1.00	1.21	1.15	-0.06	-5.07
Other Europe	0.75	0.79	0.75	0.73	0.80	0.77	0.01	1.75
Total Non-OECD	**52.25**	**53.65**	**52.88**	**52.86**	**54.93**	**53.58**	**1.33**	**2.54**
Total World	**97.08**	**99.45**	**98.28**	**99.49**	**101.10**	**99.58**	**2.50**	**2.58**
Previous Estimate	97.01	99.38	98.20	99.44	101.17	99.55	2.54	2.62
Revision	0.07	0.07	0.07	0.05	-0.07	0.03	-0.04	-0.04

Note: 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	25.03	24.86	25.17	25.63	25.18	25.21	0.18	0.73
of which US	*20.46*	*20.41*	*20.46*	*20.85*	*20.49*	*20.55*	*0.09*	*0.46*
Europe	13.52	13.12	13.41	14.11	13.42	13.52	0.00	0.02
Asia Pacific	7.46	7.89	7.05	7.27	7.79	7.50	0.04	0.55
Total OECD	**46.00**	**45.88**	**45.63**	**47.01**	**46.39**	**46.23**	**0.23**	**0.49**
China	14.85	15.23	15.40	15.43	16.16	15.56	0.71	4.75
India	5.14	5.41	5.44	5.21	5.50	5.39	0.25	4.96
Other Asia	9.02	9.46	9.65	9.14	9.24	9.37	0.35	3.83
Latin America	6.43	6.44	6.49	6.71	6.65	6.58	0.15	2.29
Middle East	8.28	8.45	8.46	8.84	8.71	8.61	0.33	4.02
Africa	4.40	4.71	4.34	4.43	4.88	4.59	0.19	4.32
Russia	3.55	3.68	3.45	3.59	3.82	3.64	0.09	2.50
Other Eurasia	1.15	1.21	1.16	1.02	1.22	1.15	0.01	0.51
Other Europe	0.77	0.80	0.76	0.75	0.83	0.79	0.02	2.32
Total Non-OECD	**53.58**	**55.40**	**55.14**	**55.13**	**57.00**	**55.67**	**2.09**	**3.90**
Total World	**99.58**	**101.28**	**100.77**	**102.14**	**103.39**	**101.90**	**2.32**	**2.33**
Previous Estimate	99.55	101.26	100.70	101.99	103.51	101.87	2.32	2.33
Revision	0.03	0.02	0.07	0.15	-0.12	0.03	0.00	0.00

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

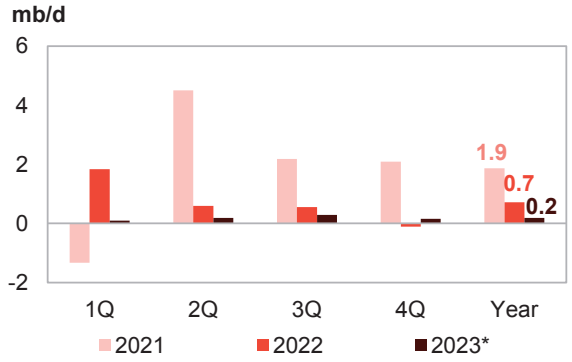
OECD

OECD Americas

Update on the latest developments

Oil demand in the US plunged unexpectedly by 1.2 mb/d y-o-y in **December**, down from 20 tb/d y-o-y growth in November, likely impacted by a cold weather spell that hit regions of the country amid slowing economic and manufacturing activity.

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



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

The US macroeconomic performance has been impacted by high inflation and other macroeconomic challenges weighing on oil demand. US core inflation declined somewhat, but remained high, standing at 5.7% y-o-y in December. This was compared with 6.5% reported in November, but was still well above normal levels and the Fed's 2% target. The December manufacturing PMI stood at 48.4 points, slightly below 49.0 reported in November, and continued below the 50-point threshold. US manufacturing activity has been in contraction territory since October 2022. The services PMI, representing around 70% of the US economy, unexpectedly fell to 49.2 in December, from 55.5 in November; likely also affected by the severe cold weather conditions.

With regard to transportation, the US Federal Highway Administration reported that traffic volume trends remained below pre-pandemic levels and declined by 1.8% (-4.6 billion vehicle miles) in December 2022 y-o-y. However, the International Air Transport Association's (IATA) Air Passenger Market Analysis reported that US airline activity was strong in December, and revenue passenger kilometers (RPKs) stood just 11.3% under December 2019 volumes.

Jet/kerosene led December oil demand growth by 90 tb/d y-o-y, similar to November. The ´Other products´ category increased by 40 tb/d y-o-y in December, down from y-o-y growth of 0.3 mb/d a month earlier. LPG dropped y-o-y by 0.5 mb/d, down from y-o-y growth of 60 tb/d seen in November. With Americans making fewer car journeys and a strong winter storm that posed some challenges for holiday travelers in the US in December, gasoline declined by 0.3 mb/d y-o-y, which was compared to an annual decline of 0.2 mb/d in November.

Residual fuels also recorded a y-o-y decline of 170 tb/d in December, down from a y-o-y decline of 60 tb/d in November. Naphtha remained weak for 10 consecutive months due to low demand from the petrochemical sector, posting a 75 tb/d y-o-y decline.

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

By product	Dec 21	Dec 22	Change Growth	Dec 22/Dec 21 %
LPG	4.03	3.52	-0.51	-12.7
Naphtha	0.21	0.13	-0.08	-36.1
Gasoline	8.88	8.57	-0.31	-3.5
Jet/kerosene	1.52	1.61	0.09	5.9
Diesel	3.95	3.72	-0.23	-5.9
Fuel oil	0.43	0.26	-0.17	-39.6
Other products	1.94	1.98	0.04	2.1
Total	**20.95**	**19.78**	**-1.17**	**-5.6**

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

Near-term expectations

In **1Q23**, US GDP is set to remain in positive territory, albeit at a relatively low level. Furthermore, risk of continued monetary tightening may likely affect investor and consumer expenditure, which will consequently impact oil demand. Furthermore, continued weakening of manufacturing activity and seasonal weakening of mobility in winter months are likely to weigh on demand for transportation and industrial fuels. In 1Q23, US oil demand is projected to grow marginally y-o-y by 30 tb/d. Jet fuel is expected to be the major driver of oil demand growth in the quarter. Gasoline is expected to recover on the back of softer retail prices, while diesel is expected to remain relatively weak.

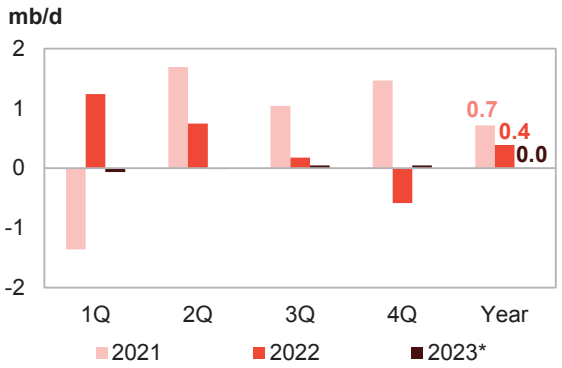
In **2Q23**, US GDP is projected to slow down slightly and while inflation is also expected to continue to decline, it is projected to remain at a relatively high level. Furthermore, the services PMI has shown signs of rebounding from the January low, almost matching the November level of 55.5. Similarly, airline activity is approaching pre-pandemic levels, which is projected to support oil demand to grow by 50 tb/d y-o-y in 2Q23. However, the risks are still skewed to the downside with a focus on the macroeconomic performance of the US economy.

OECD Europe

Update on the latest developments

Oil demand in OECD Europe declined by 0.5 mb/d y-o-y in **December**, the fourth consecutive month of annual declines. Oil demand was impacted by weakening macroeconomic performance and ongoing geopolitical developments in the region. Inflation softened marginally but remained high in the Euro-zone, standing at 9.2% in December, far above the target 2% inflation rate sought by the ECB's monetary policy across all Euro-zone countries combined. The PMI for services was at 49.8 and the manufacturing PMI stood at 47.8 in December, both slightly improved but remaining in contraction territory.

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



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

Demand for diesel has remained weak for seven consecutive months, with the exception of August, due to weakening industrial activity in the region. Warmer-than-expected winter weather and a decline in natural gas prices also helped to depress diesel demand in the industrial and residential sectors, which posted a y-o-y decline of 0.2 mb/d in December. Similarly, weak demand for cracking and blending in the region's petrochemical sector continues to weigh on feedstock requirements. Naphtha and LPG declined by 0.3 mb/d and 0.2 mb/d y-o-y in the month. Finally, the other products category also declined by 40 tb/d y-o-y compared to an 110 tb/d annual decline recorded in November.

Positively, IATA reported that revenue passenger-kilometers (RPKs) in the region performed well to stand at 14.5% below December 2019 levels. Accordingly, jet/kerosene increased y-o-y by 130 tb/d in December. Similarly, residual fuels grew y-o-y by 120 tb/d on the back of gas-to-oil switching for winter heating demand, slightly higher than the y-o-y rise of 80 tb/d seen a month earlier. Gasoline posted y-o-y growth of 50 tb/d in December, up from y-o-y growth of 30 tb/d a month earlier.

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

By product	Dec 21	Dec 22	Change Growth	Dec 22/Dec 21 %
LPG	0.46	0.38	-0.08	-16.9
Naphtha	0.62	0.40	-0.22	-34.9
Gasoline	1.15	1.17	0.02	1.7
Jet/kerosene	0.61	0.68	0.07	11.3
Diesel	3.26	3.04	-0.22	-6.9
Fuel oil	0.17	0.21	0.05	27.5
Other products	0.41	0.39	-0.02	-5.6
Total	**6.67**	**6.26**	**-0.40**	**-6.1**

*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

The region's GDP is forecast to remain positive, though at a low level in **1Q23**. In addition, ongoing geopolitical developments have induced supply chain bottlenecks in the region, which will likely continue causing manufacturing activity to remain in contraction territory. In January, the manufacturing MPI stood at 48.8 and decreased further to 48.5 in February. Furthermore, the European Central Bank is expected to deliver significant interest rate increases in 2Q23 in an effort to rein in inflation, which could lead to weaker economic activities and hence lower oil demand. Although sustained improvements in air travel activity are expected to support oil demand in 1Q23, demand in the region is forecast to soften by 70 tb/d y-o-y.

In **2Q23**, the GDP of the region is projected to decelerate further from 1Q23, but is expected to remain positive. Oil demand growth in the quarter is anticipated to improve slightly q-o-q, but is forecast to show a minor y-o-y decline. Accordingly, transportation fuels, most notably jet fuel, are set to support oil demand improvements in the second quarter. The risks, however, are skewed to the downside, hinging on geopolitical developments and the possibility of a recession in the region.

OECD Asia Pacific

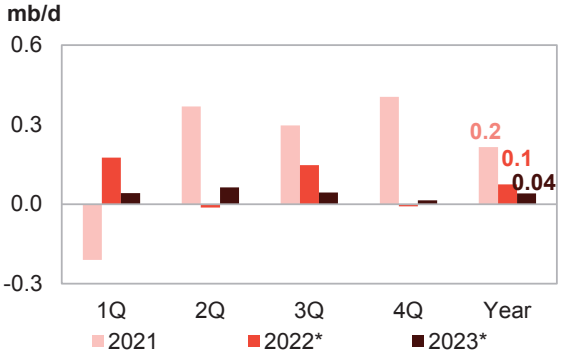
Update on the latest developments

Oil demand in OECD Asia Pacific in **December** softened by 80 tb/d y-o-y, following y-o-y growth of 120 tb/d a month earlier. Sluggish macroeconomic performance in Japan and South Korea weighed on oil demand in the region.

The two largest oil-consuming countries in the region are facing some economic headwinds. In Japan, inflation rose to stand at 4% in December, compared with an already elevated 3.8% y-o-y in November. Similarly, in South Korea, inflation rose from 5.0% y-o-y in November to 5.2% y-o-y in December.

Furthermore, the manufacturing PMIs for both Japan and South Korea were below the expansion threshold in December. In Japan, the manufacturing PMI was 48.7, down from 49.4 in November.

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



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

The South Korean manufacturing PMI also slightly declined from 49 in November to 48.2 in December. However, the services sector PMI, which constitutes around two-thirds of the Japanese economy, rose to 51.1 in December from 50.3 in November.

Nevertheless, airline activity in the region remains healthy, according to a report from IATA, which shows that domestic air traffic increased in Japan and achieved 74.1% of the recovery to 2019 levels. Australia also experienced a similar rebound in transportation, with RPKs recovering to 81.2% of 2019 levels. Similarly, international traffic within the region maintained its growth momentum.

Weak naphtha margins have led to some naphtha-fed steam crackers in the region's petrochemical industry to operate at low rates, thereby reducing their naphtha requirements. Accordingly, naphtha posted an annual decline of more than 0.2 mb/d, which is compared to the 0.1 mb/d y-o-y decline in November in the region. Finally, diesel demand declined further by 70 tb/d y-o-y from a decline of 39 tb/d y-o-y in November.

In contrast, oil demand growth in the region was led by jet/kerosene, which increased y-o-y by 124 tb/d, up from 80 tb/d y-o-y growth a month earlier. Winter demand for heating and rising natural gas prices also led to some oil-to-gas switching, enabling the "other products" category to expand by 60 tb/d y-o-y. Diesel also benefitted from gas-to-oil switching to grow marginally by 10 tb/d y-o-y. Gasoline demand grew only slightly by 20 tb/d y-o-y. Slow gasoline demand was partly due to colder-than-average temperatures and heavy snowfall weighing on domestic mobility in some countries of the region.

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

By product	Jan 22	Jan 23	Change Growth	Jan 23/Jan 22 %
LPG	0.50	0.39	-0.11	-22.8
Naphtha	0.69	0.67	-0.02	-2.8
Gasoline	0.66	0.65	-0.01	-1.6
Jet/kerosene	0.65	0.60	-0.05	-7.3
Diesel	0.77	0.72	-0.04	-5.8
Fuel oil	0.31	0.33	0.02	7.5
Other products	0.22	0.30	0.08	38.5
Total	**3.79**	**3.66**	**-0.13**	**-3.4**

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

Near-term expectations

The region's GDP is projected to remain positive in 2023, albeit at a slightly lower level than what was seen in 2022. The economies of the two major oil-consuming countries in the region, Japan and South Korea, have witnessed some slowing momentum, and inflation rates in both countries are on a rising trend. At the same time, air travel activity continues to increase. The recent opening of the Chinese economy is projected to support oil demand in the region in the months to come.

The region's oil demand is projected to grow y-o-y in **1Q23** and **2Q23**, mainly supported by transportation fuel requirements and petrochemical feedstock. However, risks remain high and tilted to the downside, mainly dependent on developments in the economies of Japan and South Korea.

Non-OECD

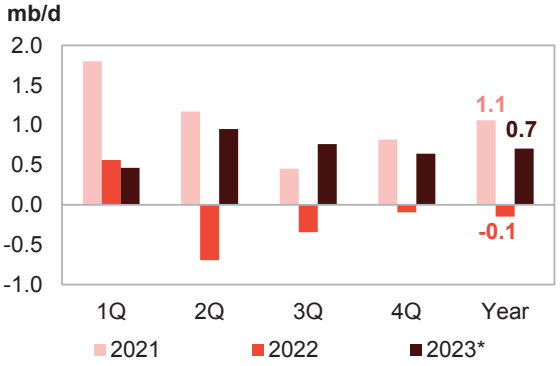
China

Update on the latest developments

China's oil demand saw a strong rebound of 0.8 mb/d y-o-y growth in **January,** up from 0.2 mb/d y-o-y growth posted a month earlier. Oil demand growth was propelled by the recovery of economic and social activity after the abandonment of the zero-COVID-19 policy in December. In addition, demand from the resilient petrochemical sector remained solid to support January oil demand. However, the January PMI showed that the manufacturing sector remains relatively weak, as the index for the sector was almost unchanged at 49.2 in January, compared with 49 in December. At the same time, the January services PMI shows a strong positive trend, reflecting the reopening effect, moving up to 52.9 in January from 48 in December.

January oil demand in China was driven by requirements for petrochemical feedstock; naphtha saw y-o-y growth of 0.2 mb/d, the same as what was reported a month earlier. LPG increased by 0.1 mb/d y-o-y, up from 80 tb/d y-o-y reported in December. The lifting of COVID-19 restrictions has led to a stronger-than-expected air travel recovery as people took advantage of the Lunar New Year holiday to travel. According to the Civil Aviation Administration of China, the airline industry transported 55.23 million passengers over the 40-day period, up 39% from the same holiday period in 2022, and equivalent to 76% of the air traffic during 2019. Accordingly, jet fuel demand increased y-o-y by 0.2 mb/d, up from 70 tb/d y-o-y in December. Demand for residual fuels increased y-o-y by 0.1 mb/d, up from 60 tb/d y-o-y growth in December. However, diesel demand saw y-o-y growth of 70 tb/d, down from 0.1 mb/d y-o-y growth in December. The other products category rebounded by 70 tb/d y-o-y, from a decline of 0.1 mb/d y-o-y in December. Finally, during the New Year holiday, China saw millions of passengers travelling by road, according to the Ministry of Transport. The volume of traffic was 85.9% higher than during the same period in 2022, which resulted in gasoline growing y-o-y by 30 tb/d, up from an annual decline of 0.2 mb/d in December.

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



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

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

By product	Jan 22	Jan 23	Change Growth	Jan 23/Jan 22 %
LPG	2.36	2.46	0.10	4.0
Naphtha	1.56	1.77	0.21	13.2
Gasoline	3.77	3.80	0.03	0.8
Jet/kerosene	0.62	0.86	0.24	38.6
Diesel	4.04	4.11	0.07	1.7
Fuel oil	0.68	0.78	0.10	14.8
Other products	2.38	2.45	0.07	3.2
Total	**15.42**	**16.23**	**0.81**	**5.3**

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

Near-term expectations

Looking ahead, oil demand is picking up now that the Chinese New Year celebrations are over, factories have reopened, truck deliveries resumed and construction activity is picking up. The February PMI readings show that the manufacturing sector has started responding positively to the opening of China as the index increased to 51.6, compared with just 49 in December. The services PMI also shows a strong positive trend, reflecting the reopening effect, moving up to 55.0 in February, from 52.9 in January. The GDP of China will remain firm at 5.2% in 2023, supporting oil demand growth of 0.7 mb/d y-o-y.

In **1Q23**, oil demand is set to see y-o-y growth of 0.5 mb/d. Jet/kerosene will be the driver of the demand recovery. Domestic and international airline activity is expected to rise with the increase in international business and tourism due to the removal of quarantine periods for international travelers arriving in China. This is also providing support for the jet fuel demand recovery. Gasoline demand will also improve significantly, driven by a strong rebound in mobility. Similarly, the petrochemical industry has continued to operate at around full capacity of 99% in January, stable from December, with the Hengli Petrochemical (Dalian) plant operating at around 94% of capacity. Furthermore, two new refineries -- PetroChina's Guangdong Petrochemical and Jiangsu Shenghong Petrochemical -- are expected to enter commercial operation in the coming months and will boost feedstock demand for light distillates. Lastly, economic stimulus, along with infrastructure expansion in 2023, will set the stage for a robust diesel consumption recovery.

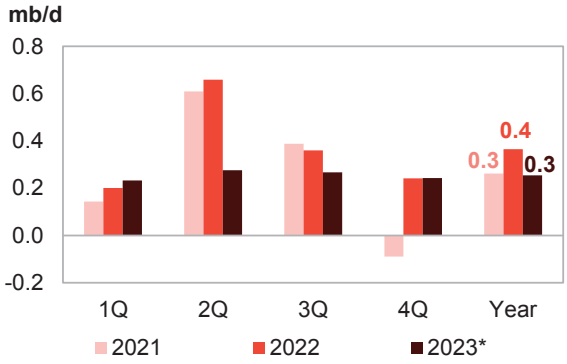
In **2Q23**, oil demand is expected to increase y-o-y by a solid 1.0 mb/d. Jet fuel will again drive oil demand growth in this quarter, with millions of air passengers expected to support air travel activity during the Golden Week holiday in May, combined with further pent-up demand and business travelers from and into China. Light distillates are also expected to continue rising, with the continued expansion of petrochemical industries. Increased mobility and rising construction activity will boost demand for gasoline and diesel.

India

Update on the latest developments

India's oil demand remained at y-o-y growth of 0.2 mb/d in **January**, similar to the growth reported in December. Data from S&P Global and Haver Analytics shows that the manufacturing PMI in India remained at a strong level of 55.4 in January. Likewise, the services PMI remained solid at a level of 57.2.

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



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

Oil demand was driven by diesel, which posted y-o-y growth of 0.2 mb/d, compared with annual growth of 0.1 mb/d reported in December. Furthermore, vehicle sales in January remained strong as data from the Federation of Automobile Dealers Associations showed that passenger vehicle (PV) sales jumped 22% y-o-y in January, up by 8% from pre-COVID 2019 levels. Accordingly, gasoline grew y-o-y by 0.1 mb/d, a significant improvement from the 46 tb/d y-o-y growth seen in December. According to IATA, India saw domestic revenue passenger-kilometers (RPKs) increase substantially in December to stand only 3.6% below traffic levels at the same time in 2019.

Demand for jet/kerosene in January increased by 30 tb/d y-o-y compared with a marginal increase of 7 tb/d y-o-y in December.

However, demand for petrochemical feedstock – LPG and naphtha – slipped in January. Naphtha was hit by weak feedstock demand from naphtha-fed steam crackers in the wake of poor olefin production margins.

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

By product	Jan 22	Jan 23	Change Growth	Jan 23/Jan 22 %
LPG	0.99	0.97	-0.02	-2.1
Naphtha	0.40	0.35	-0.06	-14.0
Gasoline	0.70	0.79	0.10	13.8
Jet/kerosene	0.17	0.20	0.03	17.3
Diesel	1.57	1.75	0.18	11.3
Fuel oil	0.16	0.17	0.01	6.7
Other products	0.94	0.88	-0.07	-6.9
Total	**4.93**	**5.10**	**0.17**	**3.5**

Note: Totals may not add up due to independent rounding.
Sources: JODI, Petroleum Planning and Analysis Cell of India and OPEC.

Near-term expectations

Looking forward, India's demand for refined oil products is expected to remain strong with demand for particularly diesel and gasoline expected to expand significantly beyond pre-pandemic levels. Demand for jet fuel is also projected to increase significantly in **1Q23** and 2Q23. The country's manufacturing and service sectors are expected to continue to provide support for oil demand. The February PMI readings show that manufacturing and services indices reflect a strong positive trend. The manufacturing PMI stood at 55.4 and the services PMI jumped to 59.4 points. Supported by projected GDP growth of 5.6% in 2023, India's oil demand is projected to rise by 0.2 mb/d y-o-y in 1Q23, with increasing mobility and air travel expected to support gasoline and jet fuel demand.

In **2Q23**, India's oil demand is projected to increase y-o-y by 0.3 mb/d. The government's proposed increase in capital spending is expected to propel the momentum of economic and social activity as construction and manufacturing activity accelerates. Moreover, the proposed reduction in the income tax rates will boost consumer purchasing power, with spillover effects on consumer spending. These factors, combined with a steady rise in airline activity, will support healthy oil demand growth in 2Q23.

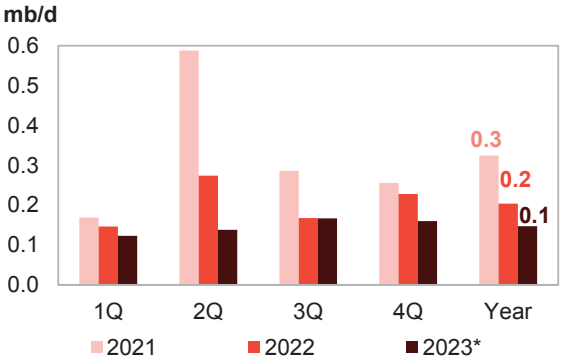
Latin America

Update on the latest developments

The latest **Latin American oil demand** data shows a y-o-y increase of 0.14 mb/d in **December**. Economic activity in the region has been facing some headwinds, stemming largely from high inflation in Argentina and Venezuela. Recent PMI indices indicated a slowing trend in Brazil, where the manufacturing PMI remained significantly below the growth-indicating level of 50 for the second month in a row standing at 44.2 in December compared with 44.3 in November. The services PMI in the country also fell to 51 in December, from 51.6 in November.

However, airline activity in the region continued to improve. According to IATA's Monthly Statistics, international passenger traffic during December in the region stood at 15.9% below the pre-pandemic level in December 2019.

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



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

Oil demand in Latin America was mainly driven by the other products category and residual fuel, which rose by 65 tb/d y-o-y and 62 tb/d y-o-y, respectively. Jet kerosene saw a y-o-y increase of 31 tb/d on the back of a gradual improvement in air travel activity. Diesel stood broadly unchanged y-o-y, down from 40 tb/d y-o-y growth in November. However, gasoline recorded a decline of 21 tb/d y-o-y, down from an annual increase of 67 tb/d in November.

LPG saw a slight y-o-y increase of 8 tb/d. However, weak petrochemical activity weighed on naphtha, which fell by 8 tb/d y-o-y for the 12th consecutive decline.

Near-term expectations

GDP growth for the region in 2023 is projected to slow, albeit remaining positive. Oil demand is projected to grow y-o-y by 0.1 mb/d in **1Q23**. The ongoing recovery of air travel, along with mobility and manufacturing activity improvements should support demand for jet fuel, gasoline and distillates.

In **2Q23**, oil demand is projected to continue to grow by more than 0.1 mb/d y-o-y. The outlook for oil demand growth sees Brazil in the lead, followed by Argentina. In terms of product demand, transportation fuels are expected to grow the most, supported by the continuing recovery in mobility and air travel.

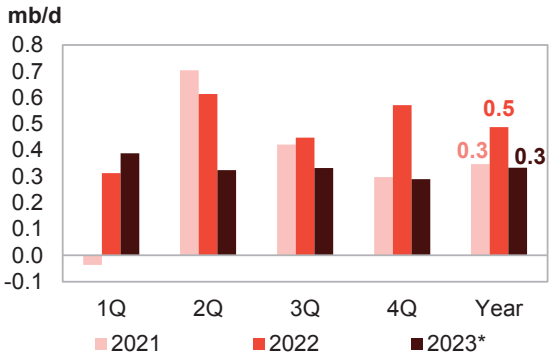
Middle East

Update on the latest developments

Oil demand growth in the Middle East soared by 0.6 mb/d, or 12%, y-o-y in **December**, up from 0.5 mb/d growth y-o-y in November. Oil demand was backed by healthy economic and social activity in major oil-consuming countries of the region. Saudi Arabia's composite PMI stood at 56.9 in December, and the UAE posted a strong composite PMI at 54.2 in the same month. While inflation in Saudi Arabia still remains relatively well contained, it has come down from higher levels seen in the UAE in the middle of 2022. IATA reported that Middle Eastern carriers recorded 69.8% y-o-y growth in December, and international revenue passenger kilometers (RPKs) are 16.3% under pre-pandemic levels.

From the perspective of oil products consumption, the other products category remained the main driver of oil demand in the region, up by 0.4 mb/d y-o-y and accounting for 55% of total oil demand growth in December on the back of demand for electricity generation and the manufacturing sector. Diesel grew by 0.2 mb/d y-o-y at broadly the same rate for the third consecutive month. Higher diesel demand was underpinned by an increase in mining, quarrying and manufacturing activity in the region. Saudi Arabia's mining and quarrying activity during the month increased by 4.1% y-o-y, while manufacturing activity rose 18.5% compared to December 2021. Healthy airline activity in the Middle East region boosted jet kerosene to grow by 40 tb/d y-o-y, and LPG increased y-o-y by 30 tb/d.

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



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

Residual fuels also increased by 50 tb/d y-o-y as compared to the 50 tb/d y-o-y decline seen in November. However, gasoline saw a y-o-y decline of 20 tb/d for the Middle East.

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

By product	Jan 22	Jan 23	Change Growth	Jan 23/Jan 22 %
LPG	0.05	0.06	0.01	22.8
Gasoline	0.48	0.51	0.02	4.9
Jet/kerosene	0.08	0.08	0.00	6.0
Diesel	0.48	0.56	0.08	16.2
Fuel oil	0.45	0.55	0.10	23.2
Other products	0.47	0.38	-0.09	-18.9
Total	**2.00**	**2.14**	**0.13**	**6.6**

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

Near-term expectations

Middle Eastern 2023 oil demand estimates remained robust on the back of healthy economic activity in the region continuing to support oil demand. The composite PMI in Saudi Arabia remained strong reaching 59.8 in February. Infrastructure project developments and an uptick in power generation requirements are expected to drive oil demand momentum in the region during **1Q23**. Hence, demand for residual and fuel oil is expected to continue to accelerate. Jet fuel demand in the Middle East will also likely increase y-o-y in 1Q23 due to the continued recovery of the aviation sector. The region's largest kerosene/jet fuel consumers are the UAE, Saudi Arabia, Qatar and IR Iran, with the four countries accounting for 76% of the region's total kerosene/jet fuel demand. Oil demand in the region is projected to grow 0.4 mb/d y-o-y in 1Q23.

In **2Q23,** oil demand is projected to grow y-o-y by 0.3 mb/d, led by fuel oil for electricity generation in Iraq and Saudi Arabia. In addition, gasoline, transportation diesel and jet/kerosene are further projected to support oil demand growth.

World Oil Supply

Non-OPEC liquids supply in 2022 (including processing gains) is estimated to have grown by 1.9 mb/d to average 65.8 mb/d, broadly unchanged from the previous month's assessment. Minor downward revisions to OECD Europe and OECD Americas were largely offset by upward revisions to liquids production in the non-OECD.

Total US liquids production dropped m-o-m by 0.9 mb/d in December due to severe winter storm Elliot, but saw a y-o-y increase of 0.2 mb/d in 2022 to average 19.1 mb/d. The main storm effect was on NGLs production which fell by 9%, m-o-m, while it was estimated that crude output declined by around 2%. Liquids supply growth in 2022 is estimated to have changed in a few countries, including the US, primarily owing to historical adjustments in the biofuel production and the relevant base changes. The main drivers of liquids supply growth for 2022 are estimated to be the US, Russia, Canada, Guyana, China and Brazil, while production is expected to see the largest declines in Norway and Thailand.

Non-OPEC liquids production growth in 2023 is forecast to grow by 1.4 mb/d to average 67.2 mb/d, remained unchanged from last month, where higher output projections for Russia (considering production levels in 1Q23, which came stronger than anticipated, and maintaining last month's assumption for remaining months of the year) offsets the projected declines in other regions.

US liquids production is expected to gradually recover after a considerable drop in December. However, the supply growth forecast for 2023 is revised down slightly to average 1.1 mb/d, considering lower output prospects in 1Q23. Canadian supply growth is also revised down due to the extreme effect of freezing weather on oil sands mining activities in January. Output in the North Sea region was revised down due to maintenance and natural declines, leading to expectations of lower production in 1Q23 and 2Q23. On a positive note for supply, robust Russian liquids production in January is estimated to remain fairly stable in February. The main growth drivers for 2023 are anticipated to be the US, Brazil, Norway, Canada, and Kazakhstan, whereas oil production is forecast to decline in Russia. Nevertheless, there are significant uncertainties related to the impact of ongoing geopolitical developments in Eastern Europe and US shale output assessments in 2023.

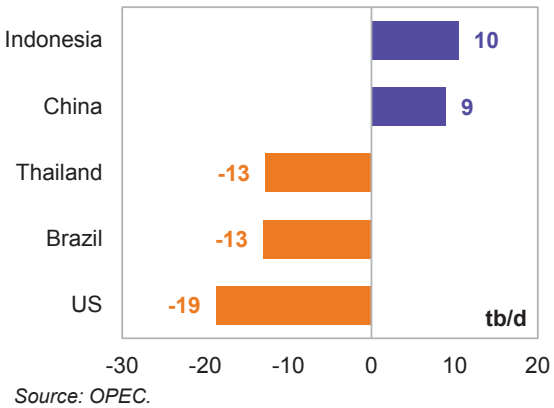
OPEC NGLs and non-conventional liquids production in 2022 is forecast to have grown by 0.1 mb/d to average 5.4 mb/d, and is expected to increase by 50 tb/d to average 5.4 mb/d in 2023. OPEC-13 crude oil production in February increased by 117 tb/d m-o-m to average 28.92 mb/d, according to available secondary sources.

Non-OPEC liquids production in February, including OPEC NGLs, is estimated to have increased m-o-m by 0.5 mb/d to average 73.0 mb/d, up by 2.4 mb/d y-o-y. As a result, preliminary data indicates that February's global oil supply increased by 0.6 mb/d m-o-m to average 101.9 mb/d, up by 2.8 mb/d y-o-y.

The **non-OPEC liquids supply estimation for 2022** was revised up by 0.2 mb/d to average 65.8 mb/d, due to historical adjustments to non-conventional outputs. However, y-o-y growth averaged 1.9 mb/d, revised down slightly by 31 tb/d compared with the previous month.

The overall OECD supply growth estimate for 2022 has dropped marginally. While OECD Europe and OECD Americas saw minor downward revisions, OECD Asia Pacific was broadly unchanged from the previous month's assessment. By contrast, the non-OECD supply growth assessment for 2022 was revised up by a slight 12 tb/d.

Graph 5 - 1: Major revisions to annual supply change estimation in 2022, MOMR Mar 23/Feb 23

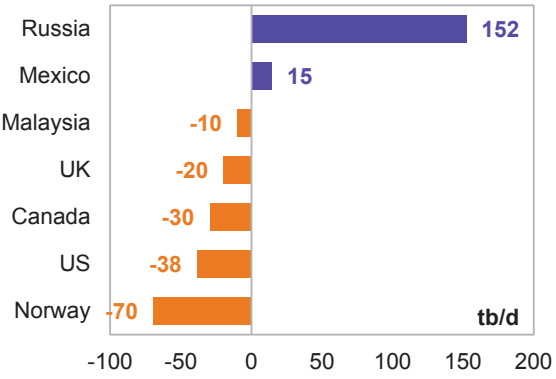


Source: OPEC.

Non-OPEC liquids production in 2023 is forecast to grow by 1.4 mb/d, remained unchanged compared with the previous month's assessment.

The supply growth forecast for OECD is revised down and expected to increase by 1.4 mb/d y-o-y in 2023; growth in OECD Asia Pacific remains unchanged, whereas OECD Europe and OECD Americas are revised down. However, the non-OECD supply growth projection is revised up by 145 tb/d to show a decline of 0.1 mb/d in 2023, y-o-y.

Graph 5 - 2: Major revisions to annual supply change forecast in 2023*, MOMR Mar 23/Feb 23

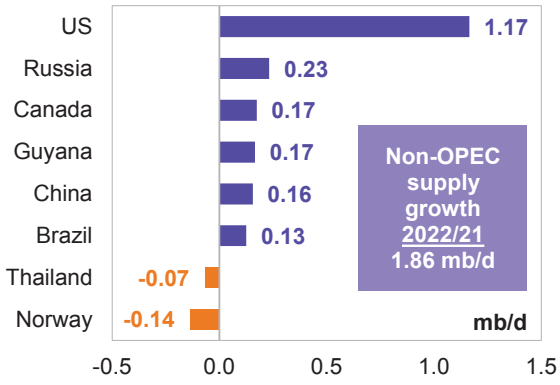


*Note: * 2023 = Forecast. Source: OPEC.*

Key drivers of growth and decline

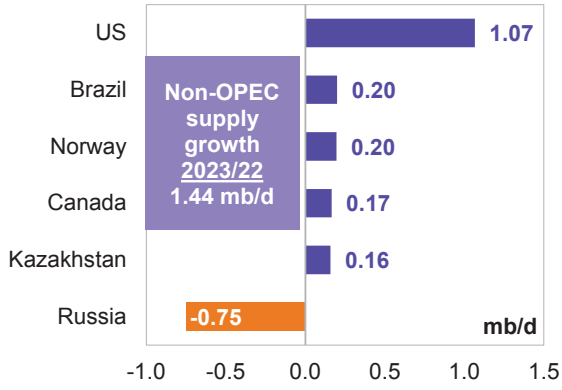
The **key drivers of non-OPEC liquids supply growth in 2022** are estimated to be the US, Russia, Canada, Guyana, China and Brazil, while oil production is expected to see the largest declines in Norway and Thailand.

Graph 5 - 3: Annual liquids production changes y-o-y for selected countries in 2022



Source: OPEC.

Graph 5 - 4: Annual liquids production changes y-o-y 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, Brazil, Norway, Canada, and Kazakhstan, while oil production is projected to see the largest decline in Russia.

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	25.45	26.11	26.51	27.26	27.47	26.84	1.39	5.47
of which US	*18.04*	*18.51*	*19.07*	*19.57*	*19.67*	*19.21*	*1.17*	*6.46*
Europe	3.79	3.72	3.46	3.51	3.61	3.58	-0.22	-5.68
Asia Pacific	0.51	0.49	0.51	0.43	0.49	0.48	-0.03	-6.23
Total OECD	**29.75**	**30.32**	**30.49**	**31.20**	**31.56**	**30.90**	**1.15**	**3.85**
China	4.32	4.54	4.54	4.41	4.42	4.48	0.16	3.61
India	0.78	0.79	0.78	0.76	0.76	0.77	-0.01	-0.80
Other Asia	2.42	2.37	2.32	2.24	2.31	2.31	-0.11	-4.74
Latin America	5.96	6.11	6.18	6.46	6.59	6.34	0.38	6.35
Middle East	3.20	3.25	3.29	3.32	3.30	3.29	0.09	2.85
Africa	1.35	1.33	1.31	1.32	1.30	1.32	-0.03	-2.34
Russia	10.80	11.33	10.63	11.01	11.17	11.03	0.23	2.15
Other Eurasia	2.93	3.04	2.76	2.59	2.92	2.83	-0.10	-3.34
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**	**31.92**	**32.22**	**32.88**	**32.47**	**0.60**	**1.89**
Total Non-OPEC production	61.62	63.17	62.41	63.42	64.44	63.36	1.75	2.83
Processing gains	2.29	2.40	2.40	2.40	2.40	2.40	0.11	4.90
Total Non-OPEC liquids production	**63.90**	**65.57**	**64.81**	**65.82**	**66.84**	**65.76**	**1.86**	**2.91**
Previous estimate	63.68	65.33	64.53	65.55	66.84	65.57	1.89	2.97
Revision	0.23	0.25	0.28	0.27	0.00	0.20	-0.03	-0.06

Note: 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	26.84	27.44	27.89	28.25	28.62	28.06	1.22	4.53
of which US	*19.21*	*19.67*	*20.26*	*20.45*	*20.68*	*20.27*	*1.07*	*5.55*
Europe	3.58	3.74	3.74	3.80	3.93	3.80	0.23	6.40
Asia Pacific	0.48	0.49	0.47	0.49	0.48	0.48	0.00	0.65
Total OECD	**30.90**	**31.67**	**32.11**	**32.55**	**33.03**	**32.34**	**1.45**	**4.69**
China	4.48	4.52	4.52	4.49	4.49	4.50	0.03	0.64
India	0.77	0.78	0.79	0.78	0.78	0.78	0.01	1.03
Other Asia	2.31	2.38	2.37	2.34	2.36	2.36	0.05	2.36
Latin America	6.34	6.62	6.62	6.67	6.73	6.66	0.32	5.12
Middle East	3.29	3.27	3.31	3.34	3.34	3.32	0.03	0.86
Africa	1.32	1.32	1.33	1.35	1.34	1.34	0.02	1.57
Russia	11.03	10.90	10.00	10.10	10.15	10.28	-0.75	-6.78
Other Eurasia	2.83	3.04	3.05	3.01	3.05	3.04	0.21	7.39
Other Europe	0.11	0.10	0.10	0.10	0.10	0.10	0.00	-2.83
Total Non-OECD	**32.47**	**32.93**	**32.10**	**32.18**	**32.36**	**32.39**	**-0.08**	**-0.24**
Total Non-OPEC production	63.36	64.60	64.21	64.72	65.39	64.73	1.37	2.16
Processing gains	2.40	2.47	2.47	2.47	2.47	2.47	0.07	2.96
Total Non-OPEC liquids production	**65.76**	**67.07**	**66.68**	**67.19**	**67.86**	**67.20**	**1.44**	**2.19**
Previous estimate	65.57	66.72	66.64	66.99	67.65	67.01	1.44	2.20
Revision	0.20	0.35	0.03	0.20	0.21	0.20	0.00	0.00

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

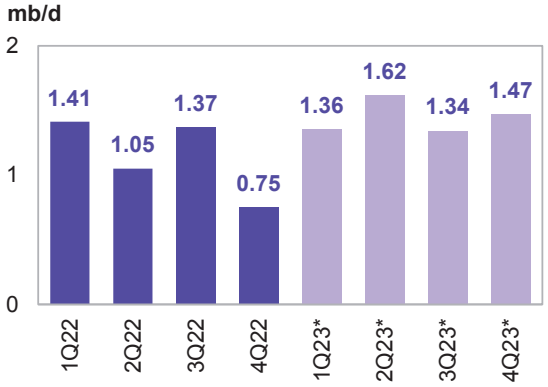
OECD

OECD liquids production in 2022 is estimated to have increased y-o-y by 1.1 mb/d to average 30.9 mb/d. This is revised down by 43 tb/d compared with a month earlier, with some downward revisions for OECD Europe and OECD Americas, mainly due to biofuel historical adjustments.

OECD Americas was revised down slightly by 18 tb/d compared with last month's assessment. It is now estimated to grow by 1.4 mb/d to average 26.8 mb/d.

OECD Europe and OECD Asia Pacific are estimated to decline y-o-y by 0.2 mb/d to average 3.6 mb/d and by 32 tb/d y-o-y to average 0.5 mb/d, respectively.

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



*Note: * 1Q23-4Q23 = Forecast. Source: OPEC.*

For **2023**, oil production in the OECD region is forecast to grow by 1.4 mb/d to average 32.3 mb/d. Growth is led by OECD Americas with 1.2 mb/d to average 28.1 mb/d. Yearly liquids production in OECD Europe is anticipated to grow by 0.2 mb/d to average 3.8 mb/d, while OECD Asia Pacific is expected to remain broadly unchanged to average 0.5 mb/d.

OECD Americas

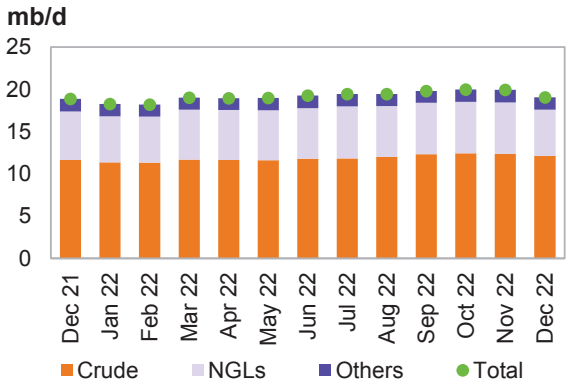
US

US liquids production in **December 2022** fell sharply m-o-m by 909 tb/d to average 19.1 mb/d. However, this was up by 159 tb/d compared with December 2021.

Crude oil and condensate production fell m-o-m by 276 tb/d in **December 2022** to average 12.1 mb/d, up by 0.5 mb/d y-o-y.

In terms of **crude and condensate production breakdown by region (PADDs)**, production decreased mainly in the Midwest, where it was down by 168 tb/d to average 1.6 mb/d. Production in the Rocky Mountain and US Gulf Coast (USGC) regions fell by 63 tb/d and 41 tb/d, respectively, while the West Coast and East Coast remained broadly unchanged m-o-m. Production declines in the main regions were primarily driven by weather-related issues, severe winter storms and freezes at North Dakota and Texas oil and gas fields.

Graph 5 - 6: US monthly liquids output by key component



Sources: EIA and OPEC.

NGLs production was down by 552 tb/d m-o-m to average 5.5 mb/d in December. This was lower y-o-y by 0.2 mb/d. Production of **non-conventional liquids** (mainly ethanol) dropped by 81 tb/d m-o-m to average 1.4 mb/d, according to the US Department of Energy (DoE). Preliminary estimates see non-conventional liquids averaging around 1.4 mb/d in January, down by 22 tb/d compared with the previous month. It is worth mentioning that US non-conventional liquids production has been historically adjusted in this report.

GoM production declined marginally m-o-m by 14 tb/d in December to average 1.8 mb/d, with quite stable production seen on Gulf Coast offshore platforms. Shell's Vito development project started production in February. In the **onshore Lower 48**, crude and condensate production fell m-o-m by 264 tb/d to average 9.9 mb/d in December.

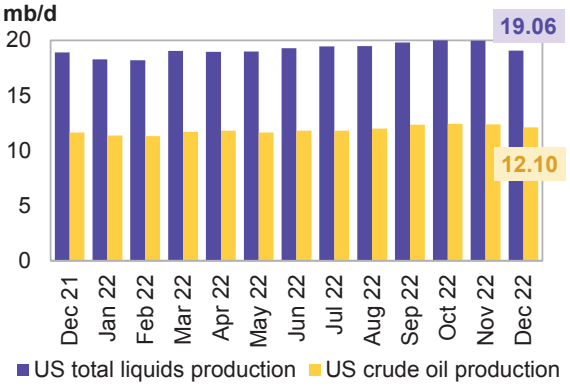
Table 5 - 3: US crude oil production by selected state and region, tb/d

State	Dec 21	Nov 22	Dec 22	Change m-o-m	Change y-o-y
Texas	4,991	5,212	5,147	-65	156
Gulf of Mexico (GOM)	1,693	1,798	1,784	-14	91
New Mexico	1,365	1,724	1,770	46	405
North Dakota	1,135	1,083	948	-135	-187
Alaska	451	445	447	2	-4
Oklahoma	402	444	418	-26	16
Colorado	453	445	408	-37	-45
Total	**11,634**	**12,377**	**12,101**	**-276**	**467**

Sources: EIA and OPEC.

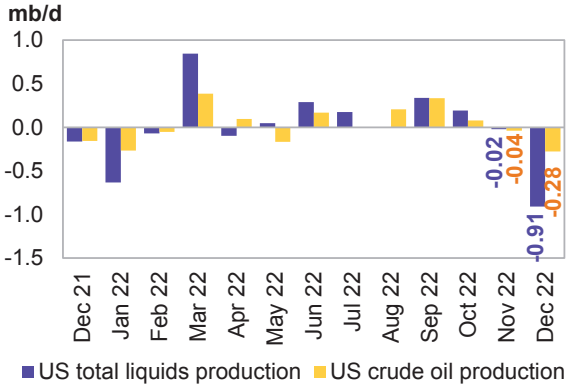
Looking at **individual states**, New Mexico's oil production rose by 46 tb/d to average 1.8 mb/d, which is 405 tb/d higher than a year ago. Texas production was down by 65 tb/d to average 5.1 mb/d, which is 156 tb/d higher than a year ago. In the Midwest, North Dakota's production fell m-o-m by 135 tb/d to average 0.9 mb/d, down by 187 tb/d y-o-y, and Oklahoma's production was down m-o-m by 26 tb/d to average of 0.4 mb/d. Alaska's output remained broadly stable m-o-m, and in Colorado, production fell by 37 tb/d.

Graph 5 - 7: US monthly crude oil and total liquids supply



Sources: EIA and OPEC.

Graph 5 - 8: US monthly crude oil and total liquids supply, m-o-m changes



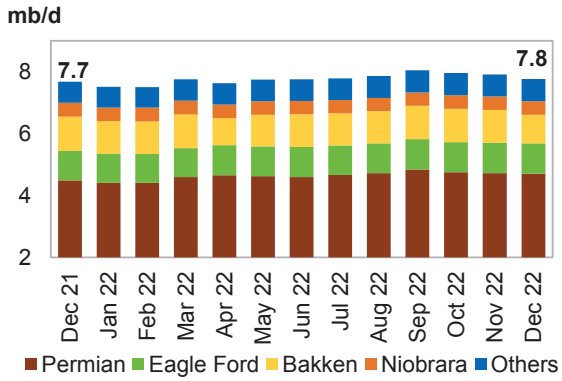
Sources: EIA and OPEC.

US tight crude output in **December 2022** is estimated to have dropped by 145 tb/d m-o-m to average 7.8 mb/d, according to the latest estimation. This was 0.1 mb/d higher than in the same month of the previous year.

The m-o-m decrease from shale and tight formations using horizontal wells came mainly from the Bakken, where output decreased by 133 tb/d to average 0.9 mb/d. This was down by 179 tb/d y-o-y.

In Texas and New Mexico, Permian shale production dropped by 21 tb/d, averaging 4.7 mb/d. This is up by 211 tb/d y-o-y. Tight crude output at Eagle Ford in Texas remained broadly stable at an average 1.0 mb/d. This is up by 29 tb/d y-o-y. Production in Niobrara-Codell in Colorado and Wyoming was also unchanged at an average of 0.4 mb/d.

Graph 5 - 9: US tight crude output breakdown



Sources: EIA and OPEC.

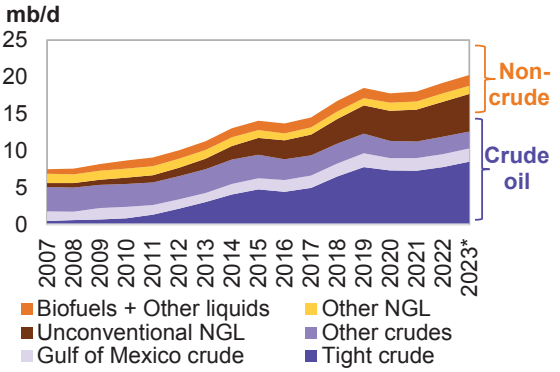
US liquids production in 2022, excluding processing gains, is estimated to have expanded y-o-y by 1.2 mb/d to average 19.2 mb/d. This is revised down by 19 tb/d compared with the previous assessment, due to a crude and NGLs output slump in December and upward biofuel adjustments. Tight crude is assessed to have grown by 0.5 mb/d in 2022 to average 7.8 mb/d. In addition, NGLs (mainly from unconventional basins) are estimated to have grown by 0.5 mb/d to average 5.9 mb/d, and production in the GoM is estimated to have increased by a minor 36 tb/d. Non-conventional liquids and the crude from conventional reservoirs are assessed to have expanded by 78 tb/d to average 1.4 mb/d and by 0.1 mb/d to average 2.4 mb/d, respectively.

US crude oil and condensate production is estimated to grow by 0.6 mb/d y-o-y to average 11.9 mb/d in 2022.

US liquids production in 2023, excluding processing gains, is forecast to expand y-o-y by 1.1 mb/d to average 20.3 mb/d, revised down by 38 tb/d from the previous assessment, due to lower output expectation in 1Q23 and lower-than-expected upstream activities in this period. Greater drilling activity and fewer supply chain/logistical issues in the prolific Permian, Eagle Ford and Bakken shale sites are still assumed for 2023. Given a sound level of oil field drilling and well completions, crude oil output is anticipated to increase by 0.7 mb/d y-o-y to average 12.6 mb/d. Average tight crude output in 2023 is forecast at 8.5 mb/d, up by 0.7 mb/d y-o-y.

At the same time, NGLs production and non-conventional liquids, particularly ethanol, are forecast to increase y-o-y by 0.3 mb/d and 40 tb/d, to average 6.2 mb/d and 1.5 mb/d, respectively.

Graph 5 - 10: US liquids supply developments by component



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

The 2023 forecast assumes continuing capital discipline, lower inflationary pressures, as well as moderate supply chain issues and oil field service constraints (labour and equipment). Tightness in the hydraulic fracking and professional labour market is expected to remain a challenge for US upstream producers in this year.

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

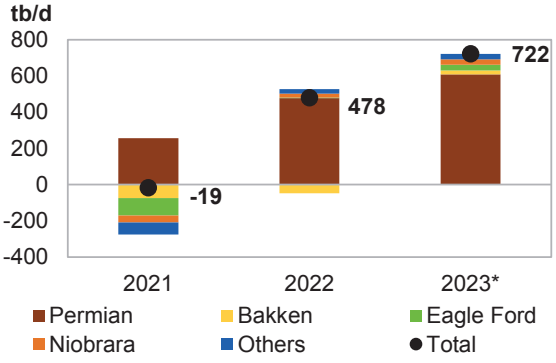
US liquids	2021	Change 2021/20	2022	Change 2022/21	2023*	Change 2023/22
Tight crude	7.29	-0.02	7.77	0.48	8.49	0.72
Gulf of Mexico crude	1.71	0.04	1.74	0.04	1.83	0.09
Conventional crude oil	2.26	-0.09	2.37	0.12	2.28	-0.09
Total crude	**11.25**	**-0.06**	**11.88**	**0.63**	**12.60**	**0.72**
Unconventional NGLs	4.31	0.23	4.74	0.43	5.10	0.36
Conventional NGLs	1.12	0.02	1.14	0.02	1.09	-0.05
Total NGLs	**5.42**	**0.25**	**5.88**	**0.46**	**6.19**	**0.30**
Biofuels + Other liquids	1.36	0.10	1.44	0.08	1.48	0.04
US total supply	**18.04**	**0.28**	**19.21**	**1.16**	**20.27**	**1.07**

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

US tight crude production in the **Permian** in 2022 is estimated to have increased y-o-y by 0.5 mb/d to 4.6 mb/d. It is forecast to grow by 0.6 mb/d y-o-y to average 5.3 mb/d in 2023.

The **Bakken** shale production decline that occurred in 2020 and 2021 continued in 2022. Tight crude production in the Bakken is estimated to have dropped by 48 tb/d in 2022 to average 1.0 mb/d. This is much lower than the pre-pandemic average output of 1.4 mb/d. In addition to several weather-related outages, drilling activity in North Dakota and available DUC wells were lower than the levels required to revive output. In 2023, growth is forecast to resume at 21 tb/d to average 1.1 mb/d.

Graph 5 - 11: US tight crude output by shale play, y-o-y changes



*Note: * 2023 = Forecast.*
Sources: EIA and OPEC.

The **Eagle Ford** in Texas saw output of 1.2 mb/d in 2019, which declined in 2020 and 2021. It is estimated to have remained broadly unchanged in 2022 to average 0.96 mb/d. Growth of around 30 tb/d is then forecast for 2023, to average just under 1.0 mb/d.

Niobrara production is estimated to have grown y-o-y by 22 tb/d in 2022 and is forecast to increase by 30 tb/d in 2023 to average 435 tb/d and 465 tb/d, respectively. Other shale plays are expected to show marginal increases of 25 tb/d and 30 tb/d in 2022 and 2023, respectively, 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	4.17	0.26	4.64	0.48	5.25	0.61
Bakken shale	1.08	-0.07	1.03	-0.05	1.05	0.02
Eagle Ford shale	0.96	-0.10	0.96	0.00	0.99	0.03
Niobrara shale	0.41	-0.04	0.44	0.02	0.47	0.03
Other tight plays	0.67	-0.07	0.70	0.02	0.73	0.03
Total	**7.29**	**-0.02**	**7.77**	**0.48**	**8.49**	**0.72**

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

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

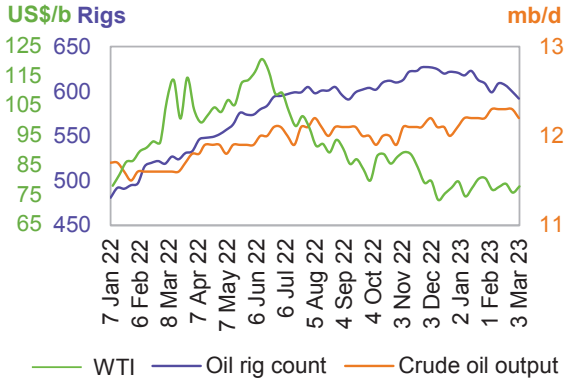
Total **active US drilling rigs** fell by four to 749 in the week ending 3 March 2023. This was up by 99 rigs compared with a year ago. The number of active offshore rigs fell w-o-w to 16, a decrease of one. This is higher by four compared with the same month a year earlier. Onshore oil and gas rigs were lower by two w-o-w to stand at 732 rigs, up by 97 rigs y-o-y, with one rig in inland waters.

The **US horizontal rig count** fell by three w-o-w to 690, compared with 595 horizontal rigs a year ago. The number of drilling rigs for oil fell by eight w-o-w to 592. Conversely, gas-drilling rig counts were up by three to 154.

The Permian's rig count fell by four w-o-w to 349 rigs. However, rig counts remained steady in Eagle Ford, Williston and DJ-Niobrara at 71, 42 and 15, respectively. The rig count rose by one w-o-w in Cana Woodford to 31.

One operating oil rig remained in the Barnett basin, unchanged w-o-w, but down from two last month.

Graph 5 - 12: US weekly rig count vs. US crude oil output and WTI price



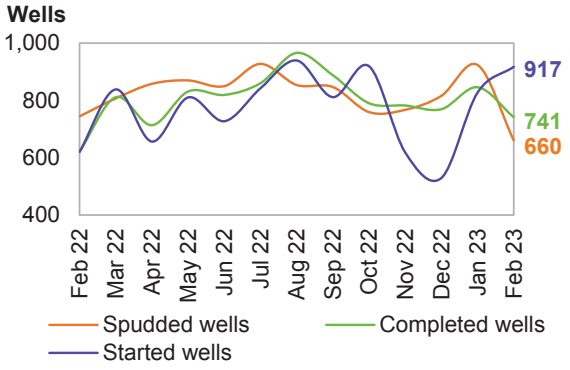
Sources: Baker Hughes, EIA and OPEC.

Drilling and completion (D&C) activities for spudded, completed and started oil-producing wells in all US shale plays, based on EIA-DPR regions, included 924 horizontal wells spudded in January (as per preliminary data). This is up by 108 m-o-m, and 11% higher than in January 2022.

January preliminary data indicates a higher number of completed wells at 846, which is up 13% y-o-y. Moreover, the number of started wells was estimated at 827, which is 21% higher than a year earlier.

Preliminary data for February 2023 estimates 660 spudded, 741 completed and 917 started wells, according to Rystad Energy.

Graph 5 - 13: Spudded, completed and started wells in US shale plays

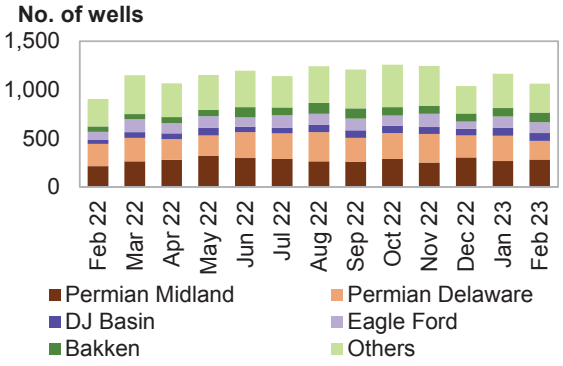


Note: Jan 23-Feb 23 = Preliminary data.
Sources: Rystad Energy and OPEC.

In terms of identified **US oil and gas fracking operations by region**, Rystad Energy reported that 1,039 wells were fracked in December 2022. In January and February, it stated that 1,166 and 1,064 wells began fracking, respectively. Preliminary numbers are based on analysis of high-frequency satellite data.

Preliminary January data showed that 266 and 262 wells were fracked in the Permian Midland and Permian Delaware, respectively. Compared with December, there was a decline of 38 in the Midland and a jump of 37 in the Delaware. Data also indicated that 83 wells were fracked in the DJ Basin, 114 in Eagle Ford and 87 in Bakken during January.

Graph 5 - 14: Fracked wells count per month



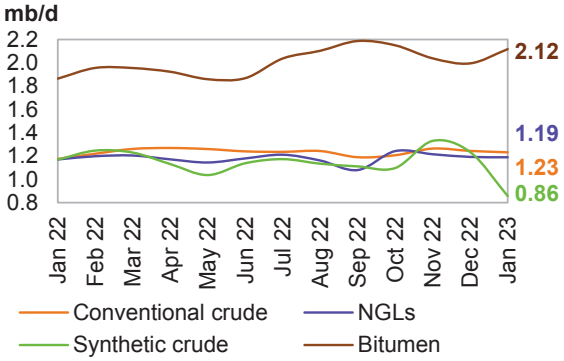
Note: Jan 23-Feb 23 = Preliminary data.
Sources: Rystad Energy Shale Well Cube and OPEC.

Canada

Canada's liquids production in **January** is estimated to have dropped m-o-m by 0.3 mb/d to average 5.4 mb/d. It continued to fall from the highest production on record in November, due to weather-related impacts on mining activities.

Conventional crude production decreased m-o-m by 12 tb/d to average 1.2 mb/d, while NGLs output remained broadly unchanged and averaged 1.2 mb/d. Crude bitumen production output rose m-o-m by 122 tb/d in January, while synthetic crude dropped by 375 tb/d. Taken together, crude bitumen and synthetic crude production decreased by 253 tb/d to 3.0 mb/d.

Graph 5 - 15: Canada's monthly liquids production development by type



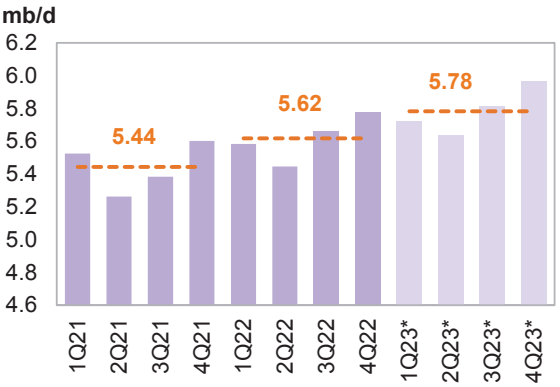
Sources: Statistics Canada, Alberta Energy Regulator and OPEC.

Canada's liquids supply in **2022** is estimated to have expanded by 0.2 mb/d to average 5.6 mb/d, broadly unchanged from the previous assessment. Oil sands output, mainly from Alberta, saw an average of 3.2 mb/d in 2022.

Canada's production recorded the highest level in 4Q22 due to turnaround recoveries and project ramp-ups. However, disruptions due to weather-related issues imposed some reductions on 1Q23 outputs, especially for synthetic crude oil.

For **2023**, Canada's liquids production is forecast to increase at a pace similar to 2022, rising by 0.2 mb/d to average 5.8 mb/d. This is revised down by 30 tb/d due to lower-than-expected production in 1Q23. Incremental production will come through oil sand project ramp-ups and debottlenecks alongside conventional growth.

Graph 5 - 16: Canada's quarterly liquids production and forecast



*Note: * 1Q23-4Q23 = Forecast. Source: OPEC.*

In the upcoming upstream maintenance season, output at the Syncrude upgrader in 2Q23 and 4Q23 will fall by an average 40 tb/d and 20 tb/d, respectively, and production at the Suncor U2 upgrader is expected to decline during 3Q23 and 4Q23 by an average 60 tb/d and 75 tb/d, respectively. Maintenance at the Scotford upgrader is planned for a period in 2Q23 and at the Horizon upgrader for a month from mid-May. In addition, output from the Kearl and Fort Hills mining projects is expected to fall due to maintenance work in 2Q23 and 3Q23. However, the Terra Nova Floating Production Storage and Offloading (FPSO) platform is expected to resume production in 2Q23 on Newfoundland's coast, reaching 30 tb/d at peak by the end of the year.

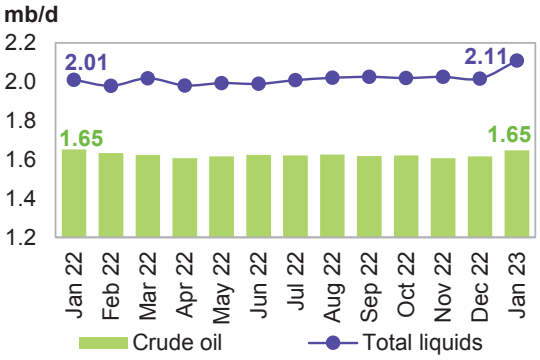
Mexico

Mexico's crude output increased by 31 tb/d m-o-m in **January** to average 1.6 mb/d, driven mainly by the ramp-up of the Quesqui field, and NGLs output rose by 61 tb/d. This saw Mexico's total January liquids output jump m-o-m by 92 tb/d to average 2.1 mb/d, according to the Comisión Nacional de Hidrocarburos (CNH).

For **2022**, Mexico's liquids production is estimated to have averaged 2.0 mb/d, broadly unchanged from the previous month's assessment. Growth of 50 tb/d is estimated for 2022.

For **2023**, liquids production is forecast to decline by 14 tb/d to average 1.99 mb/d, which is up by 15 tb/d from the previous assessment, due to higher output expectation for 1Q23. The total crude production decline in Pemex's mature fields is projected to outweigh production ramp-ups, mainly from Mexico's foreign-operated fields. In its latest investor presentation, Pemex highlighted the importance of its priority fields (mainly condensate and light crude) to achieve its goal of production. However, persistent declines in Pemex's heavy mature oil fields were set to mostly offset its other grades.

Graph 5 - 17: Mexico's monthly liquids and crude production development



Sources: Mexico Comision Nacional de Hidrocarburos (CNH) and OPEC

OECD Europe

Norway

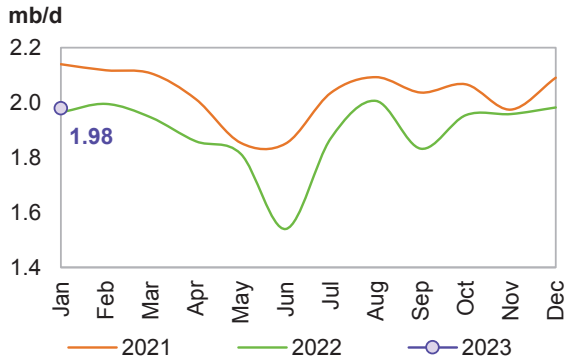
Norwegian liquids production in **January** remained broadly unchanged m-o-m at average 2.0 mb/d, which was lower than expectations, due to power-related outages at Johan Sverdrup phase-2.

Norway's crude production fell by 15 tb/d m-o-m in January to average 1.8 mb/d, up by 20 tb/d y-o-y. Monthly oil production was 3% lower than the Norwegian Petroleum Directorate's (NPD) forecast.

On the other hand, production of NGLs and condensates rose by 12 tb/d m-o-m averaging 0.2 mb/d, according to NPD data.

For **2022**, production in the Norwegian Continental Shelf is estimated to have declined by around 140 tb/d y-o-y, to average 1.9 mb/d, reflecting poor performance in Norwegian fields.

Graph 5 - 18: Norway's monthly liquids production development



Sources: The Norwegian Petroleum Directorate (NPD) and OPEC.

For **2023**, Norwegian liquids production is forecast to expand by 0.2 mb/d, revised down by 70 tb/d compared with the previous month, to average 2.1 mb/d. This was mainly due to unplanned outages in 1Q23 and considering maintenance for 2Q23.

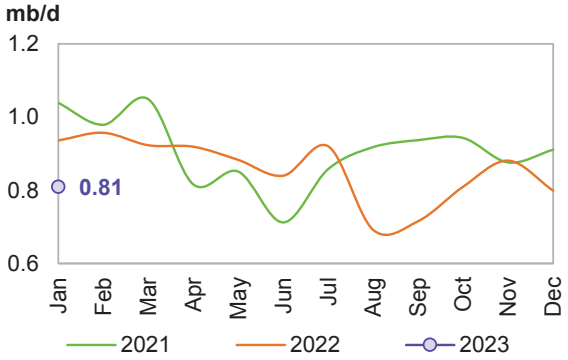
A number of small-to-large projects are scheduled to ramp up in 2023. The continuing Johan Sverdrup ramp-up is projected to be the main source of growth, after the Phase 2 start-up in December 2022. However, production from the Johan Sverdrup field, which accounts for more than a third of Norwegian oil output, suffered a power outage in January through Phase 2 of the development. The production was shut on 11 January and came back on stream after nine days, according to Equinor. In addition, Equinor halted production for a few days at Johan Sverdrup Phase 1 on 6 February due to a technical fault in the cooling system. It seems that field underperformance remains an issue throughout this year.

UK

UK liquids production rose marginally m-o-m in **January** by 11 tb/d to average 0.8 mb/d. Crude oil output increased by 13 tb/d m-o-m to average 0.7 mb/d, according to official data, which was lower by 0.1 mb/d y-o-y. NGLs output remained broadly unchanged at an average of 83 tb/d. UK liquids output in January was down by 13.5% from the same month a year earlier, mainly due to natural declines and other outages.

For **2022**, UK liquids production is estimated to have dropped by 51 tb/d to average 0.9 mb/d. This is chiefly unchanged from the previous assessment.

Graph 5 - 19: UK monthly liquids production development



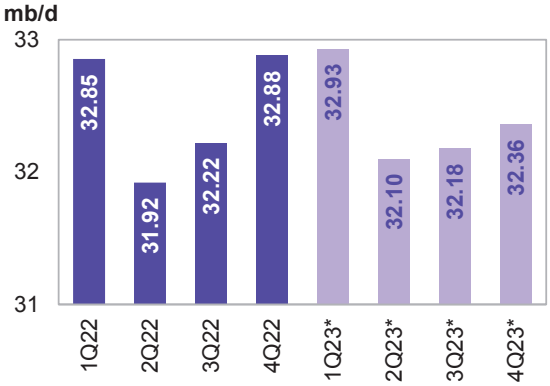
Sources: UK Department for Business, Energy and Industrial Strategy and OPEC.

For **2023**, UK liquids production is forecast to increase by 28 tb/d to average 0.9 mb/d. This is revised down by 20 tb/d from the previous assessment, mainly due to lower-than-expected output in 1Q23.

A number of new fields, including Seagull, the Penguins Redevelopment, Captain EOR and Saturn Banks phase 1 will help offset base declines in 2023. Project sanctioning will be essential to maintain future oil and gas output, as UK production has been in long-term decline. However, the UK upstream sector could be under pressure due to government windfall taxes starting in January 2023 and running through 2028.

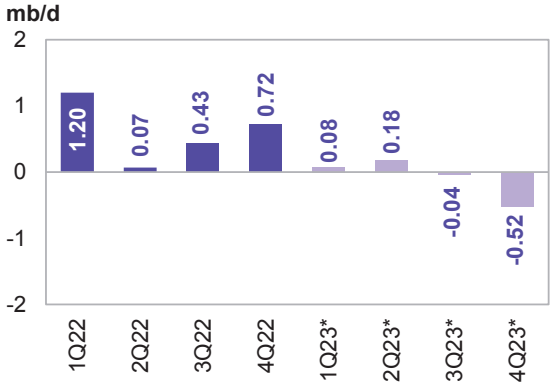
Non-OECD

Graph 5 - 20: Non-OECD quarterly liquids production and forecast



*Note: * 1Q23-4Q23 = Forecast. Source: OPEC.*

Graph 5 - 21: Non-OECD quarterly liquids supply, y-o-y changes

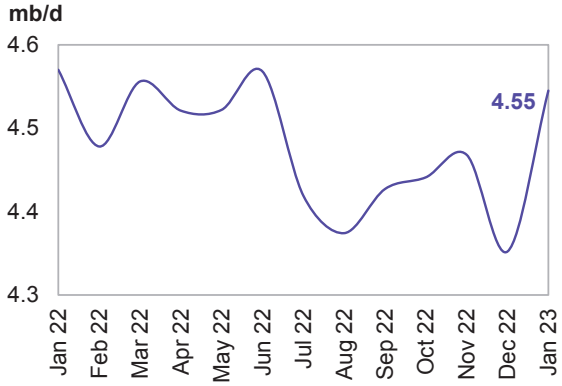


*Note: * 1Q23-4Q23 = Forecast. Source: OPEC.*

China

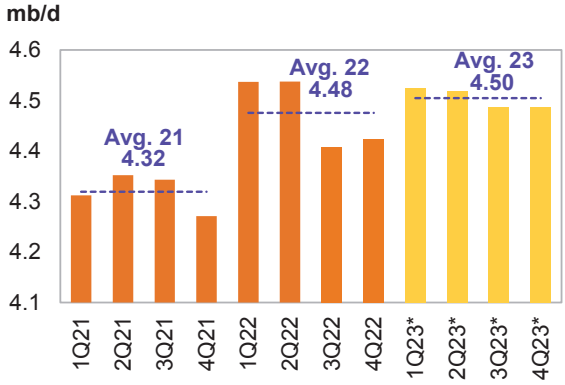
China's liquids production rose m-o-m in **January** by 193 tb/d to average 4.5 mb/d, which is a decline of 25 tb/d y-o-y, according to official data. Crude oil output in January averaged 4.2 mb/d, up by 185 tb/d compared with the previous month but lower y-o-y by 27 tb/d. NGLs and condensate production was largely stable m-o-m, averaged at 48 tb/d.

Graph 5 - 22: China's monthly liquids production development



Sources: CNPC and OPEC.

Graph 5 - 23: China's quarterly liquids production and forecast



*Note: * 1Q23-4Q23 = Forecast. Sources: CNPC and OPEC.*

For **2022**, growth of 156 tb/d is estimated for an average of 4.5 mb/d. This is revised up by a minor 9 tb/d from the previous assessment, due to historical non-conventional adjustments.

For **2023**, y-o-y growth of about 30 tb/d is forecast for an average of 4.5 m/d, unchanged from last month's assessment. Natural decline rates are expected to be offset by additional growth through more infill wells and enhanced oil recovery (EOR) projects amid efforts by state-owned oil companies to ensure energy supply security.

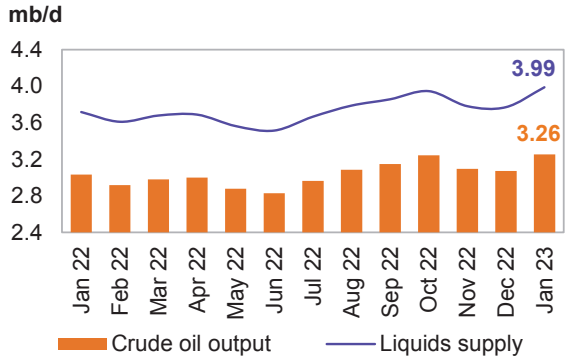
New offshore discoveries, the development of remote onshore basins and more investment in advanced EOR projects are expected to offset the declining output of mature fields. China National Offshore Oil Corporation (CNOOC), which has been the main contributor to growth in China's oil and gas output in recent years, has raised its 2023 production target by around 8%. As of January, CNOOC has completed the second phase drilling programme of the Weizhou 12-8E oil field development project in Block 22/12 in the Beibu Gulf offshore China.

Latin America

Brazil

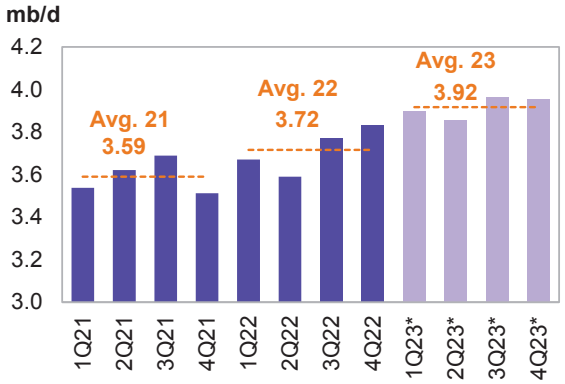
Brazil's crude output in **January** jumped m-o-m by 181 tb/d to average 3.3 mb/d. NGLs production was mostly stable at average 89 tb/d and this is expected to remain flat in February. Biofuels output (mainly ethanol) rose in January by 40 tb/d to an average of 643 tb/d, with preliminary data showing a steady trend in February. The country's total liquids production increased by 217 tb/d in January to average 4.0 mb/d, the highest production rate on record.

Graph 5 - 24: Brazil's monthly liquids production development by type



Sources: Brazilian National Agency of Petroleum, Natural Gas and Biofuels (ANP) and OPEC.

Graph 5 - 25: Brazil's quarterly liquids production



*Note: * 1Q23-4Q23 = Forecast. Sources: ANP and OPEC.*

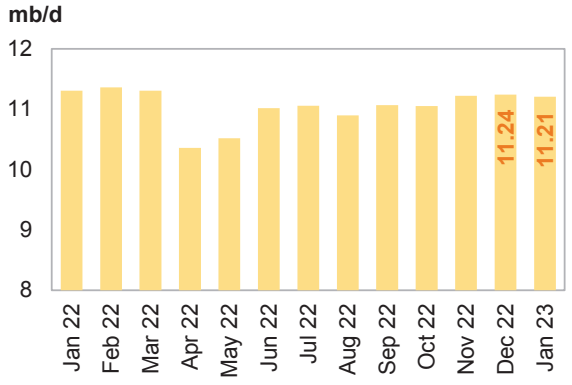
For **2022,** Brazil's liquids supply, including biofuels, is estimated to have increased by 0.1 mb/d y-o-y to average 3.7 mb/d. This is revised down by 13 tb/d from the previous month's assessment, due to historical adjustments in biofuel production.

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, broadly unchanged from the previous forecast. Crude oil output is set to increase through production ramp-ups in the Buzios (Franco), Mero (Libra NW), Tupi (Lula), Peregrino, Sepia, Marlim and Itapu (Florim) fields. However, offshore maintenance is expected to cause some interruptions in major fields. January production growth was partly due to the newly commissioned P-71 FPSO. The P-71 platform, at the Itapu field in the Santos basin presalt area, has the capacity to process up to 150 tb/d of oil and 6 mcm/d of gas, in addition to storing up to 1.6 mb of oil.

Russia

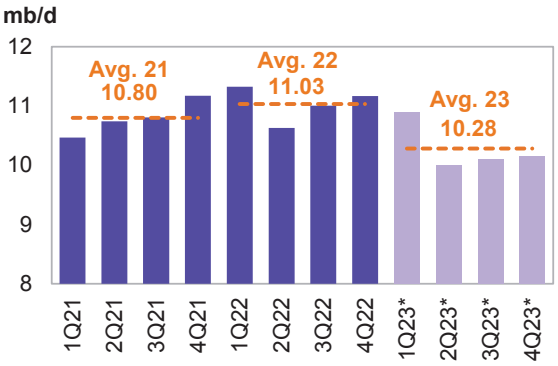
Russia's liquids production in January decreased m-o-m by 36 tb/d to average 11.2 mb/d. This includes 9.8 mb/d of crude oil and 1.4 mb/d of NGLs and condensate. A preliminary estimate of Russia's crude production in February 2023 shows stable m-o-m output at an average 9.8 mb/d, while NGLs and condensate were relatively stable.

Graph 5 - 26: Russia's monthly liquids production



Sources: Nefte Compass and OPEC.

Graph 5 - 27: Russia's quarterly liquids production



*Note: * 1Q23-4Q23 = Forecast.*
Sources: Nefte Compass and OPEC.

Russian liquids output in **2022** is estimated to have increased y-o-y by 0.2 mb/d to average 11.0 mb/d. This is broadly unchanged from the previous month's assessment.

For **2023**, Russian liquids production is forecast to drop by 0.7 mb/d to average 10.3 mb/d. Annual growth is revised up by around 152 tb/d from the previous monthly assessment, due to higher-than-expected production in 1Q23 (although production projection for remaining months of the year is maintained as projected last month). In addition to a number of planned start-ups this year, by Lukoil, Gazprom, Novatek, Sigma Energy and others, it should be noted that Russia's oil forecast remains subject to high uncertainty due to geopolitical developments in Eastern Europe.

Caspian

Kazakhstan & Azerbaijan

Liquids output in Kazakhstan decreased by 14 tb/d m-o-m to average 2.0 mb/d in **January**. Crude production was up by a minor 6 tb/d m-o-m to average 1.6 mb/d, while NGLs and condensate fell by 20 tb/d m-o-m to average 0.3 mb/d.

Kazakhstan's liquids supply for **2022** is forecast to have declined by 44 tb/d y-o-y to average 1.8 mb/d. This is broadly unchanged compared with the previous month's assessment.

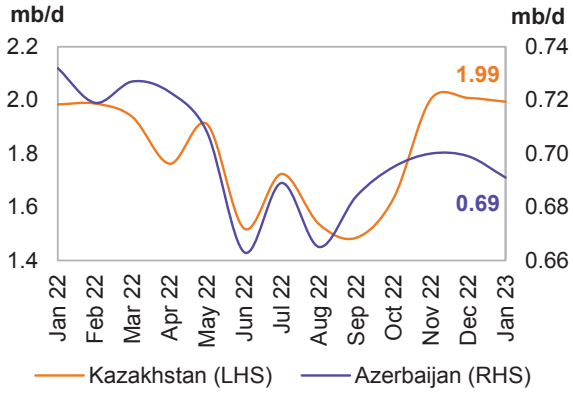
For **2023**, liquids supply is forecast to increase by 159 tb/d, mainly unchanged compared with the previous forecast to average 1.9 mb/d. Kazakhstan's crude production was under pressure in February due to the temporary suspension of loadings at the Black Sea port of Novorossiysk because of bad weather. It returned to normal operations on 27 February. In addition to the Kashagan oil field ramp-up, oil output in the Tengiz field and gas condensate production in the Karachaganak field are expected to rise marginally this year.

Azerbaijan's liquids production in January decreased slightly by 8 tb/d m-o-m, averaging 0.7 mb/d, which is a drop of 41 tb/d y-o-y. Crude production averaged 541 tb/d, with NGLs output at 150 tb/d, according to official sources.

For **2022**, liquids supply in Azerbaijan is estimated to have declined y-o-y by 40 tb/d to average 0.7 mb/d.

Azerbaijan's liquids supply for **2023** is forecast to rise by 55 tb/d to average 0.8 mb/d. This is a downward revision of a minor 5 tb/d, due to lower-than-expected production in major oil fields in January. The main declines in legacy fields are expected to be offset by ramp-ups in other fields. Growth is forecast to come from the Shah Deniz and Absheron gas condensate projects; production could rise further after crude output starts up at the Azeri Central East flank project in 4Q23.

Graph 5 - 28: Caspian monthly liquids production development by selected country



Sources: Nefte Compass, JODI and OPEC.

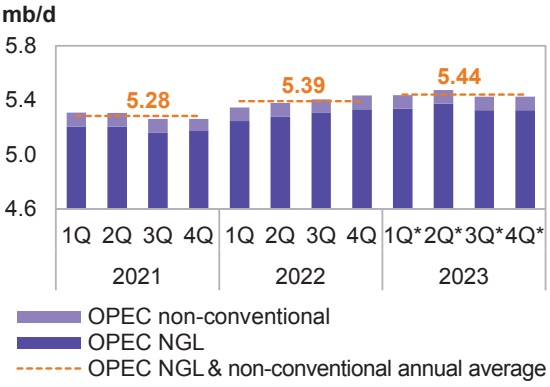
OPEC NGLs and non-conventional oils

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

NGLs output in 4Q22 is estimated to have averaged 5.33 mb/d, while OPEC non-conventional output remained steady at 0.1 mb/d. Taken together, 5.4 mb/d is expected for January 2023, according to preliminary data.

OPEC NGLs and non-conventional liquids are forecast to expand by around 50 tb/d in **2023** to average 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 - 29: OPEC NGLs and non-conventional liquids quarterly production and forecast



*Note: * 1Q23-4Q23 = Forecast. Source: OPEC.*

Table 5 - 6: OPEC NGL + 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: 2023 = Forecast. Source: OPEC.

OPEC crude oil production

According to secondary sources, total **OPEC-13 crude oil production** averaged 28.92 mb/d in February 2023, higher by 117 tb/d m-o-m. Crude oil output increased mainly in Nigeria, Saudi Arabia and Congo, while production in Angola and Iraq declined.

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

Secondary sources	2021	2022	2Q22	3Q22	4Q22	Dec 22	Jan 23	Feb 23	*Change* Feb/Jan
Algeria	913	1,017	1,015	1,040	1,030	1,015	1,016	1,017	*1*
Angola	1,122	1,140	1,173	1,154	1,084	1,108	1,136	1,084	*-52*
Congo	263	261	266	264	252	240	255	276	*21*
Equatorial Guinea	98	84	90	90	64	60	54	63	*9*
Gabon	182	197	191	201	199	193	186	196	*9*
IR Iran	2,392	2,554	2,555	2,565	2,567	2,580	2,554	2,571	*17*
Iraq	4,046	4,438	4,440	4,522	4,503	4,468	4,412	4,387	*-25*
Kuwait	2,419	2,705	2,690	2,801	2,713	2,648	2,694	2,683	*-11*
Libya	1,143	981	743	976	1,153	1,159	1,148	1,164	*16*
Nigeria	1,372	1,204	1,209	1,063	1,171	1,271	1,308	1,380	*72*
Saudi Arabia	9,114	10,531	10,450	10,894	10,606	10,474	10,302	10,361	*59*
UAE	2,727	3,066	3,045	3,168	3,094	3,042	3,046	3,042	*-4*
Venezuela	553	678	709	662	667	661	696	700	*4*
Total OPEC	**26,345**	**28,857**	**28,576**	**29,400**	**29,103**	**28,919**	**28,807**	**28,924**	***117***

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	2021	2022	2Q22	3Q22	4Q22	Dec 22	Jan 23	Feb 23	*Change* Feb/Jan
Algeria	911	1,020	1,016	1,050	1,030	1,009	1,012	1,014	*2*
Angola	1,124	1,140	1,173	1,151	1,076	1,088	1,105	1,064	*-41*
Congo	267	262	258	261	261	257	275	273	*-3*
Equatorial Guinea	93	81	91	83	56	54	55	50	*-5*
Gabon	181	191	184	198	183	189	206	207	*1*
IR Iran	..	..	..	..	..	..	..	..	..
Iraq	3,971	4,450	4,472	4,632	4,505	4,431	4,331	..	..
Kuwait	2,415	2,707	2,694	2,799	2,721	2,676	2,676	2,676	*0*
Libya	1,207	..	..	..	..	..	..	..	..
Nigeria	1,323	1,143	1,133	999	1,145	1,235	1,258	1,306	*48*
Saudi Arabia	9,125	10,591	10,542	10,968	10,622	10,435	10,453	10,450	*-3*
UAE	2,718	3,064	3,042	3,170	3,093	3,043	3,038	3,041	*3*
Venezuela	636	716	745	673	693	669	732	704	*-28*
Total OPEC	..	..	..	..	..	..	..	..	..

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

Commercial Stock Movements

Preliminary January 2023 data sees total OECD commercial oil stocks up by 34.9 mb, m-o-m. At 2,802 mb, they were 147 mb higher than the same time one year ago, but 75 mb lower than the latest five-year average and 124 mb below the 2015–2019 average. Within the components, crude and product stocks rose m-o-m by 10.5 mb and 24.5 mb, respectively.

At 1,372 mb, OECD crude stocks were 120 mb higher than the same time a year ago, but 4 mb lower than the latest five-year average and 59 mb lower than the 2015–2019 average.

OECD product stocks stood at 1,430 mb, representing a rise of 26 mb from the same time a year ago, but they were 71 mb lower than the latest five-year average and 65 mb below the 2015–2019 average.

In terms of days of forward cover, OECD commercial stocks rose m-o-m by 0.8 days in January 2023 to stand at 60.8 days. This is 2.9 days above the January 2022 level, but 3.1 days less than the latest five-year average and 1.2 days lower than the 2015–2019 average.

Preliminary data for February 2023 showed that total US commercial oil stocks rose by 22.9 mb m-o-m to stand at 1,258.5 mb. This is 93.0 mb higher than the same month in 2022 and 16.6 mb above the latest five-year average. Crude stocks rose by 27.5 mb, while product stocks fell by 4.6 mb, m-o-m.

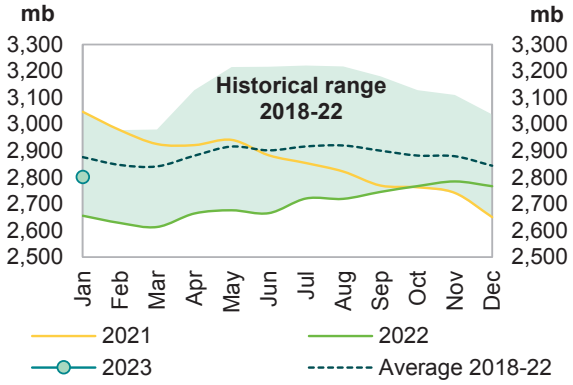
OECD

Preliminary **January 2023** data sees **total OECD commercial oil stocks** up m-o-m by 34.9 mb. At 2,802 mb, they were 147 mb higher than the same time one year ago, but 75 mb lower than the latest five-year average and 124 mb below the 2015–2019 average.

Within the components, crude and product stocks rose m-o-m by 10.5 mb and 24.5 mb, respectively. Within the OECD regions, total commercial oil stocks in January 2023 rose in OECD Americas and OECD Europe, while they fell in OECD Asia Pacific.

OECD commercial **crude stocks** stood at 1,372 mb in January. This is 120 mb higher than the same time a year ago, but 4 mb lower than the latest five-year average and 59 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 Americas saw a crude stock build of 23.1 mb, while stocks in OECD Asia Pacific and OECD Europe dropped by 4.1 mb and 8.5 mb, respectively.

Total product inventories stood at 1,430 mb in January 2023. This is 26 mb above the same time a year ago; 71 mb lower than the latest five-year average and 65 mb below the 2015–2019 average. Compared with the previous month, OECD Americas and OECD Europe witnessed product stock builds of 8.1 mb and 17.0 mb, respectively, while product stocks in OECD Asia Pacific fell by 0.7 mb.

Table 9 - 1: OECD commercial stocks, mb

OECD stocks	Jan 22	Nov 22	Dec 22	Jan 23	Change Jan 23/Dec 22
Crude oil	1,252	1,348	1,362	1,372	*10.5*
Products	1,404	1,437	1,406	1,430	*24.5*
Total	**2,656**	**2,785**	**2,767**	**2,802**	***34.9***
Days of forward cover	**57.9**	**60.3**	**60.1**	**60.8**	***0.8***

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 m-o-m by 0.8 days in January 2023 to stand at 60.8 days. This is 2.9 days above January 2022 level, but 3.1 days lower than the latest five-year average and 1.2 days lower than the 2015–2019 average.

All three OECD regions were below the latest five-year average: the Americas by 3.3 days at 60.5 days; Asia Pacific by 1.1 days at 47.0 days; and Europe by 4.4 days at 69.2 days.

OECD Americas

OECD Americas' total commercial stocks rose by 31.2 mb m-o-m in January to settle at 1,510 mb, which is 58 mb higher than the same month in 2022, but 17 mb lower than the latest five-year average.

Commercial **crude oil stocks** in OECD Americas rose m-o-m by 23.1 mb in January to stand at 770 mb, which is 44 mb higher than in January 2022 and 11 mb above the latest five-year average. The monthly build in crude oil stocks can be attributed to lower US crude runs, which dropped by around 400 tb/d to 15.44 mb/d.

Total product stocks in OECD Americas rose m-o-m by 8.1 mb in January to stand at 740 mb, which is 14 mb higher than the same month in 2022, but 28 mb below the latest five-year average. Lower consumption in the region was behind the product stock build.

OECD Europe

OECD Europe's total commercial stocks rose m-o-m by 8.5 mb in January to settle at 934 mb. This is 54 mb higher than the same month in 2022, but 42 mb below the latest five-year average.

OECD Europe's **commercial crude stocks** fell by 8.5 mb m-o-m to end the month of January at 410 mb, which is 39 mb higher than one year ago, but 6 mb lower than the latest five-year average. The drop in crude oil inventories came despite refinery throughput in the EU-14, plus the UK and Norway dropping by around 140 tb/d m-o-m to stand at 9.79 mb/d.

By contrast, Europe's **product stocks** rose m-o-m by 17.0 mb to end January at 525 mb, which is 15 mb higher than a year ago at the same time, but 36 mb below the latest five-year average.

OECD Asia Pacific

OECD Asia Pacific's total commercial oil stocks fell m-o-m by 4.8 mb in January to stand at 358 mb, which is 34 mb higher than a year ago at the same time, but 16 mb below the latest five-year average.

OECD Asia Pacific's **crude inventories** fell by 4.1 mb m-o-m to end January at 192 mb, which is 37 mb higher than one year ago, but 9 mb below the latest five-year average.

OECD Asia Pacific's **total product inventories** fell m-o-m by 0.7 mb to end January at 166 mb, which is 3.2 mb lower than the same time a year ago and 7.5 mb below the latest five-year average.

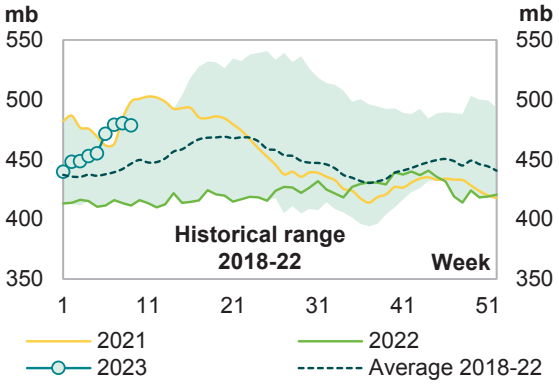
US

Preliminary data for **February 2023** showed that **total US commercial oil stocks** rose by 22.9 mb m-o-m to stand at 1,258.5 mb. This is 93.0 mb, or 8.0%, higher than the same month in 2022; and 16.6 mb, or 1.3%, above the latest five-year average. Crude stocks rose by 27.5 mb, while product stocks fell by 4.6 mb, m-o-m.

US commercial **crude stocks** in February 2023 stood at 480.2 mb. This is 71.1 mb, or 17.4%, higher than the same month of the previous year, and 34.0 mb, or 7.6%, above the latest five-year average. The monthly build in crude oil stocks can be attributed to lower crude runs, which dropped by around 30 tb/d to 15.41 mb/d.

In contrast, **total product stocks** fell in February 2023 to stand at 778.3 mb. This is 22.0 mb, or 2.9%, higher than February 2022 levels; but 17.4 mb, or 2.2%, lower than the latest five-year average. The stock drop could be attributed to higher product consumption.

Graph 9 - 2: US weekly commercial crude oil inventories



Sources: EIA and OPEC.

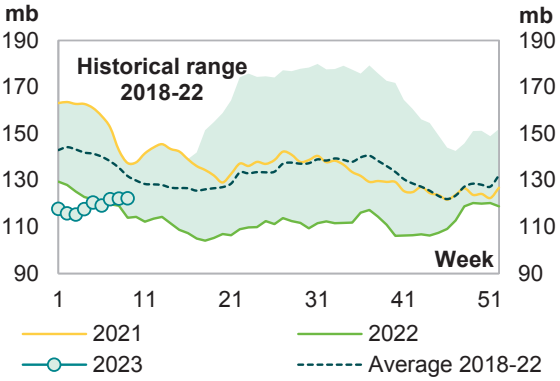
Gasoline stocks rose m-o-m by 4.6 mb in February 2023 to settle at 239.2 mb. This is 11.2 mb, or 4.5%, lower than in the same month of 2022; and 10.8 mb, or 4.3%, lower than the latest five-year average.

Distillate stocks rose m-o-m by 4.5 mb in February 2023 to stand at 122.1 mb. This is 1.3 mb, or 1.0%, higher than the same month of the previous year; but 12.5 mb, or 9.3%, below the latest five-year average.

Jet fuel stocks rose m-o-m by 2.1 mb, ending February 2023 at 37.6 mb. This is 2.3 mb, or 5.8%, lower than the same month in 2022, and 4.0 mb, or 9.5%, below the latest five-year average.

By contrast, **residual fuel oil stocks** fell by 0.6 mb m-o-m in February 2023. At 30.7 mb, this was 3.2 mb, or 11.4%, higher than a year earlier, and 0.4 mb, or 1.2%, above the latest five-year average.

Graph 9 - 3: US weekly distillate inventories



Sources: EIA and OPEC.

Table 9 - 2: US commercial petroleum stocks, mb

US stocks	Feb 22	Dec 22	Jan 23	Feb 23	*Change* Feb 23/Jan 23
Crude oil	**409.1**	**429.6**	**452.7**	**480.2**	***27.5***
Gasoline	250.4	224.3	234.6	239.2	*4.6*
Distillate fuel	120.8	118.8	117.6	122.1	*4.5*
Residual fuel oil	27.5	30.7	31.3	30.7	*-0.6*
Jet fuel	39.9	35.0	35.5	37.6	*2.1*
Total products	**756.3**	**792.1**	**782.9**	**778.3**	***-4.6***
Total	**1,165.5**	**1,221.6**	**1,235.6**	**1,258.5**	***22.9***
SPR	**578.9**	**372.0**	**371.6**	**371.6**	***0.0***

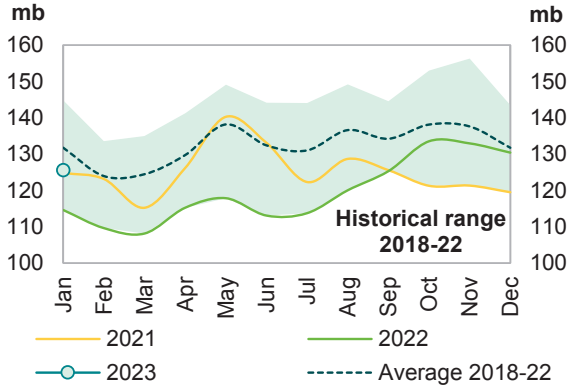
Sources: EIA and OPEC.

Japan

In **Japan**, **total commercial oil stocks** in **January** fell m-o-m by 4.8 mb to settle at 125.6 mb. This is 11.0 mb, or 9.6%, higher than the same month in 2022; but 6.2 mb, or 4.7%, below the latest five-year average. Crude and product stocks fell m-o-m by 4.1 mb and 0.7 mb, respectively.

Japanese **commercial crude oil stocks** fell m-o-m by 4.1 mb in January to stand at 67.2 mb. This is 11.2 mb, or 20.1%, higher than the same month of the previous year; but 3.7 mb, or 5.3%, lower than the latest five-year average. This crude stock draw came on the back of lower crude imports, which declined m-o-m by 235 tb/d, or 8.0%, to stand at 2.72 mb/d.

Graph 9 - 4: Japan's commercial oil stocks



Sources: METI and OPEC.

Japan's **total product inventories** fell m-o-m by 0.7 mb to end January at 58.4 mb. This is 0.3 mb, or 0.4% less than the same month in 2022; and 2.4 mb, or 4.0%, below the latest five-year average.

Gasoline stocks rose m-o-m by 1.0 mb to stand at 11.2 mb in January. This was 0.2 mb, or 1.5%, below a year earlier at the same time; and 0.4 mb, or 3.6%, lower than the latest five-year average. The build came on the back of lower gasoline consumption, which dropped by 14.6% m-o-m.

By contrast, **distillate stocks** fell m-o-m by 0.7 mb to end January at 26.4 mb. This is 0.1 mb, or 0.4%, above the same month in 2022 and 0.7 mb, or 2.7%, below the latest five-year average. Within distillate components, kerosene and gasoil stocks went down by 3.9% and 3.7%, respectively, while jet fuel oil stocks rose by 2.4%.

Total residual fuel oil stocks fell m-o-m by 0.7 mb to end January at 11.1 mb. This is 0.9 mb, or 7.2%, lower than in the same month of the previous year; and 1.7 mb, or 13.1%, below the latest five-year average. Within the components, fuel oil A stocks rose by 2.3%, while fuel oil B.C stocks fell by 11.1%, m-o-m.

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

Japan's stocks	Jan 22	Nov 22	Dec 22	Jan 23	Change Jan 23/Dec 22
Crude oil	**55.9**	**67.1**	**71.3**	**67.2**	***-4.1***
Gasoline	11.4	11.1	10.2	11.2	*1.0*
Naphtha	9.1	10.0	10.0	9.7	*-0.3*
Middle distillates	26.3	32.1	27.1	26.4	*-0.7*
Residual fuel oil	11.9	12.6	11.8	11.1	*-0.7*
Total products	**58.7**	**65.8**	**59.1**	**58.4**	***-0.7***
Total**	**114.6**	**132.9**	**130.4**	**125.6**	***-4.8***

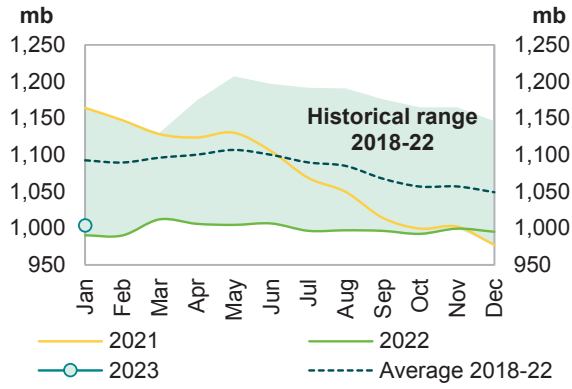
*Note: * At the end of the month. ** Includes crude oil and main products only.*
Sources: METI and OPEC.

EU-14 plus UK and Norway

Preliminary data for **January** showed that **total European commercial oil stocks** rose m-o-m by 8.5 mb to stand at 1,003.8 mb. At this level, they were 13.3 mb, or 1.3%, above the same month a year earlier, but 88.9 mb, or 8.1%, lower than the latest five-year average. Crude stocks fell by 8.5 mb, while product stocks rose by 17.0 mb, m-o-m.

European **crude inventories** fell in January to stand at 428.0 mb. This is 18.8 mb, or 4.6%, higher than the same month in 2022, but 29.8 mb, or 6.5%, below the latest five-year average. The drop in crude oil inventories came despite refinery throughput in the EU-14, plus the UK and Norway dropping by around 140 tb/d m-o-m to stand at 9.79 mb/d.

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



Sources: Argus, Euroilstock and OPEC.

By contrast, **total European product stocks** rose m-o-m by 17.0 mb to end January at 575.8 mb. This is 5.5 mb, or 0.9%, lower than the same month of the previous year; and 59.1 mb, or 9.3%, below the latest five-year average.

Gasoline stocks rose m-o-m by 4.7 mb in January to stand at 108.0 mb. At this level, they were 7.3 mb, or 6.4%, lower than the same time a year earlier; and 14.1 mb, or 11.5%, below the latest five-year average.

Middle distillate stocks rose m-o-m by 10.8 mb in January to stand at 376.5 mb. This is 7.4 mb, or 1.9%, below the same month in 2022; and 42.2 mb, or 10.1%, lower than the latest five-year average.

Residual fuel stocks rose m-o-m by 1.3 mb in January to stand at 60.6 mb. This is 2.5 mb, or 4.3%, higher than the same month in 2022; but 3.8 mb, or 5.9%, below the latest five-year average.

Meanwhile, **naphtha stocks** increased m-o-m by 0.3 mb in January, ending the month at 30.7 mb. This is 6.8 mb, or 28.7%, higher than the January 2022 level; and 1.0 mb, or 3.2%, higher than the latest five-year average.

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

EU stocks	Jan 22	Nov 22	Dec 22	Jan 23	Change Jan 23/Dec 22
Crude oil	**409.2**	**439.8**	**436.5**	**428.0**	***-8.5***
Gasoline	115.4	105.5	103.4	108.0	*4.7*
Naphtha	23.9	27.9	30.5	30.7	*0.3*
Middle distillates	383.9	365.3	365.7	376.5	*10.8*
Fuel oils	58.1	61.1	59.3	60.6	*1.3*
Total products	**581.3**	**559.7**	**558.8**	**575.8**	***17.0***
Total	**990.5**	**999.6**	**995.3**	**1,003.8**	***8.5***

Sources: Argus, Euroilstock and OPEC.

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

Singapore

In **January**, **total product stocks in Singapore** rose m-o-m by 2.6 mb to reach 46.7 mb. This is 0.3 mb, or 0.7%, lower than the same month in 2022 and 0.7 mb, or 1.4%, below the latest five-year average.

Light distillate stocks rose m-o-m by 2.0 mb in January to stand at 17.0 mb. This is 1.3 mb, or 8.1%, higher than the same month of the previous year and 2.5 mb, or 17.2%, above the latest five-year average.

Middle distillate stocks also rose m-o-m by 1.1 mb in January to stand at 9.1 mb. This is 0.9 mb or 10.8% higher than a year earlier at the same time, but 1.8 mb, or 16.5%, lower than the latest five-year average.

By contrast, **residual fuel oil stocks** fell m-o-m by 0.5 mb, ending January at 20.6 mb. This is 2.5 mb, or 10.8%, lower than January 2022, and 1.4 mb, or 6.3%, below the latest five-year average.

ARA

Total product stocks in ARA rose m-o-m in **January** by 2.2 mb. At 44.8 mb, they were 6.3 mb, or 16.3%, higher than the same month in 2022; and 1.3 mb, or 3.0%, higher than the latest five-year average.

Gasoline stocks in January rose by 0.6 mb m-o-m to stand at 12.0 mb, which is 1.5 mb, or 14.3%, higher than the same month of the previous year; and 1.9 mb, or 18.3%, above the latest five-year average.

Gasoil stocks rose by 2.4 mb m-o-m, ending January at 17.0 mb. This is 5.1 mb, or 42.3%, higher than January 2022; but 1.1 mb, or 5.9%, below the latest five-year average.

By contrast, **jet oil stocks** fell by 0.5 mb m-o-m to stand at 6.3 mb. This is 0.3 mb, or 4.9%, lower than levels seen in January 2022; but 0.7 mb, or 12.8%, above the latest five-year average.

Meanwhile, **fuel oil stocks** remained unchanged m-o-m in January to stand at 7.2 mb, which is 0.5 mb, or 6.7%, less than in January 2022; but 0.1 mb, or 1.1%, higher than the latest five-year average.

Fujairah

During the week ending 27 February 2023, **total oil product stocks in Fujairah** fell w-o-w by 0.52 mb to stand at 21.90 mb, according to data from Fed Com and S&P Global Platts. At this level, total oil stocks were 2.87 mb higher than at the same time a year ago.

Light distillate stocks fell by 0.96 mb to stand at 7.28 mb, which is 0.49 mb higher than a year ago. **Middle distillate stocks** also fell w-o-w by 0.44 mb to stand at 1.42 mb, which is 1.04 mb lower than the same time last year. By contrast, **heavy distillate stocks** rose by 0.89 mb w-o-w to stand at 13.20 mb in the week to 27 February 2023, which is 3.43 mb higher than the same period a year ago.

Table 11 - 1: World oil demand and supply balance, mb/d

World oil demand and supply balance	2019	2020	2021	1Q22	2Q22	3Q22	4Q22	2022	1Q23	2Q23	3Q23	4Q23	2023
World demand													
Americas	25.40	22.45	24.32	24.77	24.98	25.33	25.02	25.03	24.86	25.17	25.63	25.18	25.21
of which US	*20.58*	*18.35*	*20.03*	*20.38*	*20.41*	*20.62*	*20.43*	*20.46*	*20.41*	*20.46*	*20.85*	*20.49*	*20.55*
Europe	14.31	12.41	13.13	13.19	13.43	14.07	13.37	13.52	13.12	13.41	14.11	13.42	13.52
Asia Pacific	7.95	7.17	7.38	7.85	6.99	7.22	7.77	7.46	7.89	7.05	7.27	7.79	7.50
Total OECD	**47.66**	**42.03**	**44.83**	**45.81**	**45.40**	**46.63**	**46.16**	**46.00**	**45.88**	**45.63**	**47.01**	**46.39**	**46.23**
China	13.81	13.94	15.00	14.77	14.45	14.67	15.51	14.85	15.23	15.40	15.43	16.16	15.56
India	4.99	4.51	4.77	5.18	5.16	4.95	5.26	5.14	5.41	5.44	5.21	5.50	5.39
Other Asia	9.06	8.13	8.67	9.13	9.31	8.77	8.89	9.02	9.46	9.65	9.14	9.24	9.37
Latin America	6.59	5.90	6.23	6.32	6.36	6.55	6.49	6.43	6.44	6.49	6.71	6.65	6.58
Middle East	8.20	7.45	7.79	8.06	8.13	8.50	8.42	8.28	8.45	8.46	8.84	8.71	8.61
Africa	4.44	4.08	4.22	4.51	4.15	4.25	4.69	4.40	4.71	4.34	4.43	4.88	4.59
Russia	3.57	3.39	3.61	3.67	3.42	3.45	3.66	3.55	3.68	3.45	3.59	3.82	3.64
Other Eurasia	1.19	1.07	1.21	1.22	1.16	1.00	1.21	1.15	1.21	1.16	1.02	1.22	1.15
Other Europe	0.76	0.70	0.75	0.79	0.75	0.73	0.80	0.77	0.80	0.76	0.75	0.83	0.79
Total Non-OECD	**52.62**	**49.16**	**52.25**	**53.65**	**52.88**	**52.86**	**54.93**	**53.58**	**55.40**	**55.14**	**55.13**	**57.00**	**55.67**
(a) Total world demand	**100.27**	**91.19**	**97.08**	**99.45**	**98.28**	**99.49**	**101.10**	**99.58**	**101.28**	**100.77**	**102.14**	**103.39**	**101.90**
Y-o-y change	***1.08***	***-9.09***	***5.89***	***5.18***	***2.55***	***1.76***	***0.59***	***2.50***	***1.82***	***2.49***	***2.65***	***2.29***	***2.32***
Non-OPEC liquids production													
Americas	25.88	24.87	25.45	26.11	26.51	27.26	27.47	26.84	27.44	27.89	28.25	28.62	28.06
of which US	*18.53*	*17.76*	*18.04*	*18.51*	*19.07*	*19.57*	*19.67*	*19.21*	*19.67*	*20.26*	*20.45*	*20.68*	*20.27*
Europe	3.74	3.92	3.79	3.72	3.46	3.51	3.61	3.58	3.74	3.74	3.80	3.93	3.80
Asia Pacific	0.52	0.52	0.51	0.49	0.51	0.43	0.49	0.48	0.49	0.47	0.49	0.48	0.48
Total OECD	**30.15**	**29.31**	**29.75**	**30.32**	**30.49**	**31.20**	**31.56**	**30.90**	**31.67**	**32.11**	**32.55**	**33.03**	**32.34**
China	4.05	4.16	4.32	4.54	4.54	4.41	4.42	4.48	4.52	4.52	4.49	4.49	4.50
India	0.83	0.78	0.78	0.79	0.78	0.76	0.76	0.77	0.78	0.79	0.78	0.78	0.78
Other Asia	2.75	2.53	2.42	2.37	2.32	2.24	2.31	2.31	2.38	2.37	2.34	2.36	2.36
Latin America	6.09	6.02	5.96	6.11	6.18	6.46	6.59	6.34	6.62	6.62	6.67	6.73	6.66
Middle East	3.16	3.15	3.20	3.25	3.29	3.32	3.30	3.29	3.27	3.31	3.34	3.34	3.32
Africa	1.51	1.41	1.35	1.33	1.31	1.32	1.30	1.32	1.32	1.33	1.35	1.34	1.34
Russia	11.51	10.54	10.80	11.33	10.63	11.01	11.17	11.03	10.90	10.00	10.10	10.15	10.28
Other Eurasia	3.07	2.91	2.93	3.04	2.76	2.59	2.92	2.83	3.04	3.05	3.01	3.05	3.04
Other Europe	0.12	0.12	0.11	0.11	0.11	0.10	0.10	0.11	0.10	0.10	0.10	0.10	0.10
Total Non-OECD	**33.08**	**31.64**	**31.87**	**32.85**	**31.92**	**32.22**	**32.88**	**32.47**	**32.93**	**32.10**	**32.18**	**32.36**	**32.39**
Total Non-OPEC production	63.23	60.95	61.62	63.17	62.41	63.42	64.44	63.36	64.60	64.21	64.72	65.39	64.73
Processing gains	2.37	2.16	2.29	2.40	2.40	2.40	2.40	2.40	2.47	2.47	2.47	2.47	2.47
Total Non-OPEC liquids production	**65.60**	**63.11**	**63.90**	**65.57**	**64.81**	**65.82**	**66.84**	**65.76**	**67.07**	**66.68**	**67.19**	**67.86**	**67.20**
OPEC NGL + non-conventional oils	5.21	5.17	5.28	5.35	5.38	5.41	5.43	5.39	5.44	5.47	5.43	5.43	5.44
(b) Total non-OPEC liquids production and OPEC NGLs	**70.82**	**68.28**	**69.19**	**70.92**	**70.19**	**71.23**	**72.27**	**71.15**	**72.51**	**72.15**	**72.62**	**73.29**	**72.64**
Y-o-y change	***2.14***	***-2.54***	***0.91***	***2.76***	***1.30***	***2.05***	***1.76***	***1.97***	***1.60***	***1.96***	***1.39***	***1.01***	***1.49***
OPEC crude oil production (secondary sources)	29.36	25.72	26.35	28.34	28.58	29.40	29.10	28.86					
Total liquids production	100.18	94.00	95.53	99.25	98.76	100.63	101.38	100.01					
Balance (stock change and miscellaneous)	-0.09	2.81	-1.55	-0.20	0.49	1.13	0.28	0.43					
OECD closing stock levels, *mb*													
Commercial	2,894	3,037	2,651	2,613	2,665	2,746	2,767	2,767					
SPR	1,535	1,541	1,484	1,442	1,343	1,245	1,210	1,210					
Total	**4,429**	**4,578**	**4,134**	**4,055**	**4,009**	**3,991**	**3,977**	**3,977**					
Oil-on-water	1,033	1,148	1,202	1,231	1,304	1,407	1,399	1,399					
Days of forward consumption in OECD, *days*													
Commercial onland stocks	69	68	58	58	57	59	60	60					
SPR	37	34	32	32	29	27	26	26					
Total	**105**	**102**	**90**	**89**	**86**	**86**	**87**	**86**					
Memo items													
(a) - (b)	**29.46**	**22.91**	**27.89**	**28.54**	**28.09**	**28.27**	**28.82**	**28.43**	**28.77**	**28.62**	**29.52**	**30.10**	**29.26**

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

https://www.iea.org/reports/oil-market-report-march-2023

Oil Market Report - March 2023

Flagship report
March 2023

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

- Following an 80 kb/d contraction in 4Q22, world oil demand growth is set to accelerate sharply over the course of 2023, from 710 kb/d in 1Q23 to 2.6 mb/d in 4Q23. Average annual growth is forecast to ease from 2.3 mb/d in 2022 to 2 mb/d, and global oil demand to reach a record 102 mb/d. Rebounding air traffic and the release of pent-up Chinese demand dominate the recovery.

- World oil supply leapt 830 kb/d in February to 101.5 mb/d as the US and Canada rebounded strongly from winter storms and other outages., enough to meet demand in 1H23 but falling short in the second half when seasonal We expect non-OPEC+ to drive global output growth of 1.6 mb/d this year trends and China's recovery are set to boost demand to record levels.

- Global refinery throughputs reached a seasonal low in February at 81.1 mb/d, as the muted recovery in the US merged with the start of planned seasonal maintenance elsewhere. Despite the collapse in middle distillate cracks, refining margins remain healthy, especially for those running discounted Russian crude and feedstocks. We expect 2023 runs to average 82.1 mbd, up 1.8 mbd y-o-y.

- Russian oil exports fell by 500 kb/d to 7.5 mb/d in February as the EU embargo on refined oil products came into force. Shipments to the EU fell by 800 kb/d to 600 kb/d, compared with more than 4 mb/d at the start of 2022. Sailings to China and India also fell, while cargoes without a destination surged by 600 kb/d to 800 kb/d. Export revenues plunged another $2.7 bn to $11.6 bn, down 42% on a year-ago.

- Global observed inventories surged by 52.9 mb in January, following builds in both the OECD (+57.1 mb) and non-OECD (+13 mb) and a decline in oil on water (-17.2 mb). OECD industry oil stocks rose by 54.8 mb, four times the five-year average build. At 2 851 mb, stocks reached an 18-month high. Preliminary data for the US, Europe and Japan show a 7.8 mb increase in industry stocks in February.

- In range-bound trading, crude oil futures fell by about $1/bbl m-o-m in February as optimism surrounding China's reopening faded in the face of the hawkish drift in central bank policy. WTI continued to slump in physical differentials amid ongoing US crude stock builds. Prices fell a further $3/bbl in March as macroeconomic worries escalated following the collapse of Silicon Valley Bank.

Uncharted waters

The market is caught in the cross-currents of supply outstripping still-lacklustre demand, with stocks building to levels not seen in 18 months. Much of the supply overhang reflects ample Russian barrels racing to re-route to new destinations under the full force of EU embargoes. Despite the increasing dislocation in global trade, the rising stock cover has held the Brent crude oil futures in a relatively narrow $80-85/bbl range since the start of the year.

A 52.9 mb January surge in global inventories lifted known stocks to nearly 7.8 billion barrels, their highest level since September 2021 and preliminary indicators for February suggest further builds. Despite solid Asian demand growth, the market has been in surplus for three straight quarters.

While Russian oil production remained near pre-war levels in February, Russia's exports to world markets fell by more than 500 kb/d to 7.5 mb/d. Shipments to the EU plunged by 760 kb/d to just 580 kb/d. Over the past year, 4.5 mb/d of Russian oil previously going to the EU, North America and OECD Asia Oceania has had to find alternative outlets. Willing buyers in Asia, namely India and, to a lesser extent, China, have snapped up discounted crude oil cargoes, but increasing volumes on the water suggest the share of Russian oil in their import mix may be getting too big for comfort. Russia accounted for around 40% and 20% of Indian and Chinese crude imports, respectively, in February. The two countries took in more than 70% of Russia's crude exports last month.

While Russian crude oil shipments are almost exclusively heading to Asia, a more diverse set of buyers for products backed out of the EU is emerging. In February, Russian product exports to the EU and its G7 allies slumped by nearly 2 mb/d versus pre-war levels. At the same time, exports to Asia grew by less than 300 kb/d. Shipments to Africa, Türkiye and the Middle East rose by 300 kb/d, 240 kb/d and 175 kb/d, respectively, while Latin America received roughly the same as before the war. The lack of buyers saw oil pile up on the water and product exports drop by 650 kb/d y-o-y.

It remains to be seen if there will be sufficient appetite for Russian oil products now that the price cap is in place or if its production will start to fall under the weight of sanctions. Revenues are already dwindling. In February, Russia's estimated oil export revenues fell to $11.6 bn - a $2.7 bn decline from January when volumes were significantly higher, and nearly half pre-war levels. Russian fiscal receipts from oil sales were up 22% from January after export taxation rules were adjusted, but at $6.9 bn, just 45% of the level from a year earlier, according to the Russian finance ministry.

At least for this month, Moscow has signalled it will cut output by 500 kb/d. Even so, world oil supply should comfortably exceed demand in the first half of the year. Building stocks today will ease tensions as the market swings into deficit during the second half of the year when China is expected to drive world oil demand to record levels. Global demand is set to surge by 3.2 mb/d from 1Q23 to 4Q23, taking average growth for the year to 2 mb/d. Matching that increase would be a challenge even if Russia were able to maintain production at pre-war levels.

OPEC+ crude oil production[1]

million barrels per day

	Jan 2023 Supply	Feb 2023 Supply	Feb Prod vs Target	Feb-2023 Target	Sustainable Capacity[2]	Eff Spare Cap vs Feb[3]
Algeria	1.01	1.02	0.01	1.01	1.02	-0.0
Angola	1.11	1.06	-0.4	1.46	1.17	0.11
Congo	0.26	0.28	-0.03	0.31	0.28	0.0
Equatorial Guinea	0.05	0.06	-0.06	0.12	0.09	0.03
Gabon	0.19	0.2	0.02	0.18	0.2	0.0
Iraq	4.42	4.37	-0.06	4.43	4.7	0.33
Kuwait	2.68	2.68	0.0	2.68	2.8	0.12
Nigeria	1.25	1.3	-0.44	1.74	1.37	0.07
Saudi Arabia	10.41	10.47	-0.01	10.48	12.22	1.75
UAE	3.23	3.23	0.21	3.02	4.12	0.89
Total OPEC-10	**24.61**	**24.67**	**-0.75**	**25.42**	**27.98**	**3.32**
Iran[4]	2.63	2.65			3.8	
Libya[4]	1.14	1.16			1.2	0.04
Venezuela[4]	0.72	0.69			0.76	0.07
Total OPEC	**29.1**	**29.17**			**33.75**	**3.43**
Azerbaijan	0.53	0.53	-0.15	0.68	0.58	0.05
Kazakhstan	1.67	1.61	-0.02	1.63	1.65	0.04
Mexico[5]	1.65	1.65		1.75	1.66	0.01
Oman	0.84	0.84	0	0.84	0.86	0.02
Russia	9.78	9.91	-0.57	10.48	10.2	
Others [6]	0.78	0.82	-0.24	1.06	0.93	0.11
Total Non-OPEC	**15.26**	**15.36**	**-0.98**	**16.44**	**15.88**	**0.23**
OPEC+ 19 in cut deal[4]	**38.22**	**38.38**	**-1.72**	**40.1**	**42.2**	**3.54**
Total OPEC+	**44.36**	**44.53**			**49.63**	**3.66**

1. Excludes condensates. 2. Capacity levels can be reached within 90 days and sustained for an extended period. 3. Excludes shut in Iranian, Russian crude. 4. Iran, Libya, Venezuela exempt from cuts. 5. Mexico excluded from OPEC+ compliance. Only cut in May, June 2020. 6. Bahrain, Brunei, Malaysia, Sudan and South Sudan.

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

2023-03-15 09:00:00.4 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	103.5	103.0	101.3	100.3	100.8	100.8	98.8	99.6	102.0	100.0
Total OECD	46.6	47.0	45.9	46.0	46.0	46.6	45.4	45.8	46.4	46.0
Americas	25.1	25.5	25.1	25.0	25.0	25.3	25.0	24.8	25.2	25.0
Europe	13.6	14.1	13.6	13.1	13.3	14.1	13.4	13.2	13.6	13.5
Asia Oceania	7.8	7.4	7.1	7.9	7.7	7.2	7.0	7.9	7.6	7.4
Non-OECD countries	56.9	56.0	55.4	54.3	54.8	54.1	53.4	53.7	55.7	54.0
FSU	4.9	4.9	4.7	4.8	5.1	5.1	4.7	4.7	4.8	4.9
Europe	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
China	16.7	16.1	15.8	15.3	15.4	14.8	14.4	15.4	16.0	15.0
Other Asia	14.7	14.0	14.4	14.4	14.0	13.4	14.0	14.1	14.4	13.9
Americas	6.3	6.3	6.2	6.0	6.2	6.3	6.1	5.9	6.2	6.1
Middle East	9.2	9.8	9.4	8.8	9.1	9.6	9.2	8.6	9.3	9.1
Africa	4.3	4.2	4.2	4.2	4.3	4.1	4.2	4.2	4.2	4.2
	Supply									
Total Supply	n/a	n/a	n/a	n/a	101.3	101.1	98.8	98.8	n/a	100.0
Non-OPEC	67.0	67.1	66.9	66.7	66.6	66.2	64.8	65.0	66.9	65.7
Total OECD	31.1	30.8	30.5	30.1	30.0	29.7	28.9	28.8	30.6	29.4
Americas	27.3	27.2	26.8	26.4	26.4	26.2	25.4	25.0	26.9	25.7
Europe	3.3	3.2	3.2	3.3	3.2	3.1	3.0	3.3	3.2	3.2
Asia Oceania	0.5	0.5	0.4	0.5	0.5	0.4	0.5	0.5	0.5	0.5
Non-OECD	30.5	30.5	30.8	31.6	31.4	30.9	30.5	31.4	30.8	31.0
FSU	12.9	12.9	13.3	14.1	14.1	13.7	13.4	14.4	13.3	13.9
Europe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
China	4.2	4.2	4.2	4.3	4.1	4.1	4.2	4.2	4.2	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	6.2	6.2	6.1	6.0	5.8	5.8	5.5	5.4	6.1	5.6
Middle East	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.1	3.2	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	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3
Total OPEC	n/a	n/a	n/a	n/a	34.7	34.9	34.1	33.8	n/a	34.4
Crude	n/a	n/a	n/a	n/a	29.4	29.6	28.7	28.5	n/a	29.0
Natural gas liquids NGLs	5.4	5.4	5.4	5.4	5.3	5.4	5.4	5.3	5.4	5.3
Call on OPEC crude and stock change *	31.0	30.5	29.0	28.2	28.9	29.2	28.7	29.3	29.7	29.0

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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Mark Evans

IEA: February Crude Oil Production in OPEC Countries (Table)
2023-03-15 09:00:00.3 GMT
By Kristian Siedenburg
(Bloomberg) -- Following is a summary of oil production in OPEC countries from the International Energy Agency in Paris:

	Feb. 2023	Jan. 2023	Feb. MoM
Total OPEC	29.17	29.10	0.07
Total OPEC10	24.67	24.61	0.06
Algeria	1.02	1.01	0.01
Angola	1.06	1.11	-0.05
Congo	0.28	0.26	0.02
Equatorial Guinea	0.06	0.05	0.01
Gabon	0.20	0.19	0.01
Iraq	4.37	4.42	-0.05
Kuwait	2.68	2.68	0.00
Nigeria	1.30	1.25	0.05
Saudi Arabia	10.47	10.41	0.06
UAE	3.23	3.23	0.00
Iran	2.65	2.63	0.02
Libya	1.16	1.14	0.02
Venezuela	0.69	0.72	-0.03

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 World Oil Supply/Demand Key Forecasts
2023-03-15 09:00:00.6 GMT
By Kristian Siedenburg
(Bloomberg) -- World oil demand 2023 forecast was revised to 102.0m b/d from 101.9m b/d in Paris-based Intl Energy Agency's latest monthly report.
* 2022 world demand was unrevised at 100.0m b/d

* Demand change in 2023 est. 2% y/y or 2033m b/d
* Non-OPEC supply 2023 was revised to 66.9m b/d from 66.6m b/d
* Call on OPEC crude 2023 was revised to 29.7m b/d from 29.9m b/d
* Call on OPEC crude 2022 was revised to 29.0 m b/d from 28.9m b/d
** OPEC crude production in Feb. rose by 70k b/d on the month to 29.17m b/d
* Detailed table: FIFW NSN RRJV0JGFWR28 <GO>
* NOTE: Fcasts based off IEA's table providing one decimal point

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OPEC Crude Output Rose 70k B/D in February on Saudi Boost: IEA
2023-03-15 09:00:00.7 GMT
By Amanda Jordan
(Bloomberg) -- OPEC's February crude output rose 70k b/d from a month earlier to 29.17m b/d as Saudi Arabia and Nigeria led gains, the IEA said in its monthly oil-market report.
* Saudi production climbed 60k b/d to 10.47m b/d
* Supplies from its neighbors UAE and Kuwait held steady
* Iraqi production slipped 50k b/d to 4.37m b/d
* Output in Iran, exempt from OPEC+ quotas, inched up to 2.65m b/d
* In Africa, Nigerian production rose 50k b/d to 1.3m b/d as key export streams such as Forcados ramped up
* Angolan supply dropped 50k b/d to 1.06m b/d amid scheduled maintenance at the Dalia FPSO
* Libyan output edged up 20k b/d to 1.16m b/d
* Production in Venezuela slid 30k b/d to 690k b/d
* NOTE: On Tuesday, OPEC released its own production figures for February, estimating its 13 members pumped 28.92m b/d

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Russia Keeps Oil Exports Stable, but Revenue Plunges: IEA
2023-03-15 09:00:00.8 GMT
By Sherry Su
(Bloomberg) -- Russia is still exporting roughly the same amount of oil one year after the invasion of Ukraine, but its revenue has plunged by more than 40%, the IEA said in its monthly Oil Market Report.
* "The G7 sanctions regime has been effective in not restricting global crude and product supplies, while simultaneously curtailing Russia's ability to generate export revenue," IEA said
* In February, Russia earned $11.6b from oil sales of 7.5m b/d (-500k b/d m/m), compared with $14.3b in January and nearly $20b a year before
* Russian crude exports fell 200k b/d m/m in February with flows to Europe eased by 200k b/d primarily due to the halt in Druzhba pipeline flows to Poland: IEA
** Confirmed shipments to China decreased by 300k b/d from January's record-high but could end up higher once cargoes with no set destination find buyers
* Russian product exports to Europe decreased by 550k b/d m/m and 1.7m b/d y/y to 250k b/d
* Moscow appears to be re-directing some of its products to the Middle East (+190k b/d), Turkey (+230k b/d), Asia (+310k b/d) and Africa (+250k b/d), on y/y basis: IEA
** The Middle East was the first to emerge as a new outlet, snapping up barrels such as cheap naphtha and fuel oil very quickly after the invasion
** Turkey as well as Asian countries started to show interest in the middle of 2022– with China, India and countries on the Malay Peninsula especially keen
** Africa stepped up to buy after the imposition of the G7 price cap. Exports to the region have risen by 140k b/d to 430k b/d in February 2023, with the biggest increase for gasoil

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IEA Sees Jet Fuel Driving Oil Demand Growth as Travel Recovers
2023-03-15 09:00:00.9 GMT

By Rachel Graham
(Bloomberg) -- Jet fuel will account for more than half of this year's projected growth in global oil demand, the IEA said in its monthly Oil Market Report.
* Jet/kerosene consumption forecast to increase by 1.2m b/d in 2023, about 57% of the total
* Most of the growth will come from China and other parts of Asia
* In 2022, jet/kero demand was 77% of pre-pandemic levels
** This year, that figure will rise to 92% of the 2019 marker
* While flight numbers have recovered, flight routes are still slightly shorter than in pre-Covid times and smaller aircraft are being used
* "By the end of 2023 the rebound in air travel will have largely run its course, with organic growth in non-OECD economies lifting overall passenger numbers further beyond 2019 levels"
* Click here to see Bloomberg's Oil Demand Monitors

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Refinery Feedstock Prices Buoyed by Loss of Russian Supply: IEA
2023-03-15 09:00:00.12 GMT
By Rachel Graham
(Bloomberg) -- The loss of Russian supply of vacuum gasoil has pushed up prices of the feedstock needed by refiners for diesel and gasoline production, the IEA said in its monthly Oil Market Report.
* "VGO in Europe has consistently traded at a stronger premium to North Sea Dated than before the invasion of Ukraine and, at times, approached the price of gasoline"
* Tight market for feedstocks including VGO and straight-run residue are supporting light and middle distillate cracks

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Global Refining Runs Helped by Discounted Russian Crude: IEA
2023-03-15 09:00:00.11 GMT
By Rachel Graham
(Bloomberg) -- The wide availability of discounted Russian crude supplies and the rebound in Chinese demand raise the likelihood of stronger oil refining runs in the short term, the IEA said in its monthly Oil Market Report.
* Global crude runs are forecast to increase by 1.8m b/d in 2023 to 82.1m, unchanged from last month's report
** That reflects new capacity in the US, Middle East and Asia
* The rebound in jet fuel demand will "keep middle distillates front and centre of the need to boost runs in the coming quarters"
** OECD already data show that refiners remain close to max middle distillate yields, with jet and diesel markets structurally tight
** Middle distillate cracks also supported by the rebound in feedstock costs to produce diesel from upgrading units
* On Russia, the IEA said runs were 400k b/d ahead of its forecast for February at 5.7m b/d; that's down 100k b/d y/y
** For 2023, Russian runs forecast to drop by 320k b/d to 5.1m b/d

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https://www.globaltimes.cn/page/202302/1285849.shtml

Foreign airlines ramp up international flights to China amid rising demand

By Global Times Published: Feb 20, 2023 10:08 PM

Beijing airport Photo: VCG

A number of foreign airlines that have benefited from the rapid growth of China's outbound travel are working hard to restart flights serving the country as China has lifted the travel ban, bringing a fast recovery of demand.

KLM Royal Dutch Airlines, a subsidiary of the Air France-KLM Group, said it will increase the frequency of flights connecting with China starting from March 26. It also plans to have three flights from Amsterdam to Hong Kong and to start six direct flights per week to Beijing and Shanghai on the same day, and increase service to a daily flight from May.

Air France plans to increase the frequency of flights between Paris and Beijing, Shanghai and Hong Kong to one daily from July.

As a leading European airline group in China, Lufthansa Group has a long history. The first Lufthansa flight arrived in Beijing from Berlin in 1926.

After the reopening of the Chinese mainland, Lufthansa Group further increased its flight frequency. Starting from March, Lufthansa will double its flights to the Chinese mainland from five weekly flights to nine.

China is always a very important intercontinental market of Lufthansa, the company told the Global Times on Monday.

Airlines in Southeast Asia, which are favored by Chinese tourists, are expanding more rapidly. AirAsia restarted the Guangzhou-Kuala Lumpur route on February 11, and it plans to increase service to eight flights per week from March 2.

Emirates will increase flights between Dubai and Shanghai to daily from March, and will restart the Dubai-Beijing route on March 15. Qatar Airways announced that it will resume daily flight services from Doha to Beijing Daxing International Airport from March 26, while increasing services between Doha and Guangzhou to daily flights.

China-UK direct flights, which were interrupted during the COVID-19 epidemic, are set to resume soon.

According to British Airways, the route between London Heathrow Airport and Shanghai Pudong International Airport will be resumed operations on April 23, with seven flights per week, and British Airways will resume London Heathrow to Beijing Daxing International Airport on June 3.

China has maintained a fast recovery of international flights, as resumed weekly fixed passenger flights have increased by more than 60 percent over the week before downgrading management of COVID-19 on January 8.

The number of fixed international passenger flights stood at 795 across 98 carriers from home and abroad from February 6 to 12, covering 58 countries and regions, the Civil Aviation Administration of China said on Thursday.

The number of flights was up 65 percent over the week from January 2 to 8, the week before China prioritized its COVID-19 management.

Although the return of international routes is accelerating overall, market analysts said it is difficult for domestic airports to see a sharp increase in a short time.

By looking at routes longer than 3,000 miles, the number of flights departing from East Asian airports in the first quarter of this year was 41 percent lower than in the first quarter of 2019. The figure was partly influenced by the Chinese region, a report released by industry consultancy Cirium sent to the Global Times on Monday showed.

Due to the reopening of China, there may be significant changes to flight schedules in the region. The China flight schedule for the first quarter of 2023 shows that while inbound and outbound capacity is roughly 82 percent below pre-pandemic levels, it is more than double that of the first quarter of 2022, Cirium said.

Global Times

https://www.blackrock.com/corporate/investor-relations/larry-fink-annual-chairmans-letter

Larry Fink's Annual Chairman's Letter to Investors

Music plays a big role in my life. As a kid growing up in California, I used to go to the local record shop, buy a piece of vinyl and listen to the album on my record player. I still listen to records, though less often than when I was young. Today, streaming allows me to listen with ease to the whole album of an artist, or just that artist's greatest hits, or a playlist of my own compilations, or those of other listeners. We have so much choice at our fingertips.

Technology has also made financial markets much more affordable and accessible. Forty years ago, buying a stock or bond was a laborious process that required calling a stockbroker. The fees investors paid weren't always clear. Now anyone with a smartphone and a brokerage account has tens of thousands of ETFs, mutual funds, and single stocks at their fingertips, and can make a purchase with a few clicks. Technology has greatly expanded the amount of choice for savers and investors. It can't eliminate risks from investing (as we've seen all too vividly this past week), but technology has made financial markets more transparent, as well as easier and cheaper to access.

Making investing more accessible, affordable, and transparent to more people is core to our mission at BlackRock.

We are a fiduciary to our clients. The money we manage belongs to our clients who trust us to manage their investments to help them prepare for the future. Our fiduciary duty is to serve each and every client by seeking the best risk-adjusted returns within the investment guidelines they set for us. The powerful simplicity of our business model is that when we deliver value for our clients, we also create more value for our shareholders.

Part of supporting our clients includes speaking out on issues important to their investments. I've long believed that it's critical for CEOs to use their voice in the world – and there's never been a more crucial moment for me to use mine. I will do so whenever and wherever I believe it can serve the interests of our clients and the firm.

In recent years, I have written two letters each year - one on behalf of our clients to CEOs and the other to BlackRock shareholders. In November, on the anniversary of BlackRock introducing Voting Choice, I wrote to both CEOs and our clients to share my views on the transformative power of choice in proxy voting.

As we start 2023, it is clear to me that all of our stakeholders – BlackRock shareholders, clients, employees, partners, the communities where we operate, and the companies in which our clients are invested – are facing so many of the same issues. For that reason, this year, I am writing a single letter to investors, and we are sharing it with all of our stakeholders.

Clients have always been central to all we do. Today we serve clients who have a wide range of investment objectives, preferences, time horizons, and risk tolerances. We offer them choices to help them reach their investment goals. And we manage their assets consistent with their objectives and guidelines.

The new dollars – or euros, pounds or yen – that our clients award us are what our CFO, Martin Small, refers to as "units of trust." This trust our clients place with us to help them achieve their

financial goals is something we take extremely seriously. We are humbled that across the globe, because of that trust, clients turn to us more than any other firm in our industry. While most of our peers[1] saw net outflows in 2022, clients entrusted BlackRock to manage nearly $400 billion in long-term net new assets – including $230 billion in the U.S. alone. These industry-leading results reflect a strong endorsement by our clients of the choices we offer, the advice we provide, the long-term investment performance we have delivered, and the fiduciary standard we uphold.

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2022 was one of the most challenging market environments in history – a year in which *both* equity and bond markets declined for the first time in decades – and the challenges have continued into 2023. Through this, our people have stayed focused on delivering for our clients and providing them with outcomes suited to each of their unique goals and needs.

There are many people with opinions about how we should manage our clients' money. But the money doesn't belong to these people. It's not ours either. It belongs to our *clients*, and our responsibility and our duty is to them.

Choice has never been more important to BlackRock than it is today because we have never served a broader and more diverse set of clients. We see opinions diverging across regions – including the U.S. and Europe – and even within regions – especially in the U.S. That divergence creates challenges for a truly global asset manager like BlackRock. But I believe that in this environment the diversity of our offerings, our global perspective and insights, and our approach of always putting our clients' preferences at the center of our work remain powerful competitive advantages.

BlackRock has grown as more and more clients have placed their trust in us, and that growth in turn has allowed us to deliver better outcomes for both our clients and our shareholders. Our scale means we can deliver not only greater choice, but also financial benefits to clients through lower fees, tighter bid-ask spreads when trading securities, and more diversified service-provider relationships. In our iShares business, for example, we offer over 1,300 ETFs – more than any other firm. And since 2015, iShares fee reductions have helped investors save nearly $600 million.[2]

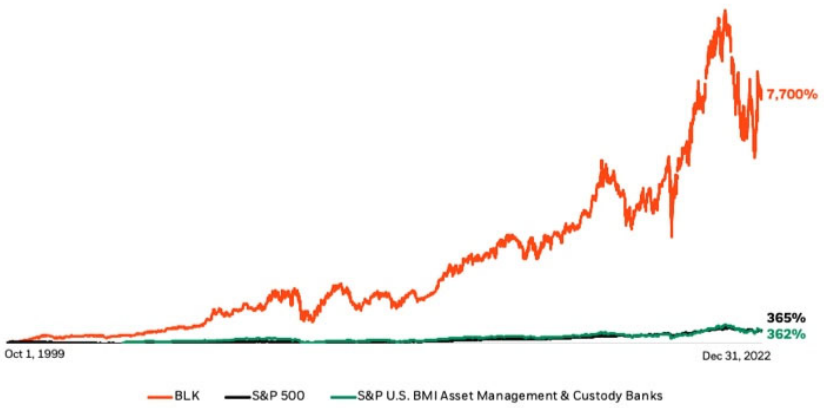
It is not only in ETFs where clients have benefitted from cost savings. Over five years, the asset-weighted average fees paid by our U.S. mutual fund and ETF investors, for example, have come down by approximately 35%[3] as clients benefit from our scale and product choice. This means our clients can keep more of what they earn and have a better opportunity to reach their financial goals.

At the same time, we are focused on delivering for our shareholders by maintaining strong margins. Our scale, technology and innovation help us continuously improve our operational excellence and drive cost savings that can then be used to fund investments back into the business to support future growth.

It's through our scaled, fiduciary model – which is centered on empowering our clients with comprehensive choices across the whole portfolio - that we have been able to deliver performance for

our shareholders. We are proud to be the highest-performing financial services stock in the S&P 500 since our IPO in 1999, delivering a total return of 7,700%.[4]

Total return since BlackRock's IPO



Source: S&P Global. The performance graph is not necessarily indicative of future investment performance. Please refer to the Important Notes section below for information on constituents of the S&P US BMI Asset Management & Custody Banks Index.

The BlackRock story

2023 marks the 35th anniversary of the founding of the firm and 24 years since our initial public offering, milestones I couldn't have imagined back in the late eighties. A lot has changed since then (although I'm still a big fan of my favorite 80s band Talk Talk and think they only got better with their later albums). Yet, when I reflect on our journey, certain things have remained consistent over the decades.

BlackRock as an asset manager is a fiduciary. We manage money on behalf of our clients to help them or the people they serve achieve their financial goals, including saving for retirement, a home, or a child's education. It's a huge source of pride for everyone at BlackRock that we play a role in helping millions of people around the world experience financial well-being. Knowing that we've helped firefighters and teachers retire with dignity after a lifetime of service, or that we've helped a family take some of the stress out of paying for college, is what gives me such pride in what we do.

One of BlackRock's most critical tasks as a fiduciary investor for our clients is to identify short- and long-term trends in the global economy that might affect our clients' investments. We do this across all sectors, including those that are essential to the future of the economy such as healthcare, technology and energy.

Our clients are often investing for the long term, and we evaluate all kinds of long-term investment risks that could impact their portfolios – such as inflation, geopolitics, or the energy transition. People around the world turn to BlackRock for our unique investment insights and guidance, comprehensive investment solutions, investment performance track record, and world-class investment and technology capabilities. It is our duty to provide clients with our perspective on matters that can affect asset prices and to help them navigate constantly evolving markets and

industries. Our commitment to our clients' financial interests is unwavering, undivided, and always designed for their specific needs.

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The price of easy money – are the dominoes starting to fall?

Since the financial crisis of 2008, markets were defined by extraordinarily aggressive fiscal and monetary policy. As a result of these policies, we've seen inflation move sharply higher to levels not seen since the 1980s. To fight this inflation, the Federal Reserve in the past year has raised rates nearly 500 basis points. This is one price we're already paying for years of easy money – and was the first domino to drop.

Bond markets were down 15% last year, but it still seemed, as they say in those old Western movies, "quiet, too quiet." Something else had to give as the fastest pace of rate hikes since the 1980s exposed cracks in the financial system.

This past week we saw the biggest bank failure in more than 15 years as federal regulators seized Silicon Valley Bank. This is a classic asset-liability mismatch. Two smaller banks failed in the past week as well. It's too early to know how widespread the damage is. The regulatory response has so far been swift, and decisive actions have helped stave off contagion risks. But markets remain on edge. Will asset-liability mismatches be the second domino to fall?

Prior tightening cycles have often led to spectacular financial flameouts – whether it was the Savings and Loan Crisis that unfolded throughout the eighties and early nineties or the bankruptcy of Orange County, California, in 1994. In the case of the S&L Crisis, it was a "slow rolling crisis" – one that just kept going. It ultimately lasted about a decade and more than a thousand thrifts went under.

We don't know yet whether the consequences of easy money and regulatory changes will cascade throughout the U.S. regional banking sector (akin to the S&L Crisis) with more seizures and shutdowns coming.

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It does seem inevitable that some banks will now need to pull back on lending to shore up their balance sheets, and we're likely to see stricter capital standards for banks.

Over the longer term, today's banking crisis will place greater importance on the role of capital markets. As banks potentially become more constrained in their lending, or as their clients awaken to these asset-liability mismatches, I anticipate they will likely turn in greater numbers to the capital markets for financing. And I imagine many corporate treasurers are thinking today about having their bank deposits swept nightly to reduce even overnight counterparty risk.

And, there could yet be a third domino to fall. In addition to duration mismatches, we may now also see liquidity mismatches. Years of lower rates had the effect of driving some asset owners to increase their commitments to illiquid investments – trading lower liquidity for higher returns. There's a risk now of a liquidity mismatch for these asset owners, especially those with leveraged portfolios.
As inflation remains elevated, the Federal Reserve will stay focused on fighting inflation and continue to raise rates. While the financial system is clearly stronger than it was in 2008, the monetary and fiscal tools available to policymakers and regulators to address the current crisis are limited, especially with a divided government in the United States.
With higher interest rates, governments can't sustain recent levels of fiscal spending and the deficits of previous decades, the U.S. government spent a record $213 billion on interest payments on its debt in the fourth quarter of 2022, up $63 billion from a year earlier. In the U.K., as gilts plunged last fall following the announcement of significant unfunded tax cuts, we saw how swiftly markets react when investors lose faith in their government's fiscal discipline.
After years of global growth being driven by record high government spending and record low rates, the world now needs the private sector to grow economies and elevate the living standards of people around the globe. We need leaders in both government and corporations to recognize this imperative and work together to unleash the potential of the private sector.

An economy of fragmentation

These dramatic changes in financial markets are happening at the same time as equally dramatic changes in the landscape of the global economy – all of which will keep inflation elevated for longer.
I wrote in last year's letter to shareholders about the profound shifts in globalization that we would see in 2022 as a result of Russia's invasion of Ukraine. The seeds of a backlash against globalization were planted long before this war in Europe. In 2017, I highlighted how globalization and technological change were dividing communities and impacting workers. The societal implications included Brexit, upheaval in the Middle East, and political polarization in the U.S.
Covid isolation has heightened this charged environment and led to greater protectionism and polarization. The lack of face-to-face interaction has had a profound effect on humanity. Video calls are no substitute for meeting in person or sharing a meal. The ability to connect has never been more important, whether you are the manager of a dozen people, the CEO of a multinational corporation or the leader of a global superpower wrestling with the new geopolitical landscape.
Employees want to connect with their companies and citizens want to believe in their governments, but polarization and fragmentation have eroded trust and diminished hope.
The repeated shocks of the past few years have also dramatically reshaped supply chains. The pandemic highlighted the need for supply chains to be resilient. Russia's invasion of Ukraine and growing geopolitical tensions have brought national and economic security front and center.
Whether it is for food and energy or computer chips and AI, companies and countries are all looking to ensure they are not dependent on supply chains exposed to geopolitical tensions. Increasingly, they want to source essential goods close to home even if it means higher prices. These shifts are producing a less integrated, more fragmented global economy. Leaders in public and private sectors

are essentially trading off efficiency and lower costs for resilience and national security. It is understandable public policy. But for investors it is important to recognize the risks and opportunities it creates.

Governments are playing a bigger role in where products can be sourced and where capital should be allocated as they look to keep the production of critical components inside their borders. This means capital won't necessarily be allocated to the businesses that deliver the maximum market return regardless of where they are located.

This may produce better national security outcomes with more resilient and secure supply chains. But in the near term, the effects are highly inflationary. This tradeoff between price and security is one of the reasons I believe inflation will persist and be more difficult for central bankers to tame over the long term. As a result, I believe inflation is more likely to stay closer to 3.5% or 4% in the next few years.

This new economy of fragmentation brings risks – like elevated inflation – but also opportunities.

I believe that North America could be one of the biggest global beneficiaries. We have a large and diverse labor force. We have abundant natural resources, with the potential for both energy and food security. Public policy is helping to keep chip manufacturing in the U.S., and the latest innovations in AI have become a new preoccupation. Other national winners will emerge as well.

> "Leaders in public and private sectors are essentially trading off efficiency and lower costs for resilience and national security… This trade-off between price and security is one of the reasons I believe inflation will persist and be more difficult for central bankers to tame over the long term."

Building a hopeful future for retirees

The world faces a "silent crisis" when it comes to retirement. You rarely hear about it in the news media. It's not part of the political dialogue in most countries. And corporate leaders rarely discuss it – not in public anyway. It doesn't make headlines or attract attention because it's not immediate. It's not this year's – or even next year's – problem. But it is a crisis. And the longer we delay the conversation about it, the larger the crisis grows.

Lower market-return expectations, higher housing and healthcare costs for retirees, and the shifting of retirement risks to individuals have all made it more challenging than ever to support increased longevity.

To help address this crisis, we must understand some of the issues driving the retirement crisis at both the global and local levels. Populations in Europe, North America, China, and Japan are aging due to increased lifespans and falling birth rates. Fertility rates have fallen to an all time low of 1.7 births per woman in the U.S., 1.5 births in Europe, and 1.2 births in China. This has profound implications for each of these markets over time. It will result in a smaller working population and cause income to grow more slowly or even decline.

Countries and companies need to pursue a “productivity imperative.” Successful countries will be those with higher healthy life expectancies, greater labor force participation rates, and higher rates of productivity. Successful companies that generate durable returns for shareholders will be those able to find enough workers, engage them at high rates of productivity, and find enough customers.

Another challenge is understanding why some people can save effectively for retirement and others cannot. Even in wealthier countries, many people lack the ability to save; and if they do save, they often use those savings for an emergency, rather than investing for retirement. In some countries people are actually over saving but under-investing. If they are keeping their money in the bank rather than investing in the market, they won’t generate the returns necessary to retire with dignity. In order to retire comfortably, people need to invest their savings over decades and take advantage of the long term returns delivered by the growth of the capital markets.

Long-term investing requires trust in the financial system and a fundamental belief that tomorrow will be better than today. We need leaders today who will give people reasons to be hopeful, who can articulate a vision for a brighter future. And, we need institutions that inspire trust. So much of what we have lost over the past few years – through Covid, war in Europe, political polarization, geopolitical fragmentation, and macro-economic shifts – has eroded optimism, trust, and a belief in a better future.

There’s so much fear today: fear of economic insecurity, fear about what world the next generation will inherit, fear of how the “polycrisis” that characterizes the economic and political landscape will shape the future. But I remain an optimist. The world has faced major crises before. We got through them by confronting problems, imagining a better future, creating connections, and driving innovation forward. We need to do the same today. Our job as leaders is to show people how to see in challenges opportunities that can be captured.

Investing for the future is an act of hope and optimism

More than half of the money BlackRock manages is related to retirement. So helping people finance retirement is a major focus of ours. To help future retirees, we need to understand what’s driving financial decision-making in different markets and how to become a trusted partner to those who are trying to plan for their long-term needs.

People only invest if they believe in the future and believe in the integrity of financial and regulatory institutions; otherwise they keep their money under the mattress or make risky financial moves in the hope of overnight riches. When people are afraid, they may *save*, but they won’t *invest*. Investing for a financial goal like retirement is an act of hope and optimism, demonstrating a long-term perspective, trust in financial institutions, and belief in the integrity of the market.

A lack of hope, particularly as we head into a period of uncertainty and economic malaise – if not a full-blown recession – might be one of the biggest barriers to turning savers into long-term investors. In a global survey last year asking if people thought their families would be better off in five years, the results were at an all-time low in 24 of 28 countries.[6]

“Investing for a financial goal like retirement is an act of hope and optimism, demonstrating a long-term perspective, trust in financial institutions, and belief in the integrity of the market.”

Levels of trust in financial institutions and hope for the future vary greatly country by country. Even in the U.S., where capital markets have been a huge success story over the years, just 58% of Americans are invested in the stock market.[7] Americans and others around the world who invested $1,000 in an S&P 500 index tracker 10 years ago and left it alone would have over $3,000 (that same $1,000 in BlackRock stock would have done quite a bit better and be over $4,000).[8] For those who put it under the mattress or in an empty coffee can, that $1,000 would be worth even less after inflation. That is the power of investing. Our job at BlackRock includes helping more people benefit from the power of the capital markets by making investing more accessible, affordable, and transparent.

In the same way that the internet enabled streaming to transform the music industry, society needs to transform how people plan for retirement. We need to do that in a way that’s tailored to the unique needs of each local market, culture, and regulatory system. There is no global solution to this crisis. BlackRock is working in many markets around the world to lower barriers to investing by creating choices that make market access frictionless and affordable wherever our clients are.

2023 marks the 30th anniversary of BlackRock pioneering the first target-date fund in the U.S., called LifePath. BlackRock manages $350 billion in LifePath target-date fund assets today, and our retirement business serves approximately 40 million Americans. LifePath Paycheck, a solution we announced in 2020 for the U.S. market, is designed to give access to a lifetime income stream in retirement. Eleven large plan sponsors, representing over $20 billion in target-date assets and over 500,000 participants, have elected to work with BlackRock to implement LifePath Paycheck as the default investment option in their employees’ retirement plans. And this year, BlackRock made a minority investment in Human Interest, which aims to expand access to retirement plans to small- and medium-sized businesses, an under-served segment of the market.

In Germany, we’re offering ETF savings plans through digital distributors like Scalable Capital and Trade Republic, giving investors easier access to the capital markets. In France, we’re partnering with Boursorama to make it easier for banking customers to turn savings into long-term investments. We’re also exploring opportunities in many other markets to provide local investment solutions to help address retirement challenges.

Helping clients navigate and invest in the global energy transition

Investing for the long term requires taking a long-term view of what will impact returns, including demographics, government policy, technological advancements, and the transition to a low carbon economy. In the near term, monetary and fiscal policy will be the major driver of returns. Over the long run, investors also need to consider how the energy transition, among other factors, will impact the economy, asset prices, and investment performance.

For years now, we have viewed climate risk as an investment risk. That's still the case. Anyone can see the impact of climate change in the natural disasters in California or Florida, in Pakistan, across Europe and Australia, and in many other places around the world. There's more flooding, more wildfires, and more intense storms. In fact, it's hard to find a part of our ecology – or our economy – that's not affected. Finance is not immune to these changes. We're already seeing rising insurance costs in response to shifting weather patterns.

According to Munich Re, insurers had to cover $120 billion for natural catastrophes in 2022,[9] – a once unthinkable figure. This drives up insurance prices and will have a huge impact on homeowners, some of whose homes may simply become unaffordable to insure.

The U.S. housing market could see significant changes if people relocate to areas less affected by changing weather patterns. To prevent an exodus from coastal zones and areas affected by drought and wildfires, some governments have been subsidizing or replacing private insurance. Most flood insurance policies currently providing coverage in Florida are underwritten by the federal government's National Flood Insurance Program (NFIP). The NFIP has had to borrow funds from the U.S. Treasury and is currently $20.5 billion in debt.[10]

The transition to a low-carbon economy is top of mind for many of our clients. Our clients have a range of investment objectives and perspectives. We have clients who want to invest in ways that seek to align with a particular transition path or to accelerate that transition. We have clients who choose not to. We offer choice to help clients reach their investment goals, and we manage their assets consistent with their objectives and guidelines.

Changes to government policy, technology, and consumer preferences will create significant investment opportunities. Some of our clients want to take advantage of opportunities created in areas like infrastructure investments that will benefit both households and economies.

Many of our clients also want access to data to ensure that material sustainability risk factors that could impact long-term asset returns are incorporated into their investment decisions. This is why we partner with other companies and provide insights into how a changing climate and the transition may affect portfolios over the long term. These clients track the transition to lower carbon emissions just as they track any other driver of investment risk. They want our help to understand the likely future paths of carbon emissions, how government policy will impact these paths, and what that means in terms of investment risks and opportunities. It is not the role of an asset manager like BlackRock to engineer a particular outcome in the economy, and we don't know the ultimate path and timing of the transition. Government policy, technological innovation, and consumer preferences will ultimately determine the pace and scale of decarbonization. Our job is to think through and model different scenarios to understand implications for our clients' portfolios.

That's why BlackRock has been so vocal in recent years in advocating for disclosures and asking questions about how companies plan to navigate the energy transition. As minority shareholders, it's not our place to be telling companies what to do. My letters to CEOs are written with a single goal: to ensure companies are going to generate durable, long-term investment returns for our clients.

At BlackRock we use data and analytics to help our clients understand how the energy transition is evolving and give them choices about how they would like to invest in emerging opportunities. Better

data is essential. More than half of the companies in the S&P 500 now voluntarily report Scope 1 and Scope 2 emissions. I expect that number will continue to rise.[11] But as I have said consistently over many years now, it is for governments to make policy and enact legislation, and not for companies, including asset managers, to be the environmental police.

Transition toward lower carbon emissions will reflect the regulatory and legislative choices governments make to balance the need for secure, reliable and affordable energy with orderly decarbonization.

We know that the transition will not be a straight line. Different countries and industries will move at different speeds, and oil and gas will play a vital role in meeting global energy demands through that journey. Many of our clients see the investment opportunities that will come as established energy companies adapt their businesses. They recognize the vital role energy companies will play in ensuring energy security and a successful energy transition.

We are working with energy companies globally that are essential in meeting societies' energy needs. To ensure the continuity of affordable energy prices during the transition, fossil fuels like natural gas, with steps taken to mitigate methane emissions, will remain important sources of energy for many years ahead. BlackRock is also investing, on behalf of our clients, in responsibly-managed natural gas pipelines. For example, in the Middle East, we invested in one of the largest pipelines for natural gas, which will help the region utilize less oil for power production.

Governments are taking bigger steps to drive a transition toward lower carbon emissions. For example, we see the Inflation Reduction Act in the U.S. creating significant opportunities for investors to allocate capital to the energy transition. This legislation commits an estimated $369 billion for investment in energy security and climate change mitigation. This is attracting investment into existing and emerging technologies like carbon capture and green hydrogen. We are creating opportunities for clients to participate in infrastructure and technology projects, including the building of carbon capture storage pipelines and technology that turns waste into clean burning natural gas.[12] European governments are also developing incentives to support the transition to a net zero economy and drive growth.

Some of the most attractive investment opportunities in the years ahead will be in the transition finance space. Given its importance to our clients, BlackRock's ambition is to be the leading investor in these opportunities on their behalf.

I wrote last year that the next 1,000 unicorns won't be search engines or social media companies. Many of them will be sustainable, scalable innovators – startups that help the world decarbonize and make the energy transition affordable for all consumers. I still believe that. For clients who choose, we're connecting them with these investment opportunities.

Our approach to investing in the transition is the same as our approach across our platform: we provide choice to our clients; we seek the best risk-adjusted returns within the mandate they give us; and we underpin our work with research, data, and analytics.

Transforming proxy voting with greater client choice

We continue to innovate in a variety of areas to expand the choices we offer clients. Some of our clients have expressed interest in a more direct role in the stewardship of their capital, and we have sought to deliver solutions that enable them to vote their shares. As I wrote last year to clients and corporate CEOs, I believe that, if widely adopted, voting choice can enhance corporate governance by bringing new voices into shareholder democracy.

BlackRock has been at the forefront of this innovation for years, and we have seen other asset managers follow our lead and adopt similar efforts. Nearly half of our index equity assets under management are now eligible for Voting Choice. This includes all the public and private pension plan assets we manage in the U.S., as well as retirement plans serving more than 60 million people around the world. Clients representing over $500 billion in AUM have chosen to participate in Voting Choice to express their preferences.

When I first started writing letters to the CEOs of the companies in which our clients are invested, my entire focus was on stewardship and ensuring engagement that centers on creating long-term value for our clients. We set out to build the best global stewardship team in the industry – to engage with companies on corporate governance not just during proxy season, but year-round because we didn't think that the industry's reliance on just a few proxy advisors was appropriate. We believed that our clients expected us to make independent and well-informed decisions about what was in their best financial interest. And we still do.

Making these decisions requires understanding how companies are responding to evolving risks and opportunities. Changes in globalization, supply chains, geopolitics, inflation, monetary and fiscal policy, and climate all can impact a company's ability to deliver durable value. Our stewardship team works to promote better investment performance for our clients, the asset owners. The team does that by understanding how a company is responding to these factors where financially material to the company's business, and by advocating for sound governance and business practices. For many of our clients who have entrusted us with this important responsibility, BlackRock's stewardship efforts are core to what they are seeking from us.

At the same time, we believe that adding more voices to corporate governance can further strengthen shareholder democracy. But democracy only works when people are informed and engaged. As more asset owners choose to direct their own votes, they need to make sure they are investing the time and resources to make informed decisions on critical governance issues. Proxy advisors can play an important role. But if asset owners rely too much on a few proxy advisors, then their voice may fall short of its potential. I certainly believe that the industry would benefit from more proxy advisors who can add diversity of views on shareholder issues.

Amid these shifts, companies will also need to find new ways to reach their shareholders who choose to direct their own votes, and robust disclosures and advances in the proxy ecosystem will become even more important.

How the voting ecosystem changes over the next decade can be a transformative force that reshapes corporate governance.

Benefits of our client-centric approach resonating in our results

Today and throughout BlackRock's history, we have focused on delivering the best risk-adjusted financial returns for clients – consistent with their individual guidelines and objectives. We are relentless about staying ahead of their needs, providing them with more choice, and innovating to help them achieve financial well-being. And clients are coming to BlackRock more than ever before. BlackRock captured a leading share of long-term industry flows in 2022 and delivered positive organic base fee growth for the year. Over the past five years, BlackRock has delivered an aggregate $1.8 trillion in total net inflows, or 5% average organic asset growth, compared with flat or negative industry flows. Over this five-year period, markets have had rallies and contractions, but BlackRock has consistently delivered growth, demonstrating the power of our diversified platform.

BlackRock generated nearly $400 billion in long-term net new assets in 2022, reflecting the decisions by thousands of organizations and investors that continually place their trust in BlackRock.

Flows were positive across regions, including $230 billion of long-term net inflows in the U.S. We generated organic asset growth across index, active and all long-term asset classes – from fixed income to equity to multi-asset to alternatives – as clients turned to BlackRock for solutions for their whole portfolio.

Market declines and the strengthening U.S. dollar reduced BlackRock's AUM by $1.7 trillion in 2022, impacting our financial results. Our clients have also been impacted by the complex market environment of 2022, and BlackRock is working with clients of all sizes around the world as they reshape their portfolios for the future. Against the current backdrop, BlackRock has an even greater obligation to help our clients wade through the uncertainty and give them confidence to invest for the long term.

We see many opportunities for our clients to capitalize on market disruption – to rethink portfolio construction, to benefit from the renewed income-generating potential of bonds, or to reallocate to sectors that may be more resilient in the face of elevated inflation and market distress. BlackRock is uniquely positioned to help clients navigate opportunities in this environment across their entire portfolio because of our diversified platform and integrated investment management, technology, and advisory expertise.

Our whole portfolio approach is resonating more than ever and underpinned the record $192 billion of long-term net inflows from institutional clients in 2022, led by several significant outsourcing mandates. In an increasingly complex investing environment, we're seeing very strong demand from clients looking to partner with BlackRock for outsourced solutions. In the past two years, we are honored to have been entrusted to lead a number of outsourced mandates totaling over $300 billion in AUM, spanning existing and new clients and capabilities. These clients are choosing BlackRock because of our scale, resources, and expertise to take on the challenges of the markets, and we expect this to continue into 2023.

In 2022, BlackRock helped millions of investors plan for their financial futures as they continued to turn to iShares ETFs. iShares ETFs led the industry with $220 billion of net inflows. We are proud that iShares offers the most choice in the industry – in 2022 alone, we launched over 85 new ETFs globally.

Bond ETFs led iShares growth, generating a record $123 billion of net inflows. We again led industry flows, and six of the top ten asset-gathering bond ETFs in 2022 were iShares. In 2022, we celebrated the 20th anniversary of bond ETFs, and today we provide over 450 bond ETF choices across our $760 billion iShares fixed income platform.

Over the past 20 years, bond ETFs have broken down many barriers to fixed income investing, simplifying how all types of investors access markets. Bond ETFs connected the fragmented fixed income market with transparent and liquid on-exchange trading and provided a simple way for investors to buy a portfolio of bonds for a known bid-ask spread and relatively low fees. We believe that bond ETFs will continue to catalyze advances in fixed income market structure and will become further integrated into an increasingly modern, electronic fixed income marketplace.

The need for income and uncorrelated returns against the backdrop of higher inflation, distress in the banking sector and a more challenged market for public equities will continue to drive demand for private markets. In 2022, we raised $35 billion in client capital across our alternatives platform, led by private credit and infrastructure. We're successfully scaling successor funds, delivering larger funds through raises of subsequent fund vintages. For example, in 2020, our third Global Energy and Power Infrastructure Fund raised a total of $5 billion, surpassing the total assets of vintages I and II combined. In 2022, the most recent fund in the franchise raised $4.5 billion in initial investor commitments at first close, achieving over half its targeted size of $7.5 billion.

BlackRock's diversified infrastructure funds are also providing benefits to communities in the U.S. and around the world. In 2022 we announced an agreement to form Gigapower, a joint venture with one of our diversified infrastructure funds and AT&T. Upon closing, Gigapower will provide a fiber network to customers and communities outside of AT&T's traditional service areas. The network will advance efforts to bridge the digital divide and ultimately help spur local economies in the communities in which Gigapower operates.

Our multi-decade investment into Aladdin continues to differentiate BlackRock as an asset manager and as a leading fintech provider. Periods of market volatility have historically underscored the importance of Aladdin, and in 2022 we saw record client mandates. We see clients doubling down on technology and leveraging fewer providers to do more with less; this is evidenced by our mandates in 2022, with about half spanning multiple Aladdin products.

In addition to our investment and technology capabilities, our Financial Markets Advisory (FMA) group plays a critical role in advising financial and official institutions. In 2022, we successfully transitioned the last remaining assets that we were proud to manage for the New York Federal Reserve Bank in connection with programs designed to facilitate access to capital for businesses and to support the economy early in the pandemic.

We also are very proud that our FMA group is working pro bono with the government of Ukraine to provide advice on designing an investment framework. The goal is ultimately creating opportunity for both public and private investors to participate in the reconstruction and recovery of the Ukrainian economy.

My calls with President Zelenskyy over the past six months have been humbling. The courage and spirit of the Ukrainian people have inspired millions around the world, and even as they continue to

fight on the battlefield they are planning for rebuilding their country after the war. They exemplify the hope that we all should have, and BlackRock is grateful to be able to help them lay a foundation to realize their hope for a free, peaceful, and prosperous Ukraine.

Digital assets

If there's one part of financial services that's caught the headlines over the past year, it's digital assets, not least due to the collapse of FTX. But beyond the headlines – and the media's obsession with Bitcoin – very interesting developments are happening in the digital asset space. In many emerging markets – like India, Brazil and parts of Africa – we are witnessing dramatic advances in digital payments, bringing down costs and advancing financial inclusion. By contrast, many developed markets, including the U.S., are lagging behind in innovation, leaving the cost of payments much higher.

For the asset management industry, we believe the operational potential of some of the underlying technologies in the digital assets space could have exciting applications. In particular, the tokenization of asset classes offers the prospect of driving efficiencies in capital markets, shortening value chains, and improving cost and access for investors. At BlackRock we continue to explore the digital assets ecosystem, especially areas most relevant to our clients such as permissioned blockchains and tokenization of stocks and bonds.

While the industry is maturing, there are clearly elevated risks and a need for regulation in this market. BlackRock is committed to operational excellence, and we plan to apply the same standards and controls to digital assets that we do across our business.

Strategy for long-term growth

For the past three decades, BlackRock has led by listening to our clients. Our growth reflects this deep commitment to understanding their needs, building our strategy to address them in the context of market opportunities, and then executing with discipline.

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In 2022, our management team and Board spent time assessing our strategy for growth over the next three to five years. We challenged ourselves to think about what actions we'd take if we knew that markets would be more range-bound and volatile for the next several years. We had this discussion recognizing that we can learn and build off crisis and change. How do we execute on opportunities that emerge amid market dislocation and industry disruption? How do we make sure we come through even stronger, as we've done throughout our history?

We emerged with strong conviction in our strategy and our ability to execute with scale and expense discipline. Our strategy remains centered on growing Aladdin, iShares, and private markets, keeping

alpha at the heart of BlackRock, leading in sustainable investing, and advising clients on their whole portfolio.

And we see growing opportunities in areas like transition finance, institutional outsourcing, more customization of both institutional and wealth portfolios, and alternative investments for wealth clients globally.

Clients increasingly want to work with BlackRock as a global, multi-product, and solutions-oriented asset manager, with a strong investment culture and the ability to solve for technology needs. Even as the largest asset manager in the world, we still have only 3% share of a fragmented industry's revenue. We continue to target 5% organic growth through a market cycle and expect to outperform the industry in both down and up markets.

We are honored that our clients entrusted us with nearly $400 billion of long-term net new assets in 2022. Looking ahead, we see similar client needs shaping the opportunity set.

The role of fixed income in a portfolio is increasingly relevant – for the first time in years, investors can earn very attractive yields without taking much duration or credit risk. Institutions and individuals targeting something around a 7% return have had to manage allocations across equities, bonds and alternatives to try to reach that yield. Today, they can meet that target by investing almost entirely in bonds.

Clients are coming to BlackRock to help them pursue generational opportunities in the bond market, and our $3.2 trillion fixed income and cash platform is well-positioned to capture accelerating demand. In addition to our industry-leading bond ETF flows, clients are turning to BlackRock's diversified active platform. And we believe that recent concerns about the security of cash in bank deposits will further accelerate demand for cash management options we provide.

Our notable successes in onboarding and executing significant outsourcing mandates over the past several years have catalyzed dialogue with more clients. Early in 2023, two significant pension clients announced they had selected BlackRock for significant OCIO mandates, trusting BlackRock to look after the pensions of their members. These are yet more examples of how BlackRock's range of resources, experience, and deep connectivity in local markets are resonating with clients.

As clients increasingly want to outsource or consolidate providers, the power of BlackRock's diversified investment and technology platform becomes even more evident. We can offer solutions across clients' whole portfolios – including market leadership across ETFs, active, and private markets. In ETFs, we expect the industry to reach $15 trillion in the next few years, with iShares leading that growth. In active, we are finding new ways to generate alpha and offer dynamic active allocation with model portfolios. And the investment we have made over the years in our private markets platform is positioning us to capture emerging opportunities in private credit, infrastructure and transition finance – particularly if we see less lending from banks.

Aladdin is foundational to how we serve clients across our platform. It is not only the operating system that unites all of BlackRock; it is a key component of many of our largest client relationships. Our momentum in Aladdin has never been stronger, evidenced by a record year of net sales in 2022, and our advisory capabilities continue to play a critical role in our dialogue with clients.

As BlackRock has demonstrated many times since our founding, challenging environments create unique opportunities for future growth, and we've always emerged stronger and more deeply connected with our clients. I believe the best of BlackRock is ahead of us, and we are committed to delivering the power of our unified platform to benefit our clients, employees, and shareholders.

Developing our leadership and our culture

Last year, I had a significant birthday, and that milestone has certainly been a moment for reflection on my own leadership and BlackRock's role and responsibilities through the years.

When we founded BlackRock, I was 35: I couldn't have imagined it would grow into the company it is today. I learned a great deal about leadership during that time, and my most important responsibility now is growing and mentoring leaders across the firm.

I have never been more excited about the talent, expertise, and leadership at the firm and their potential to keep innovating ahead of our client needs, delivering value for shareholders, and driving BlackRock into the future.

BlackRock – and many corporations across sectors – successfully pivoted to working remotely during the pandemic. Modern technology and remote work proved to be saviors of the economy. We learned that while working remotely our leaders could execute in their verticals very well. But clients do not come to BlackRock because we can deliver on one or two or three verticals – they come to us because we can deliver our full platform in a One BlackRock experience – what we call horizontal leadership.

BlackRock's most successful leaders work horizontally. They work across teams and groups to innovate, drive forward our goals, and deliver for our clients. We have a diverse leadership team, but they are all united by their commitment to working together to serve our clients.

The past three years have been a challenge for any corporate culture. Isolation, followed by an uneven reopening, risks eroding corporate culture and making it harder for employees who are new to the team to learn and grow. This is something I hear from nearly every corporate leader I speak with.

Successful CEOs understand the need to build bonds with the full range of their stakeholders – but especially their employees. Last year, I wrote to corporate leaders about the importance of adapting to the new world of work and forging strong connections with employees. BlackRock research shows a strong correlation between companies with better culture and values ratings compared to industry peers and their stock returns.[13] More than a year later this imperative is even more essential. In a world where companies' ability to attract the best talent can mean the difference between success and failure, building bonds that go beyond just a paycheck has never mattered more.

During the pandemic, BlackRock worked tirelessly to keep our teams connected and our culture vibrant. We even undertook a firmwide effort to renew and refresh the BlackRock Principles – which have guided us throughout our history. We now are focused on bringing our people back together in person, including in our new headquarters in New York and in our offices and with clients across the globe.

We always want to stay ahead of our clients' needs, and to do so we need to maintain a focus on productivity, innovation, and connectedness. That means having people working side-by-side, not staring at one another on screens. As I look ahead, the major challenge for the next generation of leaders will be bringing people back to the office in order to forge the cultural bonds a company needs to succeed.

Our Board of Directors

Our Board plays a crucial role in our long term success, including reviewing BlackRock's long-term strategy and evaluating the risks and opportunities for our business. Their diverse expertise and experience help guide the firm and strengthen our corporate governance.

We give careful consideration to the composition of our Board to ensure it is positioned to be successful over the long term. We are committed to evolving our Board over time to reflect the breadth of our global business and look for directors with a diverse mix of experience and qualifications.

We are incredibly fortunate to have had Beth Ford as a valued director of BlackRock, bringing new perspectives and expertise to the Board. In 2022, Beth decided it was appropriate for her to step down from our Board given her spouse's new position as CIO of the Minnesota State Board of Investment. We are grateful for the many contributions that Beth made as a member of BlackRock's Board.

Our Board shares my focus on ensuring we're developing the next generation of leaders for the company. As we continually innovate and evolve our business to stay ahead of our clients' needs, we also evolve our organization and our leadership team. Key to delivering the full power of One BlackRock to our clients is having a senior leadership team with deep experience, knowledge and connectivity across the entire firm – a team that embraces horizontal leadership.

We make organizational and leadership changes every few years because we believe these changes bring great benefits to our clients, our shareholders, our firm and to our leaders themselves. These changes keep us more tightly connected, and they stimulate fresh thinking, helping us better anticipate clients' needs. In 2022, we announced several of our senior leaders would take new roles to enhance their diversity of experience, global perspective and One BlackRock connectivity that will allow them to lead BlackRock to new heights.

Gary Shedlin is one of the leaders who has had a profound impact on the BlackRock you know today. One of the changes to our leadership reflected Gary's desire to take on a new role, once again working directly with clients. He is a great friend and has helped drive strong growth for BlackRock and our shareholders in the past 10 years as CFO and for many years before that as an advisor. I'm glad he's continuing with us at BlackRock as a Vice Chairman focusing on a number of our strategic client relationships. I'm happy to be partnering with Martin Small as our new CFO. He has deep knowledge and expertise from his 16 years at BlackRock across a variety of different roles – a true example of someone who has demonstrated horizontal leadership at the firm.

Looking ahead

Writing this letter is always an opportunity to reflect on the past year and think about what the future might bring. When I wrote last year, Russia had just invaded Ukraine, globalization was shifting, inflation was rising and interest rates were about to move sharply higher. The world is still grappling with many of these changes and the market volatility that comes with them. I am so proud of how our leadership team guided our firm, delivered for our clients, created value for our shareholders, and gave back to our communities.

My deep belief in the power of the capital markets and the importance of being invested in them is as strong as it was when we founded BlackRock 35 years ago. I know that belief is firmly held by my colleagues at BlackRock across all parts of the organization. Their commitment to living our purpose, evolving ahead of clients' needs, and making access to the capital markets easier and more affordable for people around the world make me incredibly optimistic for the future.

I've changed how I listen to music, but I return to some tracks again and again. The same is true when it comes to themes I advocate for on behalf of our clients. I use my voice to advocate for BlackRock's clients, to encourage people to invest with a long-term perspective and to speak out about risks and opportunities that investors need to navigate. Since BlackRock's founding, we have always been unwavering in our commitment to serving our clients, and by doing so, we have delivered outsized returns for our shareholders.

Sincerely,

Laurence D. Fink

Chairman and Chief Executive Officer

https://capedge.com/filing/1326801/0001326801-23-000035/META-8K/file/2

Exhibit 99.1

Update on Meta's Year of Efficiency

March 14, 2023

Mark Zuckerberg just shared the following with Meta employees:

Meta is building the future of human connection, and today I want to share some updates on our Year of Efficiency that will help us do that. The goals of this work are: (1) to make us a better technology company and (2) to improve our financial performance in a difficult environment so we can execute our long term vision.

Our efficiency work has several parallel workstreams to improve organizational efficiency, dramatically increase developer productivity and tooling, optimize distributed work, garbage collect unnecessary processes, and more. I've tried to be open about all the work that's underway, and while I know many of you are energized by this, I also recognize that the idea of upcoming org changes creates uncertainty and stress. My hope is to make these org changes as soon as possible in the year so we can get past this period of uncertainty and focus on the critical work ahead.

Here's the timeline you should expect: over the next couple of months, org leaders will announce restructuring plans focused on flattening our orgs, canceling lower priority projects, and reducing our hiring rates. With less hiring, I've made the difficult decision to further reduce the size of our recruiting team. We will let recruiting team members know tomorrow whether they're impacted. We expect to announce restructurings and layoffs in our tech groups in late April, and then our business groups in late May. In a small number of cases, it may take through the end of the year to complete these changes. Our timelines for international teams will also look different, and local leaders will follow up with more details. Overall, we expect to reduce our team size by around 10,000 people and to close around 5,000 additional open roles that we haven't yet hired.

This will be tough and there's no way around that. It will mean saying goodbye to talented and passionate colleagues who have been part of our success. They've dedicated themselves to our mission and I'm personally grateful for all their efforts. We will support people in the same ways we have before and treat everyone with the gratitude they deserve.

After restructuring, we plan to lift hiring and transfer freezes in each group. Other relevant efficiency timelines include targeting this summer to complete our analysis from our hybrid work year of learning so we can further refine our distributed work model. We also aim to have a steady stream of developer productivity enhancements and process improvements throughout the year.

As I've talked about efficiency this year, I've said that part of our work will involve removing jobs - and that will be in service of both building a leaner, more technical company and improving our business performance to enable our long term vision. I understand that this update may still feel surprising, so I'd like to lay out some broader context on our vision, our culture, and our operating philosophy.

Building a Better Technology Company

Every day Meta builds new ways for people to feel closer. This is a fundamental human need that may be more important in today's complex world than ever. One day we hope to enable every person to feel as strong a sense of connection as you feel when you're physically with someone you love.

We do leading work across a wide range of advanced technologies and then distill that into inspiring products that improve people's lives. We do this with AI to help you creatively express yourself and discover new content, with the metaverse to deliver a realistic sense of presence, with new media formats to create richer experiences, with encryption to let you communicate privately in more and more ways, and with business tools to help reach customers, create opportunity and grow the economy.

Simply put: if you want to invent the future or apply the best ideas to reach people at the greatest scale, then Meta is the best place to do that.

With that in mind, here are some of the cultural principles that are guiding our efficiency work towards making Meta an even stronger technology company:

Flatter is faster

It's well-understood that every layer of a hierarchy adds latency and risk aversion in information flow and decision-making. Every manager typically reviews work and polishes off some rough edges before sending it further up the chain.

In our Year of Efficiency, we will make our organization flatter by removing multiple layers of management. As part of this, we will ask many managers to become individual contributors. We'll also have individual contributors report into almost every level - not just the bottom - so information flow between people doing the work and management will be faster.

Of course, there are tradeoffs. We still believe managing each person is very important, so in general we don't want managers to have more than 10 direct reports. Today many of our managers have only a few direct reports. That made sense to optimize for ramping up new managers and maintaining buffer capacity when we were growing our organization faster, but now that we don't expect to grow headcount as quickly, it makes more sense to fully utilize each manager's capacity and defragment layers as much as possible.

Leaner is better

Since we reduced our workforce last year, one surprising result is that many things have gone faster. In retrospect, I underestimated the indirect costs of lower priority projects.

It's tempting to think that a project is net positive as long as it generates more value than its direct costs. But that project needs a leader, so maybe we take someone great from another team or maybe we take a great engineer and put them into a management role, which both diffuses talent and creates more management layers. That project team needs space, and maybe it tips its overall product group into splitting across multiple floors or multiple time zones, which now makes communication harder for everyone. That project team needs laptops and HR benefits and may want to recruit more engineers, so that leads us to hire even more IT, HR and recruiting people, and now those orgs grow and become less efficient and responsive to higher priority teams as well. Maybe the project has overlap with work on another team or maybe it built a bespoke technical system when it should have used general infrastructure we'd already built, so now it will take leadership focus to deduplicate that effort. Indirect costs compound and it's easy to underestimate them.

A leaner org will execute its highest priorities faster. People will be more productive, and their work will be more fun and fulfilling. We will become an even greater magnet for the most talented people. That's why in our Year of Efficiency, we are focused on canceling projects that are duplicative or lower priority and making every organization as lean as possible.

Keep technology the main thing

We are a technology company, and our ultimate output is what we build for people. Everything else we do is in service of that.

As we've grown, we've hired many leading experts in areas outside engineering. This helps us build better products, but with many new teams it takes intentional focus to make sure our company remains primarily technologists.

As we add different groups, our product teams naturally hire more roles to handle all the interactions with those other groups. If we only rebalanced the product teams towards engineering, those leaner product teams would be overwhelmed by the volume of interactions from other groups.

As part of the Year of Efficiency, we're focusing on returning to a more optimal ratio of engineers to other roles. It's important for all groups to get leaner and more efficient to enable our technology groups to get as lean and efficient as possible. We will make sure we continue to meet all our critical and legal obligations as we find ways to operate more efficiently.

Invest in tools to get more efficient

We're focused on the long term. That means investing in tools that will make us most effective over many years, not just this year - whether that's building AI tools to help engineers write better code faster, enabling us to automate workloads over time, or identifying obsolete processes that we can phase out.

Our developer tooling work is underway and seeing good results. For example, Buck2 is our new open source build system that compiles builds around 50% faster so engineers can spend more time iterating and less time waiting. Our analysis found that engineers whose builds were sped up by Buck2 often produced meaningfully more code.

In-person time helps build relationships and get more done

We're committed to distributed work. That means we're also committed to continuously refining our model to make this work as effectively as possible.

Our early analysis of performance data suggests that engineers who either joined Meta in-person and then transferred to remote or remained in-person performed better on average than people who joined remotely. This analysis also shows that engineers earlier in

their career perform better on average when they work in-person with teammates at least three days a week. This requires further study, but our hypothesis is that it is still easier to build trust in person and that those relationships help us work more effectively.

As part of our Year of Efficiency, we're focusing on understanding this further and finding ways to make sure people build the necessary connections to work effectively. In the meantime, I encourage all of you to find more opportunities to work with your colleagues in person.

Improving Business Performance in a Difficult Economic Environment

In addition to helping us build a better technology company, our other goal for the Year of Efficiency is to improve our business performance given the new economic reality. Profitability enables innovation. Operating our business more efficiently will give us the resources and confidence to achieve our long term vision by delivering sustainable financial results that make us an attractive company to work at and invest in.

When I wrote my first letter to investors during our IPO, I described a basic principle that is still true today: "we don't build services to make money; we make money to build better services."

For most of our history, we saw rapid revenue growth year-after-year and had the resources to invest in many new products. But last year was a humbling wake-up call. The world economy changed, competitive pressures grew, and our growth slowed considerably. We scaled back budgets, shrunk our real estate footprint, and made the difficult decision to lay off 13% of our workforce.

At this point, I think we should prepare ourselves for the possibility that this new economic reality will continue for many years. Higher interest rates lead to the economy running leaner, more geopolitical instability leads to more volatility, and increased regulation leads to slower growth and increased costs of innovation. Given this outlook, we'll need to operate more efficiently than our previous headcount reduction to ensure success.

In the face of this new reality, most companies will scale back their long term vision and investments. But we have the opportunity to be bolder and make decisions that other companies can't. So we put together a financial plan that enables us to invest heavily in the future while also delivering sustainable results as long as we run every team more efficiently. The changes we're making will enable us to meet this financial plan.

I believe that we are working on some of the most transformative technology our industry has ever seen. Our single largest investment is in advancing AI and building it into every one of our products. We have the infrastructure to do this at unprecedented scale and I think the experiences it enables will be amazing. Our leading work building the metaverse and shaping the next generation of computing platforms also remains central to defining the future of social connection. And our apps are growing and continuing to connect almost half of the world's population in new ways. This work is incredibly important and the stakes are high. The financial plan we've set out puts us in position to deliver it.

Looking Ahead

I recognize that sharing plans for restructuring and layoffs months in advance creates a challenging period. But last fall, we heard feedback that you wanted more transparency sooner into any restructuring plans, so that's what I'm trying to provide here. I hope that giving you a timeline and principles for what to expect will help us get through the next couple of months and then move forward as we implement these changes that I believe will have a very positive impact on how we work.

In terms of how we should operate during this period, I encourage each of you to focus on what you can control. That is, do great work and support your teammates. Our community is extremely resilient. Change is never easy, but I know we'll get through this and come out an even stronger company that can build better products faster and enable you to do the best work of your careers.

This post contains forward-looking statements regarding our future business plans and expectations. These forward-looking statements are only predictions and may differ materially from actual results due to a variety of factors. Because some of these risks and uncertainties cannot be predicted or quantified and some are beyond our control, you should not rely on our forward-looking statements as predictions of future events. More information about potential risks and uncertainties that could affect our business and financial results is more fully detailed under the caption "Risk Factors" in our Annual Report on Form 10-K filed with the Securities and Exchange Commission (SEC) on February 2, 2023, which is available on our Investor Relations website at investor.fb.com and on the SEC website at www.sec.gov. In addition, please note that the date of this post is March 14, 2023, and any forward-looking statements contained herein are based on assumptions that we believe to be reasonable as of this date. We undertake no obligation to update these statements as a result of new information or future events.