

Energy Tidbits

April 21, 2024

Produced by: Dan Tsubouchi

Vortexa: Iran Floating Oil Storage Up 10 mmb in March, Struggling to Find China Buyers Despite Deeper Discounts

Welcome to new Energy Tidbits memo readers. We are continuing to add new readers to our Energy Tidbits memo, energy blogs and tweets. The focus and concept for the memo was set in 1999 with input from PMs, who were looking for research (both positive and negative items) that helped them shape their investment thesis to the energy space, and not just focusing on daily trading. My priority was and still is to not just report on events, but also try to interpret and point out implications therefrom. The best example is the review of investor days, conferences and earnings calls focusing on sector developments that are relevant to the sector. My target is to write on 50 weekends per year and to post by noon MT on Sunday. The Sunday noon timing was because PMs said they didn't have research to read on Sundays and Sundays are a day when they start to think about the investing week ahead.

This week's memo highlights:

1. Vortexa's Jay Maroo warned that Iran's floating oil storage was up 10 mmb in March, were struggling to find China buyers despite deeper discounts, and see China H2/24 demand, at best, similar to last year. [\[click here\]](#)
2. Biden's new actions on Venezuela are not expect to have any impact on Chevron and others bringing Venezuela oil into the Gulf Coast. [\[click here\]](#)
3. Last night, the House passed H.R.8038, which if signed into law as passed, would give Biden the opportunity to hit Iran's oil and condensate exports. [\[click here\]](#)
4. Oil markets are assuming Israel and Iran will not escalate into an all-out war and that Iran will not shut down the Strait of Hormuz. [\[click here\]](#)
5. The IEA releases its Global EVs Outlook 2024 on Tuesday with our key watch will they change their forecast that EVs will displace ~5.5 mmb/d of oil by 2030. [\[click here\]](#)
6. Please follow us on Twitter at [\[LINK\]](#) for breaking news that ultimately ends up in the weekly Energy Tidbits memo that doesn't get posted until Sunday noon MT.
7. For new readers to our Energy Tidbits and our blogs, you will need to sign up at our blog sign up to receive future Energy Tidbits memos. The sign up is available at [\[LINK\]](#).

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Table of Contents

Natural Gas: +50 bcf build in US gas storage; now +424 bcf YoY	7
Figure 1: US Natural Gas Storage	7
Figure 2: US Natural Gas Storage	7
Natural Gas: NOAA forecasts warmer than normal temps in May for Eastern US, TX	7
Figure 3: NOAA Monthly Temperature Outlook for May	8
Natural Gas: NOAA's updated summer forecast is still for a hot Jul, Aug and Sep	8
Figure 4: NOAA July/Aug/Sept Temperature Probability Forecast	8
But July/aug/Sept 2023 was 3 rd hottest in the last 129 years.....	9
Figure 5: US Statewide Average Temperature Ranks July/Aug/Sept 2023	9
Natural Gas: EIA, US shale/tight natural gas to dip below 100 bcf/d in May	9
Figure 6: EIA Major Shale/Tight Natural Gas Production	10
Figure 7: MoM Change – Major Shale/Tight Natural Gas Production	10
Natural Gas: Shell and Oman LNG sign LT LNG agreement for 0.21bcf/d	11
Figure 8: Long-Term LNG Buyer Deals Since July 1, 2021	12
Natural Gas: India March natural gas production down MoM but up YoY	12
Natural Gas: India LNG imports down MoM to 2.87 bcf/d in March, down -1.1% YoY	13
Natural Gas: Around average temperatures in Japan over March.....	13
Figure 9: JMA Mean Temperature Anomalies Mar 2024	13
Natural Gas: Japan forecast hot (relatively) May but it's still shoulder season	13
Figure 10: JMA May 4 – May 17 Temperature Probability Forecast.....	14
Natural Gas: Japan LNG stocks flat WoW, down YoY	14
Figure 11: Japan LNG Stocks.....	14
Natural Gas: Japan LNG imports record low in Mar, warm temps and coal plant restarts	15
Figure 12: Japan Monthly LNG Imports.....	15
Natural Gas: China natural gas production 24.61 bcf/d in March, up +4.5% YoY	15
Natural Gas: China LNG imports up to 10.30 bcf/d, natural gas up YoY to 6.37 bcf/d	16
Natural Gas: Europe storage builds WoW to 62.03%, YoY surplus widens	16
Figure 13: European Gas Storage Level	16
Oil: US oil rigs up +5 rigs WoW to 511 rigs, US gas rigs down -3 WoW to 106 rigs.....	16
Figure 14: Baker Hughes Total US Oil Rigs	17

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Oil: Total Cdn rigs down -14 WoW resumption of breakup after early spring drilling..... 17
 Figure 15: Baker Hughes Total Cdn Oil Rigs 18

Oil: US weekly oil production estimates flat WoW at 13.100 mmb/d 18
 Figure 16: EIA’s Estimated Weekly US Field Oil Production (mb/d) 18
 Figure 17: EIA’s Estimated Weekly US Oil Production 19

Oil: US shale/tight oil production in May 2024 forecast to stay flat MoM, up +4% YoY 19
 Figure 18: US Major Shale/Tight Oil Production..... 19
 Figure 19: MoM Changes in US Major Shale/Tight Oil Production 20

Oil: EIA DUCs basically flat MoM in March, DUCs down -16% YoY, Feb revised up..... 20
 Figure 20: Estimated Drilled Uncomplete Wells in 2023/24 21

Oil: RBN – Permian Pipeline Takeaway Constraints Loom as Basin’s Output Grows 21
 Figure 21: Permian output vs. pipeline capacity and midland differential, 2016 -2028..... 22

Oil: US SPR less commercial reserve deficit widens, now -95.109 mmb 22
 Figure 22: Strategic Petroleum Reserve Stocks and SPR WoW Change 23
 Figure 23: US Oil Inventories: Commercial & SPR 23
 Figure 24: US Oil Inventories: SPR Less Commercial 23

Oil: US national average gasolines prices +\$0.05 this week to \$3.68 23
 Figure 25: National Gas Price Comparison 2021-2024 (as of 03/28/24) 24

Oil: US gasoline prices normally start seasonal ramp up in March 24
 Figure 26: US weekly gasoline prices 25

Oil: Crack spreads narrowed \$2.09 WoW to \$28.30 26
 Figure 27: Cushing Oil 321 Crack Spread & WTI Apr 19, 2014 to Apr 19, 2024 26

Oil: Cdn heavy oil differentials narrowed \$1.20 WoW to close at \$12.10 on Apr 19..... 27
 Figure 28: WCS less WTI oil differentials to April 19 close 27

Oil: Refinery Inputs up +0.131 mmb/d WoW to 15.913 mmb/d, Joliet still down 27
 Figure 29: US Refinery Crude Oil Inputs 28

Oil: US net oil imports -1.991 mmb/d WoW as oil exports up +2.018 mmb/d WoW 28
 Figure 30: US Weekly Preliminary Imports by Major Country 28

Oil: US doesn’t extend General License 44 but still lets Venezuela oil flow 29

Oil: Norway March oil production of 1.843 mmb/d is up MoM but basically flat YoY 30
 Figure 31: Norway March 2024 Production 30
 Figure 32: Norway Monthly Oil Production 2015-2024..... 31
 Figure 33: Norway oil production 33

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Figure 34: Johan Sverdrup production plateau 755,000 b/d	33
Oil: Russian refinery runs sink to almost 11-month low due to drones and floods.....	33
Figure 35: Russia refinery runs thru Apr 10 week	34
Figure 36: Orenburg Oblast Flood Region	34
Oil: With crude freed up, Russia oil shipments skyrocket to 11-month high	34
Figure 37: Russia's seaborne crude shipments thru Apr 14 week	35
Oil: Iran downplays Israel's Friday night attacks	35
Oil: Did Iran warn Israel or not on its 300+ drone/missile attack?	36
Did Iran warn Israel?.....	36
Oil: Iran says any future counterattacks against Israel will come from within Iran	36
Oil: Biden's new Iran sanctions do nothing to hit Iran's oil & condensate exports	37
Oil: Is there no risk to Iran shutting down Strait of Hormuz as most expect?.....	37
Figure 38: Crude oil, Condensate & Petroleum Products Flows Thru Strait of Hormuz	39
Figure 39: Volumes thru the Strait of Hormuz 2018-1H23	39
Figure 40: Strait of Hormuz – Abu Mousa, Greater and Lesser Tunbs	40
Oil: Is there any oil risk premium for the Iran/Israel missile/rocket attacks?	40
Oil back below Israel attack on Iran consulate	40
Figure 41: Brent price 30-days to Apr 19.....	41
Oil: Iran says its oil & condensate production is +1.3 mmb/d in last 3 years	41
Oil: IMF estimates Iran Fiscal Breakeven Prices is down to \$121/b from \$375	41
Figure 42: IMF Estimated Fiscal Breakeven Prices	42
Oil: Saudi use of oil for electricity up MoM, most crude used in Feb over past 5 years.....	42
Figure 43: Saudi Arabia Direct Use of Crude Oil for Electricity Generation	43
Figure 44: Riyadh Temperature Recaps for February (top) and January (bottom)	43
Oil: Saudi net oil exports up +70,000 b/d to 6.208 mmb/d in February	43
Figure 45: Saudi Arabia Net Oil Exports (mb/d)	44
Oil: Saudi oil inventories down -6,731 mmb MoM in Feb, math suggests bigger draw	44
Figure 46: Saudi Arabia Oil Inventories (million barrels)	45
Oil: IMF est Saudi Arabia fiscal breakeven oil price +\$21/b in 2024 to \$96.20	45
Figure 47: IMF Estimated Fiscal Breakeven Prices	46
Oil: No production update from Libya NOC since Mar 21	46
Oil: China new and used home prices continue to lose value.....	46
Figure 48 China new home prices	46

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Figure 49 China used home prices.....	47
Oil: Baidu China city-level road congestion recovers after tomb-sweeping holidays.....	47
Figure 50: China city-level road congestion for the week ended Apr 17.....	47
Oil: Strong Brunello sales show Chinese ultra quiet/gentle luxury buyers are spending.....	47
Oil: China oil imports 11.60 mmb/d in March, up +4.0% MoM and +2.0% YoY.....	48
Oil: Oil prices went negative on April 20, 2020.....	49
Figure 51: Oil prices went negative on Apr 20, 2020.....	49
Oil: Vortexa warns Iran floating storage up, can't find buyers in China for crude.....	49
Oil: Vortexa crude oil floating storage est 74.14 mmb at Apr 19, -17.91 mmb WoW.....	50
Figure 52: Vortexa Floating Storage Jan 1, 2000 – Apr 19, 2024, posted Apr 20 at 9am MT.....	51
Figure 53: Vortexa Estimates Posted 9am MT on Apr 20, Apr 13, and Apr 6.....	51
Oil: Vortexa crude oil floating storage WoW changes by regions.....	51
Figure 54: Vortexa crude oil floating by region.....	52
Oil: BNEF – global oil and product stocks deficit narrows to -4.0 mmb.....	52
Figure 55: Aggregate Global Oil and Product Stockpiles.....	52
Oil: Bloomberg Oil Demand Monitor “Traders Upbeat but IEA Signals Headwinds”.....	53
Figure 56: 2024 Oil Demand Growth Forecasts by Agency.....	54
Oil: Europe airports daily traffic 7-day average is -3.2% below pre-Covid levels.....	54
Figure 57: Europe Air Traffic: Daily Traffic Variation to end of Apr 18.....	54
Look for more to follow Vitol and say jet fuel consumption back to 2019 levels.....	55
Figure 58: Air passenger market in detail – February 2024.....	55
Figure 59: Air passenger market overview – February 2019.....	55
Oil & Natural Gas: Edson area wildfire reminds of summer wildfire risk.....	56
Figure 60: TC Energy natural gas plant rupture & ignition.....	57
Figure 61: Alberta % of Normal Precipitation For March 2024 and Nov 1/23 thru March 31/24.....	57
Figure 62: Alberta % of Normal Precipitation For March 2024 and Nov 1/23 thru March 31/24.....	58
Oil & Natural Gas: Low March tornado activity following very active Feb.....	58
Figure 63: U.S. Tornadoes as of March 2024.....	59
Figure 64: Monthly Tornado Averages 2003-2022.....	59
Figure 65: Enhanced Fujita Scale (EF Scale) for Tornadoes.....	60
Oil: On Tuesday, will IEA still forecast EVs will displace 5.5 mmb/d of oil by 2030?.....	60
Figure 66: Oil displacement by region and mode, 2022-2030.....	63
Energy Transition: Volvo, it's still early adopters driving EV demand.....	63

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Figure 67: Volvo’s Q1/24 Electrification Progress 64

Energy Transition: EU March car sale, HEVs up YoY EV, PHEV, Petro, Diesel down YoY..... 64

Figure 68: EU New Car Registrations in March 2024 64

Energy Transition: Buttigieg can’t believe people don’t see EVs are the market..... 64

Energy Transition: Liberals Budget incentivizes data centers to get operational..... 65

Energy Transition: “New US Rule on Tailpipe Emissions Conflicts With Energy Reality” 65

Figure 69: EPA’s Vehicle Market Share by Scenario 66

Capital Markets: Liberals budget didn’t hit income tax but did hit big capital gains tax 66

Capital Markets: BofA “*struck by just the sheer amount of cash on the sidelines*” 67

Capital Markets: Schwab reminds why brokers want more AUM opportunity to upsell 67

Capital Markets: Powell’s comments moved rates higher..... 68

Figure 70: US 2 year as of Apr 19 close..... 68

Figure 71 US 10 year as of Apr 19 close..... 68

Capital Markets: Canadian investment in foreign bonds hit all-time high in February 68

Figure 72: Canadian investment in foreign equities and investment funds..... 69

Capital Markets: Apple CEO Cook “*the investment ability in Indonesia is endless*” 69

Twitter: Thank you for getting me to 10,000 followers..... 70

LinkedIn: Look for quick energy items from me on LinkedIn 70

Misc Facts and Figures..... 70

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Natural Gas: +50 bcf build in US gas storage; now +424 bcf YoY

US natural gas storage continues to be above the top end of the 5-yr range. There will have to be an unusual event to see draws on gas storage now that we are in mid-April. For the week of April 12, the EIA reported a +50 bcf build. Total storage is now 2.333 tcf, representing a surplus of +424 bcf YoY compared to a surplus of +435 bcf last week. For this week, and the past few, total storage is above the top end of the 5-yr range. Total storage is +622 bcf above the 5-year average, slightly lower than last week's 633 bcf surplus. Below is the EIA's storage table from its Weekly Natural Gas Storage report [\[LINK\]](#).

+50 bcf build in US gas storage

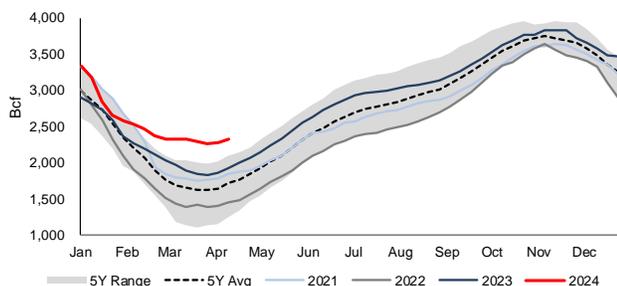
Figure 1: US Natural Gas Storage

Region	Stocks billion cubic feet (Bcf)				Historical Comparisons			
	04/12/24	04/05/24	net change	implied flow	Year ago (04/12/23)		5-year average (2019-23)	
East	379	362	17	17	358	5.9	307	23.5
Midwest	528	512	16	16	443	19.2	380	38.9
Mountain	167	165	2	2	83	101.2	90	85.6
Pacific	230	229	1	1	80	187.5	158	45.6
South Central	1,029	1,014	15	15	943	9.1	775	32.8
Salt	300	299	1	1	265	13.2	238	26.1
Nonsalt	729	714	15	15	679	7.4	537	35.8
Total	2,333	2,283	50	50	1,909	22.2	1,711	36.4

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

Source: EIA

Figure 2: US Natural Gas Storage



Source: EIA

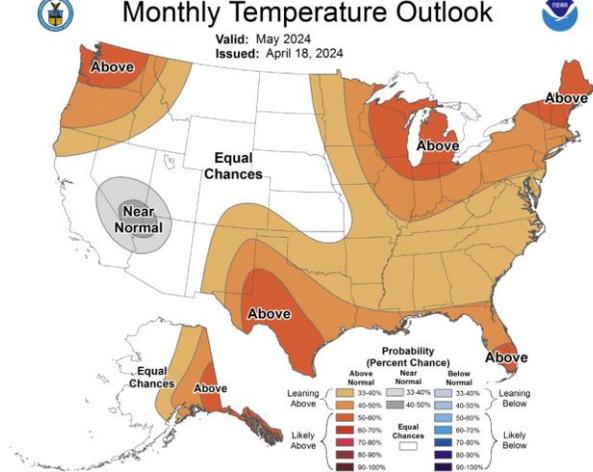
Natural Gas: NOAA forecasts warmer than normal temps in May for Eastern US, TX

May is still the shoulder season for natural gas where there really isn't any strong weather related demand for natural gas. There are always exceptions but, as a norm, May is generally what we call "leave the windows open" weather for the northern half of the US. But it can get hot in the south and southwest to start the drive for air conditioning, which has already started in some areas with the hot weather this week. On Thursday, we tweeted [\[LINK\]](#) "Won't drive up HH #NatGas prices today but @NOAA updated 30-day and summer temperature forecasts call for much warmer than normal temperatures. But should provide some support over the summer for #NatGas prices #OOTT". NOAA's temperature forecast for May is warmer than normal for the northern half of the US and for Texas and the Pacific NW. Aside from that, pretty much normal temps for the rest of the US. Below is NOAA's temperature forecast for May.

NOAA monthly temp outlook

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Figure 3: NOAA Monthly Temperature Outlook for May



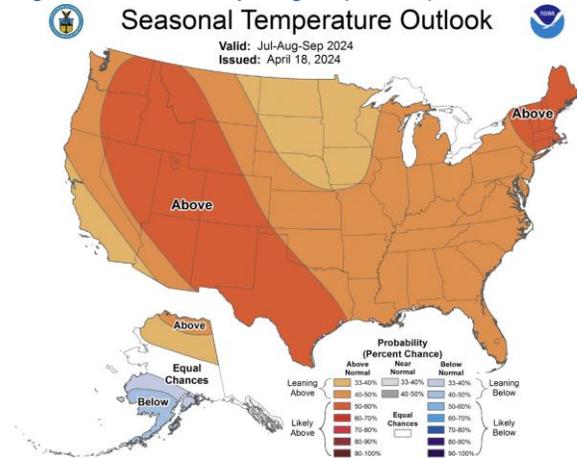
Source: NOAA

Natural Gas: NOAA’s updated summer forecast is still for a hot Jul, Aug and Sep

We recognize that weather forecasts, even near term, are far from 100%, but, on Thursday, NOAA released its monthly update to its seasonal temperature forecasts. It didn’t change much from last month’s issued on March 21; the outlook for the summer JAS [LINK](#) still calls for warmer than normal temperatures across almost all of the US, especially in the west. There is no bigger variable for natural gas price than winter temperatures but a hot summer normally provides support for natural gas prices. Below is NOAA’s Apr 18 temperature probability map for JAS.

NOAA forecasts hot summer

Figure 4: NOAA July/Aug/Sept Temperature Probability Forecast



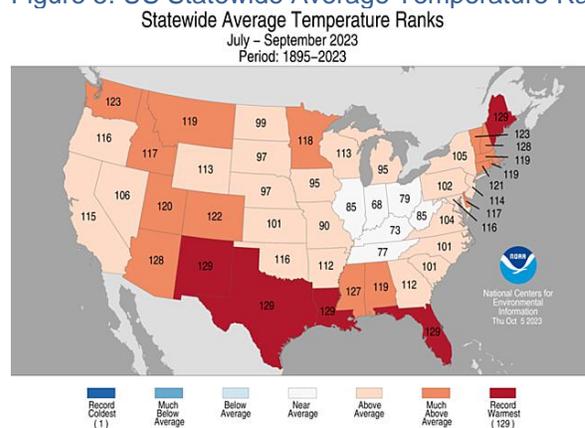
Source: NOAA

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But July/aug/Sept 2023 was 3rd hottest in the last 129 years

If NOAA's early look at JAS 2024 is right, it will be well above normal but cooler than last summer's JAS 2023. Our Oct 15, 2023 Energy Tidbits wrote "[September \[LINK\]](#). September was the 7th hottest in the last 129 years. It was record heat in Texas and New Mexico, and really hot in Plains, Midwest, Great Lakes NE and south. NOAA also posted its recap of summer July/Aug/Sept [\[LINK\]](#) and it was near record heat as the 3rd hottest in the last 129 years. It was record heat in a number of states and near record in many others. Below is NOAA's by state ranking for September and July/Aug/Sept temperatures."

Figure 5: US Statewide Average Temperature Ranks July/Aug/Sept 2023



Source: NOAA

Natural Gas: EIA, US shale/tight natural gas to dip below 100 bcf/d in May

US natural gas production is still up strong YoY with the US shale/tight natural gas plays up 3.0 bcf/d YoY, and this month's EIA DPR increased estimates for March and April, but May is forecast to be down MoM vs April with the continuing forecast decline in the Haynesville.

Recall the EIA revised historical months down in December's DPR due to a change in data methodology, stating on their website "*Our data vendor for oil and gas production data, Enverus, reported a change in the Texas Railroad Commission's (TX RRC) methodology for reporting natural gas production that discontinued applying a "well separation extraction loss factor" to condensate production reported by operators. For example, the impact of the methodology change lowers TX RRC reported natural gas gross production by 914 million cubic feet per day, nearly 3% in the month of January 2022. The December Drilling Productivity Report released on December 18, 2023, reflects this revision*". The EIA also wrote on their website "*The Drilling Productivity Report (DPR) rig productivity metric new-well oil/natural 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/natural 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,*

Shale/tight gas production

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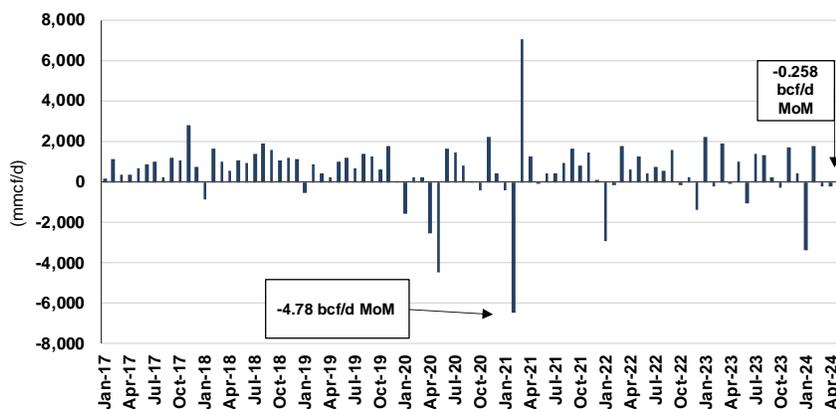
extreme flooding events, and the 2020 global oil demand contraction. The DPR methodology involves applying smoothing techniques to most of the data series because of inherent noise in the data". This comes in light of the very cold weather spurts that impacted some North American production in Jan. (i) On Monday, the EIA released its monthly Drilling Productivity Report for April 2024 [LINK](#), which is the EIA's forecast for oil and natural gas production from the major shale/tight oil and gas basins for the current month (in this case April) and next month (May). (ii) The EIA forecasts US shale/tight natural gas for April at 100.203 bcf/d, which is down from last month's April estimate of 100.451 bcf/d. May natural gas production is forecast to be 99.944 bcf/d. (iii) The Permian is estimated to be above 24.000 bcf/d for 9 months, climbing steadily from 24,208 bcf/d in September 2023 to an expected 25,243 in May 2024. (iv) Haynesville has been falling gradually for the past 7 months; from 16.896 bcf/d in August 2023 to an expected 15.997 bcf/d in May. (vii) Remember US shale/tight gas is ~90% of total US natural gas production. So, whatever the trends are for shale/tight gas are the trends for US natural gas in total. Below is our running table showing the EIA DPR data for the shale/tight gas plays, and the MoM changes in major shale/tight natural gas production. Our Supplemental Documents package includes the EIA DPR.

Figure 6: EIA Major Shale/Tight Natural Gas Production

mmcf/d	2023												2024					Mar DPR			Apr DPR		Change
	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	May YoY%	May MoM%	Apr	Apr						
Anadarko	6,647	6,580	6,818	6,763	6,921	6,859	6,794	6,735	6,263	6,581	6,556	6,534	6,518	-2%	0%	6,535	6,534	-1					
Appalachia	35,757	35,822	35,911	36,369	35,841	35,910	37,089	37,162	36,413	36,554	36,349	36,199	36,062	1%	0%	36,286	36,199	-86					
Bakken	3,219	3,301	3,356	3,388	3,511	3,468	3,554	3,627	3,170	3,365	3,383	3,401	3,418	6%	1%	3,386	3,401	15					
Eagle Ford	7,475	7,411	7,508	7,402	7,674	7,678	7,686	7,737	7,219	7,451	7,410	7,366	7,337	-2%	0%	7,374	7,366	-8					
Haynesville	17,240	16,463	16,599	16,896	16,859	16,664	16,759	16,591	16,190	16,465	16,382	16,219	15,997	-7%	-1%	16,271	16,219	-51					
Niobrara	5,135	5,167	5,276	5,408	5,382	5,378	5,419	5,440	5,304	5,389	5,392	5,380	5,369	5%	0%	5,408	5,380	-28					
Permian	23,016	22,689	23,376	23,922	24,208	24,148	24,529	24,930	24,309	24,842	24,968	25,103	25,243	10%	1%	25,192	25,103	-89					
Total	98,489	97,433	98,843	100,148	100,396	100,105	101,829	102,223	98,869	100,647	100,440	100,203	99,944	1%	0%	100,451	100,203	-248					

Source: EIA, SAF

Figure 7: MoM Change – Major Shale/Tight Natural Gas Production



Source: EIA Drilling Productivity Report

Source: EIA, SAF

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Natural Gas: Shell and Oman LNG sign LT LNG agreement for 0.21bcf/d**Long-term LNG deal**

The big rush in long-term LNG deals was from July 1, 2021 through June 30, 2022 that locked up almost all the available LNG supply that was available prior to 2026. There was a slow down but there was a pickup again over the last 16 months as buyers moved to lock up very long term LNG supply for the late 2020s and some continuing even out past 2050. Plus, there was a push from global LNG suppliers to lock up other long-term LNG supply to add to their supply portfolio to be able to use to supply to their customers. This week, there was one new long-term LNG deal. (i) On Wednesday, Oman LNG announced they signed a 10-year LNG Sales and Purchase agreement with Shell [\[LINK\]](#), whereby Shell will purchase 0.21 bcf/d from Oman LNG beginning in 2025 to supply gas to its global network. The senior VP of Shell in Oman, Walid Hadi, said “*This agreement offers an important addition to our LNG and integrated gas portfolio and helps to ensure that we can meet the growing demand for flexible and reliable energy from our global customers. Shell is proud of its role as the largest private shareholder in Oman LNG for the next decade*”. Our supplemental documents package contains The National (Oman) reporting of the deal. We were unable to access the Oman LNG news site and even this morning could only get “*Hmmmm ... can't reach this page.*”

There have been 21.82 bcf/d of long-term LNG supply deals since July 1, 2021

The big wave in buyers locking up long term supply started in July 2021. We first highlighted this abrupt shift to long term LNG supply deals in our July 14, 2021 8-pg “*Asian LNG Buyers Abruptly Change and Lock in Long Term Supply – Validates Supply Gap, Provides Support For Brownfield LNG FIDs*”. We included a table of the deals done in that short two week period. We continue to update that table, which now shows 21.82 bcf/d of long-term LNG deals since July 1, 2021. 63% of the deals have been by Asian LNG buyers, but we are now seeing rest of world locking up long term supply deals post Russia/Ukraine. Note in our non-Asian LNG deals will major LNG players (ie. Chevron, Shell, etc) buying for their LNG portfolio supply. China has been particularly active in this space, accounting for 53% of all Asian LNG buyers in long term contracts since July 1, 2021. Below is our updated table of Asian and Europe LNG buyers new long-term supply deals since July 1, 2021.

Figure 8: Long-Term LNG Buyer Deals Since July 1, 2021

Long-Term LNG Buyer Deals Since July 1, 2021							Long-Term LNG Buyer Deals Since July 1, 2021								
Date	Buyer	Seller	Country	Volume (bcfd)	Duration (Years)	Start	End	Date	Buyer	Seller	Country	Volume (bcfd)	Duration (Years)	Start	End
Asian LNG Deals															
Jul 7, 2021	CNOOC	Patronas	China / Canada	0.30	10.0	2022	2032	Jul 28, 2021	PGNIG	Venture Global LNG	Poland / US	0.26	20.0	2023	2043
Jul 9, 2021	CPC	QatarEnergy	Taiwan / Qatar	0.16	15.0	2022	2037	Nov 12, 2021	Engie	Cheniere	France / US	0.11	20.0	2021	2041
Jul 9, 2021	Guangzhou Gas	BP	China / US	0.13	12.0	2022	2034	Mar 7, 2022	Shell	Venture Global LNG	US / US	0.26	20.0	2024	2044
Jul 12, 2021	Korea Gas	QatarEnergy	Korea / Qatar	0.25	20.0	2025	2045	Mar 16, 2022	NFE	Venture Global LNG	US / US	0.13	20.0	2023	2043
Sep 29, 2021	CNOOC	QatarEnergy	China / Qatar	0.50	15.0	2022	2037	Mar 16, 2022	NFE	Venture Global LNG	US / US	0.13	20.0	2023	2043
Oct 7, 2021	Shenzhen BP	BP	China / US	0.04	10.0	2023	2032	May 2, 2022	Engie	NextDecade	France / US	0.23	15.0	2026	2041
Oct 11, 2021	ENN	Cheniere	China / US	0.12	13.0	2022	2035	May 17, 2022	PGNIG	Sempra Infrastructure	Poland / US	0.40	20.0	n.a.	n.a.
Nov 4, 2021	Unipac	Venture Global LNG	China / US	0.46	20.0	2023	2043	May 25, 2022	RWE Supply & Trading	Sempra Infrastructure	Germany / US	0.30	15.0	n.a.	n.a.
Nov 4, 2021	Sinopec	Venture Global LNG	China / US	0.53	20.0	2023	2043	Jun 9, 2022	Equinor	Cheniere	Norway / US	0.23	15.0	2026	2041
Nov 5, 2021	Sinochem	Cheniere	China / US	0.12	17.5	2022	2040	Jun 21, 2022	ENBW	Venture Global LNG	Germany / US	0.20	20.0	2026	2046
Nov 22, 2021	Foran	Cheniere	China / US	0.04	20.0	2023	2043	Jun 22, 2022	INEOS Energy	Sempra Infrastructure	UK / US	0.21	20.0	2027	2047
Dec 6, 2021	Guangdong Energy	QatarEnergy	China / Qatar	0.13	10.0	2024	2034	Jun 22, 2022	Chevron	Venture Global LNG	US / US	0.26	20.0	n.a.	n.a.
Dec 8, 2021	S&T International	QatarEnergy	China / Qatar	0.13	15.0	2022	2037	Jun 22, 2022	Shell	Cheniere	US / Mexico	0.26	15.0	2027	2042
Dec 10, 2021	Suntien Green Energy	QatarEnergy	China / Qatar	0.13	15.0	2022	2037	Jul 12, 2022	Shell	Mexico Pacific Ltd	US / Mexico	0.34	20.0	2026	2046
Dec 15, 2021	SFPC Guangdong	BP	China / US	0.03	10.0	2023	2033	Jul 13, 2022	Vitol	Defin Midstream	US / US	0.07	15.0	n.a.	n.a.
Dec 20, 2021	CNOOC Gas & Power	Venture Global LNG	China / US	0.26	20.0	2023	2043	Aug 9, 2022	Centrica	Defin Midstream	UK / US	0.13	15.0	2026	2041
Dec 29, 2021	Foran	BP	China / US	0.01	10.0	2023	2032	Aug 24, 2022	Shell	Energy Transfer	US / US	0.28	20.0	2026	2046
Jan 11, 2022	ZHENJ	Novatek	China / Russia	0.08	11.0	2024	2035	Oct 6, 2022	ENBW	Venture Global LNG	Germany / US	0.26	20.0	2022	2042
Jan 11, 2022	Zhenjiang Energy	Novatek	China / Russia	0.13	15.0	2024	2039	Dec 6, 2022	ENGIE	Sempra Infrastructure	France / US	0.12	15.0	n.a.	n.a.
Feb 4, 2022	CNPC	Gazprom	China / Russia	0.98	30.0	2023	2053	Dec 20, 2022	Galp	NextDecade	Portugal / US	0.13	20.0	n.a.	n.a.
Mar 24, 2022	Guangdong Energy	BP	China / US	0.20	20.0	2026	2046	Dec 20, 2022	Shell	Oman LNG	UK/Oman	0.11	10.0	2025	2035
Mar 29, 2022	ENN	Energy Transfer	China / US	0.36	20.0	2026	2046	Jan 25, 2023	PKN ORLEN	Sempra Infrastructure	EU/US	0.13	20.0	2027	2047
Apr 1, 2022	Guangzhou Gas	Mexico Pacific Ltd	China / Mexico	0.26	20.0	n.a.	n.a.	Jan 30, 2023	BOTAS	Oman	Turkey / Oman	0.13	10.0	2025	2035
Apr 6, 2022	ENN	NextDecade	China / US	0.26	20.0	2026	2026	Mar 27, 2023	Shell	Mexico Pacific Ltd	UK / Mexico	0.15	20.0	2026	2046
Apr 22, 2022	Kogas	BP	Korea / US	0.20	18.0	2025	2043	Apr 24, 2023	Hartree Partners LP	Defin Midstream	US / US	0.08	20.0	n.a.	n.a.
May 2, 2022	Cumings Singapore Pte	Energy Transfer LNG	Singapore / US	0.26	20.0	2026	2046	Jun 21, 2023	Equinor	Cheniere	Norway / US	0.32	15.0	2027	2042
May 3, 2022	SK Gas Trading LLC	Energy Transfer LNG	Korea / US	0.05	18.0	2026	2042	Jun 22, 2023	SEFE	Venture Global LNG	EU/US	0.30	20.0	2026	2046
May 10, 2022	Exxon Asia Pacific	Venture Global LNG	Singapore / US	0.26	n.a.	n.a.	n.a.	Jul 14, 2023	ONEE (Morocco)	Shell	Africa/US	0.05	12.0	2024	2036
May 11, 2022	Petronas LNG	Venture Global LNG	Malaysia / US	0.13	20.0	n.a.	n.a.	Jul 18, 2023	IOCL	Adnoc	India/UAE	0.16	14.0	2026	2040
May 24, 2022	Hanwha Energy	TotalEnergies	Korea / France	0.08	15.0	2024	2039	Jul 28, 2023	OMV	BP	Austria/UK	0.13	10.0	2026	2036
May 25, 2022	POSCO International	Cheniere	Korea / US	0.05	20.0	2026	2036	Aug 4, 2023	ConocoPhillips	Mexico Pacific Ltd	US/Mexico	0.29	20.0	2025	2045
June 5, 2022	China Gas Holdings	Energy Transfer	China / US	0.09	25.0	2026	2051	Aug 22, 2023	BASF	Cheniere	Germany / US	0.10	17.0	2026	2043
Jul 5, 2022	China Gas Holdings	NextDecade	China / US	0.13	20.0	2027	2047	Aug 30, 2023	Shell	Oman LNG	US / Oman	0.11	10.0	2025	2035
Jul 20, 2022	PetroChina	Cheniere	China / US	0.24	24.0	2026	2050	Oct 11, 2023	TotalEnergies	QatarEnergy	France / Qatar	0.46	27.0	2026	2053
Jul 26, 2022	PTT Global	Cheniere	Thailand / US	0.13	20.0	2026	2046	Oct 18, 2023	Shell	QatarEnergy	Netherlands / Qata	0.46	27.0	2026	2053
Jul 27, 2022	Exxon Asia Pacific	NextDecade	Singapore / US	0.13	20.0	2026	2046	Oct 18, 2023	ENI	QatarEnergy	Italy / Qatar	0.13	27.0	2026	2053
Sep 2, 2022	Woodside Singapore	Commonwealth	Singapore / US	0.33	20.0	2026	2046	Oct 31, 2023	Vitol	Chesapeake Energy	Sweden / US	0.13	15.0	2028	2043
Nov 21, 2022	Sinopec	QatarEnergy	China / Qatar	0.53	27.0	2026	2053	Nov 29, 2023	OMV	Cheniere	Netherlands / US	0.11	15.0	2029	2044
Dec 26, 2022	INPEX	Venture Global LNG	Japan / US	0.13	20.0	n.a.	n.a.	Dec 5, 2023	Woodside Energy	Mexico Pacific Ltd	Australia / Mexico	0.17	20.0	2024	2044
Dec 27, 2022	JERA	Oman LNG	Japan / Oman	0.11	10.0	2025	2035	Mar 18, 2024	SEFE	ADNOC	Germany / UAE	0.13	20.0	2024	2044
Jan 19, 2023	ITOCJU	NextDecade	Japan / US	0.13	15.0	n.a.	n.a.	Apr 17, 2024	Shell	Oman LNG	US / Oman	0.21	10.0	2025	2035
Feb 7, 2023	Exxon Asia Pacific	Mexico Pacific Ltd	Singapore / Mexico	0.26	20.0	n.a.	n.a.	Total Non-Asian LNG Buyers New Long Term Contracts Since Jul/21							
Feb 23, 2023	China Gas Holdings	Venture Global LNG	China / US	0.26	20.0	n.a.	n.a.	8.67							
Mar 6, 2023	Gumoi Singapore Pte	Chesapeake Energy	Singapore / US	0.26	15.0	2027	2042	Total New Long Term LNG Contracts since Jul/21							
Apr 28, 2023	JERA	Venture Global LNG	Japan / US	0.13	20.0	n.a.	n.a.	21.82							
May 16, 2023	KOSPO	Cheniere	Korea / US	0.05	19.0	2027	2046	*Excludes Asian short term/spot deals							
Jun 1, 2023	Bangladesh Oil	QatarEnergy	Bangladesh / Qatar	0.24	15.0	2026	2031	*On Dec 20, 2021 CNOOC agreed to buy an additional 0.13 bcfd from Venture Global for an undisclosed shorter period							
Jun 21, 2023	Petro Bangle	Oman	Bangladesh / Oman	0.20	10.0	2026	2036	Source: Bloomberg, Company Reports							
Jun 21, 2023	CNPC	QatarEnergy	China / Qatar	0.53	27.0	2027	2054	Prepared by SAF Group - https://safgroup.ca/news-insights/							
Jun 26, 2023	ENN LNG	Cheniere	Singapore / US	0.24	20.0	2026	2046								
Jul 5, 2023	Shanghai Energy	Mexico Pacific Ltd	China / Mexico	0.13	20.0	2027	2047								
Aug 8, 2023	LNG Japan	Woodside	Japan / Australia	0.12	10.0	2026	2036								
Sep 7, 2023	Petrochina	ADNOC	China / UAE	n.a.	n.a.	n.a.	n.a.								
Nov 2, 2023	Foran	Cheniere	China / US	0.12	20.0	n.a.	n.a.								
Nov 4, 2023	Sinopec	QatarEnergy	China/Qatar	0.39	27.0	2026	2053								
Nov 27, 2023	Gumoi Singapore Pte	Defin Midstream	Singapore / US	0.10	15.0	n.a.	n.a.								
Dec 20, 2023	ENN	ADNOC	Singapore / UAE	0.13	15.0	2028	2043								
Jan 5, 2024	GAIL	Vitol	India / Singapore	0.13	10.0	2026	2036								
Jan 8, 2024	Shell	Ksi Lisims LNG	Singapore / Canada	0.26	20.0	2027	2047								
Jan 16, 2024	ExxonMobil	Mexico Pacific Ltd	Singapore / Mexico	0.16	20.0	2024	2044								
Jan 29, 2024	Excelerate	QatarEnergy	Bangladesh / Qatar	0.13	15.0	2026	2041								
Jan 30, 2024	ADNOC	GAIL India	UAE / India	0.07	10.0	2024	2034								
Feb 6, 2024	Petronet LNG	QatarEnergy	India / Qatar	0.99	20.0	2028	2048								
Feb 19, 2024	Deepak Fertilisers	Equinor	India / Norway	0.09	15.0	2026	2041								
Feb 28, 2024	Kogas	Woodside	Korea / Australia	0.07	10.5	2026	2037								
Feb 29, 2024	Sembcorp	TotalEnergies	Singapore / France	0.11	16.0	2027	2043								
Total Asian LNG Buyers New Long Term Contracts Since Jul/21				13.75											

Source: SAF

Natural Gas: India March natural gas production down MoM but up YoY

India domestic natural gas production peaked in 2010 at 4.6 bcfd, and then ultimately declined to average 2.8 bcfd in 2020-2021. India returned to modest growth in 2021/2022, which was followed by several months of basically flat production but modest production growth returned in 2023. On Tuesday, India's Petroleum Planning and Analysis Cell released their monthly report for March's natural gas and oil statistics [\[LINK\]](#). India's domestic natural gas production for March was 3.57 bcfd, which was basically down -0.4% MoM from 3.59 bcfd in February. On a YoY basis, natural gas production was up +6.16% from 3.37 bcfd in March 2023. On a trailing twelve-month (TTM) basis, natural gas from April 2023-March 2024 averaged 3.53 bcfd, which was 5.77% higher than the TTM average from April 2022- March 2023 of 3.33 bcfd. Our Supplemental Documents package includes excerpts from the PPAC monthly.

India natural gas production down MoM, up YoY

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Natural Gas: India LNG imports down MoM to 2.87 bcf/d in March, down -1.1% YoY

For the past several years, India has increased LNG imports whenever domestic natural gas production was flat or decreased. But the overriding factor for India tends to be price. If price is high, India pulls back on LNG imports and will normally turn to coal. If prices are low, like was seen this winter, then India tends to pick up spot cargoes. India is an opportunistic LNG spot buyer. On Tuesday, India's Petroleum Planning and Analysis Cell released their monthly report for March's natural gas and oil statistics [\[LINK\]](#). Over the past 3 years, India's LNG imports declined from a 2020-2021 peak of 3.84 bcf/d in Oct 2020 to just 2.85 bcf/d in Jan 2021 and lower in 2022. Additionally, March's 2024's LNG imports were 2.87 bcf/d, which is down -3.5% MoM from 2.98 bcf/d in February. LNG imports are now down -1.1% YoY from 2.90 bcf/d in March 2023. On a TTM basis, between April 2023 - March 2024, India averaged 2.99 bcf/d of LNG imports, which is up +17.54% from the TTM average of 2.55 bcf/d in March 2023. Our Supplemental Documents package includes excerpts from the PPAC monthly.

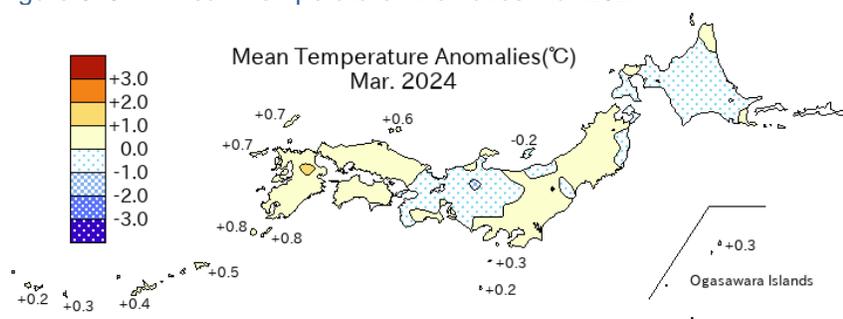
India LNG imports down YoY

Natural Gas: Around average temperatures in Japan over March

On Thursday, the Japan Meteorological Agency posted its climate recap for March [\[LINK\]](#). It included the below mean temperature anomalies map. The JMA wrote "*Monthly mean temperatures were above normal in northern/western Japan, because warm-air often covered the regions... Monthly sunshine durations were above normal on the Sea of Japan side and on the Pacific side in northern Japan and in Okinawa/Amami, because the regions were well covered by high-pressure systems. On the other hand, monthly sunshine durations were below normal on the Sea of Japan side in eastern Japan, because the region was well affected by low-pressure systems, fronts, and winter monsoon.*" Below is a temperature map of Japan for March.

A normal March in Japan

Figure 9: JMA Mean Temperature Anomalies Mar 2024



Source: Japan Meteorological Agency

Natural Gas: Japan forecast hot (relatively) May but it's still shoulder season

Japan is the #2 LNG importer just behind China. It's now April, which is shoulder season so not any big weather driven demand for electricity and natural gas in Japan. The big reason why Japan LNG stocks dropped last month were because some coal plants went offline and they had to draw on LNG instead. We haven't been reporting on Japan near-term weather as it's shoulder season. We decided to put in this week's JMA 30-day temperature outlook to support that much warmer than normal temperatures in shoulder season really don't have much impact on natural gas consumption. Every Thursday, the Japan Meteorological Agency updates its 30-day outlook [\[LINK\]](#). We focused on the first half of May for this week's

Japan's May temperature forecast

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release. The Apr 18 update calls for very hot relative temperatures for the first half May. We checked AccuWeather’s forecast for Tokyo, and the daily highs were only between 21-24C for this period, which isn’t hot enough to drive air conditioning demand, nor are the nights cold enough to warrant much heating. Below is the JMA’s 14-day temperature probability forecast for May 4 – May 17.

Figure 10: JMA May 4 – May 17 Temperature Probability Forecast



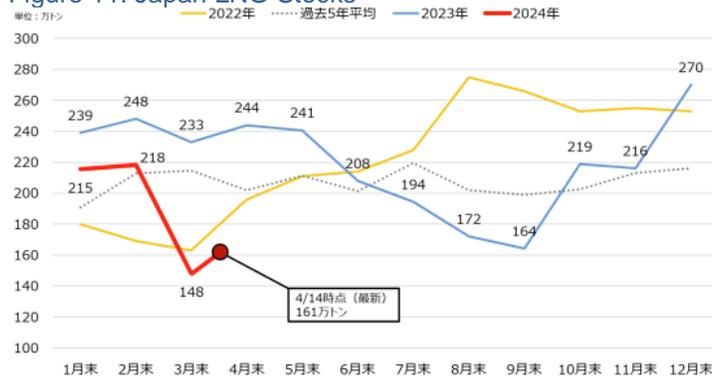
Source: Japan Meteorological Agency

Natural Gas: Japan LNG stocks flat WoW, down YoY

Japan’s LNG stocks are below 2023 levels and well below the 5-year average. On Wednesdays, Japan’s METI releases its weekly LNG stocks data [\[LINK\]](#). LNG stocks on April 14 were 76.8 bcf, unchanged WoW from Apr 7, but are down -34% YoY from 117.2 bcf a year earlier. Stocks are well below the 5-year average for the end of April of 97.0 bcf and is still the lowest it has been over past 3 years (on a weekly basis). The build was helped by Japan shutting in some natural gas generation two weeks ago to conserve natural gas use and drain on LNG stocks. Prior to that, part of the reason for the drain on LNG stocks was that there were some unplanned coal plant outages in Feb/Mar. METI did not comment on the WoW decrease. Below is the Japanese LNG stocks graph from the METI weekly report.

Japan LNG stocks flat WoW

Figure 11: Japan LNG Stocks



Source: METI

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Japan's JERA suspended production at 4 natural gas plants to save LNG

The low LNG stocks in March led to shutting in some natural gas power generation to conserve LNG stocks. Here is what we wrote in our Mar 31, 2024 Energy Tidbits memo. *“The low LNG stocks noted above have led to an immediate reaction in Japan – JERA is temporarily halting natural gas power generation at four natural gas plants to save drawing on its dwindling LNG stocks. On Friday, Reuters reported “Japan’s biggest power generator JERA said it has suspended production at four of its gas-fired power stations and curtailed output at another plant from to secure sufficient LNG inventory. The move comes as a recent drop in temperatures in the Tokyo area boosted power demand while stormy weather caused delays in the arrival of LNG cargoes, causing a drop in LNG stock levels, a JERA spokesperson said. Operations were temporarily suspended at power plants in Futtsu, Yokohama, Kawasaki and Chiba, all near Tokyo, and curtailed at Higashi-Ohgishima.”*

Natural Gas: Japan LNG imports record low in Mar, warm temps and coal plant restarts

Japan's LNG imports in March were to most part arranged before March, which is why LNG imports in March were down MoM and YoY due in part to the warmer weather thru Feb, the restart of nuclear plants in Feb. And then when some coal plants went offline in March, it led to a big draw down in LNG stocks in March. On Thursday, Japan's Ministry of Finance posted its import data for March [\[LINK\]](#). The MOF reported Japan's March LNG imports were 8.59 bcf/d, down -13.8% MoM from February which was 9.97 bcf/d, and down -3.0% YoY from 8.86 bcf/d in March 2023. This is new record low for March since Fukushima with the previous February low being 10.98 bcf/d last year February 2023. Japan's thermal coal imports in March were -10.4% YoY and Petroleum Products imports were -15.7% YoY. Below is our table that tracks Japan LNG import data.

Japan LNG imports in March

Figure 12: Japan Monthly LNG Imports

bcf/d	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	24/23
Jan	12.66	13.06	11.22	12.85	12.79	11.69	11.63	12.48	10.51	10.56	9.46	-10.5%
Feb	12.88	13.26	12.30	13.36	14.23	12.61	10.99	13.84	12.19	10.98	9.97	-9.2%
Mar	12.46	12.60	12.62	12.61	12.28	11.30	11.16	11.04	10.07	8.86	8.59	-3.0%
Apr	11.54	10.56	10.21	10.52	8.97	9.00	8.31	7.96	8.92	7.25		
May	10.06	8.91	8.55	9.66	9.92	8.62	7.09	7.67	8.92	7.14		
June	10.91	10.61	10.02	9.90	8.88	8.32	8.42	9.13	9.29	7.25		
July	12.14	10.77	10.19	10.19	10.55	10.56	9.35	9.58	9.54	7.88		
Aug	10.92	10.93	11.96	11.24	11.73	9.45	9.04	9.75	9.71	8.78		
Sept	11.64	11.06	10.67	9.31	10.04	10.30	10.41	8.66	8.52	8.84		
Oct	10.75	9.38	9.73	9.50	10.12	9.75	9.20	7.17	7.88	8.38		
Nov	11.00	10.71	12.07	10.26	10.15	10.03	9.63	9.38	8.88	8.53		
Dec	12.79	12.51	11.69	12.31	11.23	10.54	11.96	10.89	9.39	10.06		

Source: Japan Ministry of Finance, SAF

Natural Gas: China natural gas production 24.61 bcf/d in March, up +4.5% YoY

Well before Covid, our concern in 2019 was that China's LNG imports were going to change from strong YoY growth in LNG imports to a period of zero to very low growth in LNG imports. The reason was primarily the startup of the big Power of Siberia natural gas pipeline from Russia and a return in the 2020s to modest growth in China domestic natural gas production. And since LNG is the most expensive natural gas, it would be and is the marginal natural gas/LNG supply. That concern has played out over the past few years and increasing domestic natural gas production and increasing cheaper natural gas pipeline imports from

China natural gas production

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Russia squeezed out LNG imports in 2022 and 2023. On Sunday, Bloomberg reported that China natural gas production was 24.61 bcf/d, up +4.5% YoY from 23.55 bcf/d in March 2023. They did not provide monthly figures for February or Jan (only the Jan-Feb total from last month's report). Recall the Chinese government website [LINK](#) also noted that over 2023, China's natural gas production was 22.3 bcf/d, up +1.0 bcf/d from 2022, which is the 7th annual YoY increase.

Natural Gas: China LNG imports up to 10.30 bcf/d, natural gas up YoY to 6.37 bcf/d

On Thursday, China's General Administration of Customs (GACC) provided the LNG split and reported natural gas and LNG import data for March [LINK](#). i) LNG imports. GACC reported that over March, China imported 10.30 bcf/d of LNG, up +4.6% MoM from 9.85 bcf/d in Feb and +25.1% YoY from 8.23 bcf/d in Mar 2023. ii) Natural Gas imports. GACC reported that over March, China imported 6.37 bcf/d of natural gas via pipeline, which is -17.5% MoM from 7.72 bcf/d in Feb and +17.3% YoY from 5.43 bcf/d in Mar 2023. China has been benefitting from cheap natural gas exports from Russia but have also been opportunistic in their buying of LNG given weak spot prices in recent months. Note that the March LNG figure exceeded the natural gas by pipeline amount as they took advantage of low LNG prices last month. Also recall that winter 2022/23 was very warm in China.,

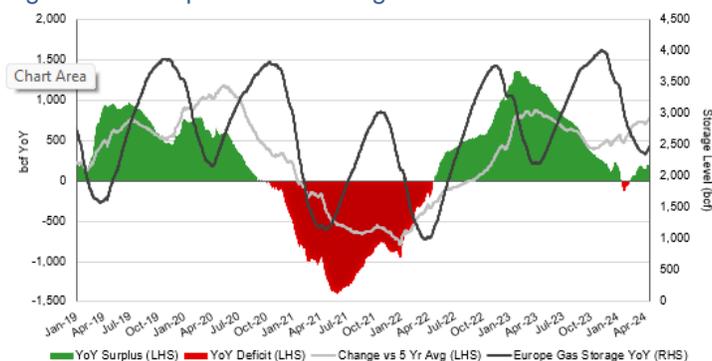
China natural gas and LNG imports

Natural Gas: Europe storage builds WoW to 62.03%, YoY surplus widens

This week, Europe storage increased by 121bps WoW to 62.03% on Apr 18 vs 60.82% on April 11. Storage is now +518 bps higher than last year's levels of 56.85% on Apr 18, 2023, and up hugely vs the 5-year average of 43.64%. Even though the YoY surplus is modest, up until this week's Russia bombing of Ukraine natural gas storage facility, there weren't fears for natural gas and LNG supply over the summer months. The issue for Europe natural gas markets over the coming months will be if Russia can damage or put out of operation any Ukraine natural gas storage. Below is our graph of Europe Gas Storage Level.

Europe gas storage

Figure 13: European Gas Storage Level



Source: Bloomberg, SAF

Oil: US oil rigs up +5 rigs WoW to 511 rigs, US gas rigs down -3 WoW to 106 rigs

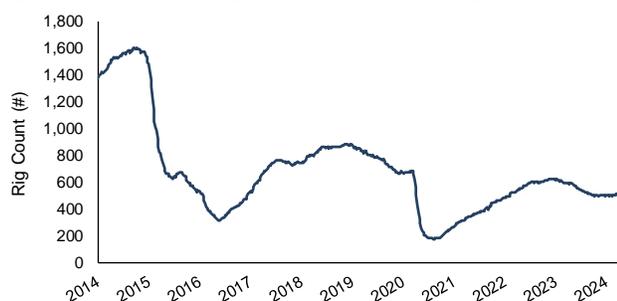
On Friday, Baker Hughes released its weekly North American drilling rig data. (i) Note, Baker Hughes previously restored their old reporting format so last month we have been able to

US oil rigs up WoW

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break out regional data, however they forgot to update the old format file with this week's rig data, so we aren't able to see the basin breakout by type of rig. (ii) Total US oil rigs were up +5 rigs WoW to 511 oil rigs as of April 19. US oil rigs went below 520 rigs on Aug 25 and has been around 490-510 rigs for the past several months. (iii) Note we are able to see the basin changes but not by type of rig. The major changes were Cana Woodford +2 rigs WoW, Granite Wash +2 rigs WoW, and Permian +2 rigs WoW. (iv) US gas rigs were down -3 rigs this week to 106 gas rigs.

Figure 14: Baker Hughes Total US Oil Rigs



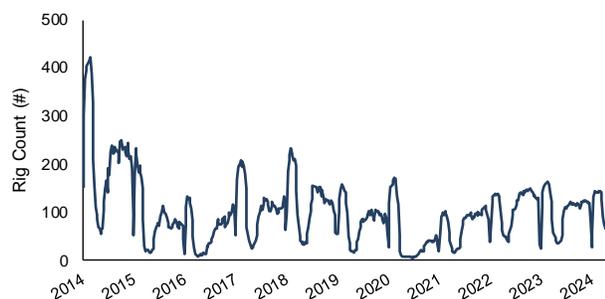
Source: Baker Hughes, SAF

Oil: Total Cdn rigs down -14 WoW resumption of breakup after early spring drilling

As happens every year in Canada, the rig count drops dramatically from early March thru normally the end of April/beginning of May as winter drilling season ends and the industry moves into spring break up. This is the period when it warms up and road access becomes limited/restricted in many parts of Western Canada. The last several weeks have seen total Cdn rigs decline drop from 231 at the beginning of March to 127 this week. Normally, Cdn rigs seasonally decline until late April or early May. Last week saw an unusual small increase but this week saw the return of normal seasonal weekly declines. With total rigs down -14 rigs WoW to 127 rigs. Cdn oil rigs were down -10 rigs WoW to 60 oil rigs and are up +18 rigs YoY. Gas rigs are down -4 rigs WoW and +4 YoY. Baker Hughes did not update their old format report, so we weren't able to see the provincial breakouts.

**Cdn total rigs
down WoW**

Figure 15: Baker Hughes Total Cdn Oil Rigs



Source: Baker Hughes, SAF

Oil: US weekly oil production estimates flat WoW at 13.100 mmb/d

It's worth noting that the EIA has benchmarking has led to a revision downward in weekly oil estimates instead of what have been upward revisions. Here's what the EIA wrote on their website earlier this month: "When we release the Short-Term Energy Outlook (STEO) each month, the weekly estimates of domestic crude oil production are reviewed to identify any differences between recent trends in survey-based domestic production reported in the Petroleum Supply Monthly (PSM) and other current data. If we find a large difference between the two series, we may re-benchmark the weekly production estimate on weeks when we release STEO. This week's domestic crude oil production estimate incorporates a re-benchmarking that decreased estimated volumes by 177,000 barrels per day, which is about 1.3% of this week's estimated production total". Last Tuesday, the EIA released its Apr STEO and they'd revised down Q1/24 production estimates to 12.84 mmb/d from 12.91 mmb/d in March's STEO, so this message is consistent. The latest Form 914 (with January actuals) was -0.416 mmb/d lower than the weekly estimates of 12.533 mmb/d. This week, the EIA's production estimates were flat WoW at 13.100 mmb/d for the week ended Apr 12. Alaska was down -0.005 mmb/d WoW to 0.431 mmb/d. Below is a table of the EIA's weekly oil production estimates.

US oil production flat WoW

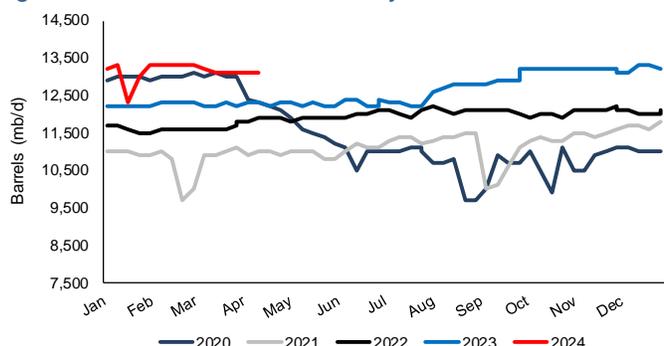
Figure 16: EIA's Estimated Weekly US Field Oil Production (mb/d)

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value								
2023-Jan	01/06	12,200	01/13	12,200	01/20	12,200	01/27	12,200		
2023-Feb	02/03	12,300	02/10	12,300	02/17	12,300	02/24	12,300		
2023-Mar	03/03	12,200	03/10	12,200	03/17	12,300	03/24	12,200	03/31	12,200
2023-Apr	04/07	12,300	04/14	12,300	04/21	12,200	04/28	12,300		
2023-May	05/05	12,300	05/12	12,200	05/19	12,300	05/26	12,200		
2023-Jun	06/02	12,400	06/09	12,400	06/16	12,200	06/23	12,200	06/30	12,400
2023-Jul	07/07	12,300	07/14	12,300	07/21	12,200	07/28	12,200		
2023-Aug	08/04	12,600	08/11	12,700	08/18	12,800	08/25	12,800		
2023-Sep	09/01	12,800	09/08	12,900	09/15	12,900	09/22	12,900	09/29	12,900
2023-Oct	10/06	13,200	10/13	13,200	10/20	13,200	10/27	13,200		
2023-Nov	11/03	13,200	11/10	13,200	11/17	13,200	11/24	13,200		
2023-Dec	12/01	13,100	12/08	13,100	12/15	13,300	12/22	13,300	12/29	13,200
2024-Jan	01/05	13,200	01/12	13,300	01/19	12,300	01/26	13,000		
2024-Feb	02/02	13,300	02/09	13,300	02/16	13,300	02/23	13,300		
2024-Mar	03/01	13,200	03/08	13,100	03/15	13,100	03/22	13,100	03/29	13,100
2024-Apr	04/05	13,100	04/12	13,100						

Source: EIA

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Figure 17: EIA's Estimated Weekly US Oil Production



Source: EIA, SAF

Oil: US shale/tight oil production in May 2024 forecast to stay flat MoM, up +4% YoY

On Monday, the EIA released its monthly Drilling Productivity Report for April 2024 [\[LINK\]](#), which is the EIA's forecast for oil and natural gas production from the major shale/tight oil and gas basins for the current month (in this case April) and the next month (in this case May). (i) Recall in January, there were notices posted on the EIA website about changes in methodology and the impact of cold weather on production estimates. In the Feb DPR's data, the shut-in was properly reflected by a January estimate of 9.279 mmb/d vs the estimate from January's DPR estimate which had the month at 9.681 mmb/d. Jan got revised a bit upwards with this April DPR at 9.439 mmb/d. (ii) US shale/tight oil in May continues the now 8-month trend (excluding the January shut-in effect) of being flat around 9.8 mmb/d. (iii) April's 9.847 mmb/d figure was revised upwards by +0.088 mmb/d compared to March's DPR, which had April at 9.759 mmb/d. (iv) Permian shale/tight oil production is seeing a slight ramp-up in production, growing from 5.749 mmb/d in June to 6.167 mmb/d in May almost linearly. (v) US shale/tight oil production is +4% in May 2024. The major change areas are Permian +6% YoY, Bakken +7% YoY, and Niobrara +7% YoY. (vi) The EIA DPR forecasts flat Bakken shale oil production with 1.240 mmb/d in Mar, 1.245 mmb/d in April and 1.249 mmb/d in May. Below, we pasted in our comments from last week's (April 14, 2024) Energy Tidbits memo on North Dakota warning that production will be hit in March/April ie. the EIA DPR Bakken forecast is likely too high. (vii) Note that shale/tight oil is approx. ~75% of total US production, so whatever the trends are for shale/tight oil are normally the trends for US oil in total. Below is our table of running DPR estimates of shale/tight oil production and our graph of MoM changes in major shale/tight oil production.

Shale/tight oil production

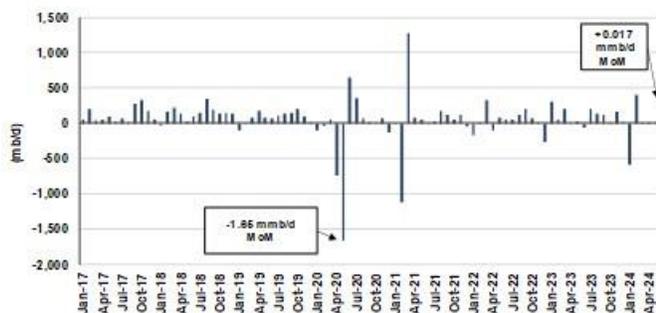
Figure 18: US Major Shale/Tight Oil Production

Thousand b/d	2023												2024				Mar DPR			Apr DPR	
	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	May YoY%	May MoM%	Apr	Apr	Change			
Anadarko	421	409	420	411	408	406	403	401	342	387	385	385	385	-8%	0%	383	385	2			
Appalachia	155	148	137	139	144	157	161	152	151	154	153	153	152	-2%	0%	150	153	2			
Bakken	1,169	1,203	1,212	1,250	1,343	1,310	1,335	1,336	1,158	1,236	1,240	1,245	1,249	7%	0%	1,225	1,245	20			
Eagle Ford	1,183	1,184	1,201	1,181	1,193	1,158	1,169	1,162	1,088	1,155	1,158	1,159	1,164	-2%	0%	1,147	1,159	13			
Haynesville	35	31	32	32	31	34	34	34	34	35	35	35	35	0%	-1%	34	35	1			
Niobrara	665	679	670	688	690	702	710	723	690	719	719	715	711	7%	-1%	716	715	-1			
Permian	5,827	5,749	5,929	6,034	6,044	6,072	6,194	6,215	5,976	6,156	6,151	6,155	6,167	6%	0%	6,104	6,155	52			
Total	9,455	9,402	9,602	9,734	9,854	9,603	10,006	10,023	9,439	9,841	9,841	9,847	9,863	4%	0%	9,759	9,847	88			

Source: EIA, SAF

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Figure 19: MoM Changes in US Major Shale/Tight Oil Production



Source: EIA, SAF

Source: EIA, SAF

Potential pause in North Dakota Bakken production in March/April

Here is what we wrote in last week's (Apr 14, 2024) Energy Tidbits memo. "North Dakota oil industry gets impacted much like Saskatchewan in terms of road bans/restrictions as snow melts as temperatures warm up leaving the winter. The melting snow/warming temperatures puts secondary and rural roads at risk so North Dakota will put weight restrictions on roads and this impacts the ability to move any heavy road equipment on these non-primary roads. Every month North Dakota Industrial Commission holds a webcast to discuss the just issued Director's Cut and there are always good insights. The call was on Friday afternoon. Yesterday, we tweeted [\[LINK\]](#) "It's temporary but North Dakota warns Mar road restrictions should impact #Oil production in Mar/Apr. "March completions fell off pretty dramatically 92 completions in Feb and only 56 in Mar., That's not enough to sustain and grow production" NDIC's Lynn Helms. #OOTT." Our tweet included the transcript we made of Helms' comments. SAF Group created transcript of comments by North Dakota Director of Mineral Resources, Lynn Helms on the monthly Director's Cut webcast on April 12, 2024. Items in "italics" are SAF Group created transcript. At 3:10 min mark, Helms "March completions fell off pretty dramatically. So we had 92 completions in February and only 56 in March. That's not enough to sustain and grow production. We think again that is a temporary thing. The weather in March was not really very conducive to a lot of truck traffic and movements. Particularly in late March when we had the return of winter weather. My grandmother used to say in like a lamb, out like a lion. That's what we experienced this year. " At 4:46 min mark, Helms "down to 12 frac crews today. So again, as we are coming out of winter weather, we're looking at road restrictions, weight restrictions on the road." Note, there were 102 well completions in Jan.

Oil: EIA DUCs basically flat MoM in March, DUCs down -16% YoY, Feb revised up

We have been warning that we see a key risk to how much US oil production can sustainably grow in 2024 and 2025 is the need to increase rig counts (not have less frac spreads) to replenish the inventory of Drilled Uncompleted wells at higher levels and the challenge for oilfield services to add capacity to increase frac spreads and completions. The biggest problem in the past with the EIA's Drilling Productivity Report [\[LINK\]](#) estimate of Drilled

DUCs flat in March

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Uncompleted wells was that the data had been constantly revised and sometimes significantly. (i) The EIA estimates DUCs were essentially flat at +9 MoM (-16% YoY) in March to 4,522 DUCs. Note that February’s data had a net upwards revision of +30 DUCs to 4,513 DUCs. (ii) To put in perspective, there were 8,883 DUCs in the height of the Covid slowdown in June 2020, 7,062 DUCs in Mar 2021, 5,247 DUCs in Mar 2022, 5,387 in Mar 2023, and now 4,522 DUCs in Mar 2024. (iii) It looks like DUCs have steadily decreased over the past 12 months from the 5,387 in Mar 2023, diving below 5,000 DUCs by Sep with 4,860 DUCs, and now 4,522 DUCs in Mar. (iv) We still believe there is still the need for drilling rigs to pick up to replenish the DUC inventory if the US is to have sustained strong oil growth in 2024 and beyond. (v) The largest YoY Feb DUCs declines are the Eagle Ford (-39% YoY), Bakken (-44% YoY), and Niobrara (-28 YoY). (vi) Note that shale/tight oil is approx. ~70% of total US production, so whatever the trends are for shale/tight oil are normally the trends for US oil in total. Below is our table of running DPR estimates of shale/tight oil production.

Figure 20: Estimated Drilled Uncomplete Wells in 2023/24

DUCs	2024										Mar DPR		Apr DPR	Change
	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Mar YoY%	Feb MoM%	Feb	Feb		
Anadarko	738	728	718	709	702	701	701	703	-9%	0%	701	701	0	
Appalachia	859	832	820	810	810	809	813	820	-6%	0%	805	813	8	
Bakken	406	375	362	336	317	320	324	328	-44%	1%	325	324	-1	
Eagle Ford	440	414	392	373	365	360	354	352	-39%	-2%	349	354	5	
Haynesville	777	775	771	763	764	769	778	784	10%	1%	764	778	14	
Niobrara	818	774	747	718	690	674	661	649	-28%	-2%	656	661	5	
Permian	971	962	903	892	885	882	882	886	-5%	0%	883	882	-1	
Total	5,009	4,860	4,713	4,601	4,533	4,515	4,513	4,522	-16%	0%	4,483	4,513	30	

Source: EIA, SAF

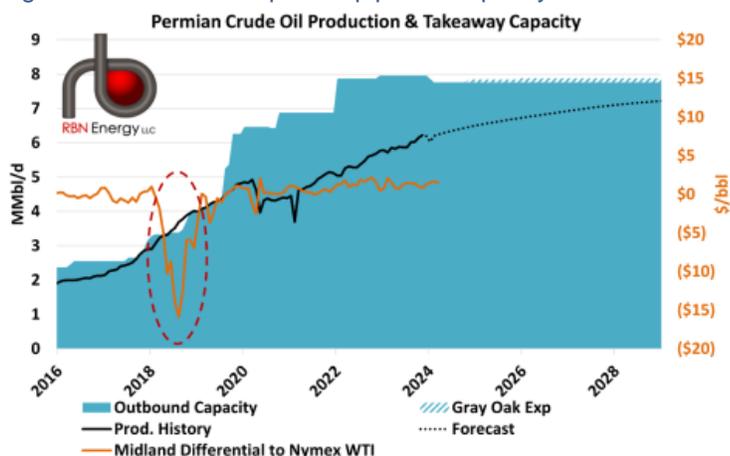
Oil: RBN – Permian Pipeline Takeaway Constraints Loom as Basin’s Output Grows

The big wildcard for US is how much and how fast the Permian will grow and how the flurry of M&A over the past year will impact capital allocation and drilling activity. There is increased confidence that more Permian assets in the hands of majors is a positive to the long term development of the Permian but there is also a majority view that means more measured capital allocation. On Tuesday, RBN released a blog with the headline “Permian Pipeline Takeaway Constraints Loom as Basin’s Output Grows”, commenting on the mismatch between pipeline capacity expansion and the steady increase in Permian production. RBN wrote “Permian E&Ps want to increase their crude oil production, but they are hemmed in — and at least a tad hesitant. As producers in West Texas and southeastern New Mexico know all too well, crude production growth can only happen if there is sufficient pipeline capacity in place to move not only the oil they extract, but also the massive volumes of associated gas that emerge with it. As we discussed recently in [Come Dancing](#), takeaway capacity for gas is once again at the knife’s edge, and there really are no good alternatives to piping that incremental gas to market — for most producers, flaring at scale is no longer an acceptable”. Evidently, it’s not just a question of whether the crude can get out, there’s concerns surrounding the infrastructure for the associated gas and if it can all get to the Gulf Coast. Note in the figure below what happens to the differential when production jumps ahead of pipeline capacity – producers are forced to sell at a heavy discount. So far, there are a few major projects on the table that would boost takeaway capacity: A 2.5 bcf/d Matterhorn Express gas pipeline (greenfield) coming online later this year, Enbridge’s 900 mb/d Gray Oak crude pipeline is set to expand 120 mb/d by 2026 (originally the expansion was supposed to be 200 mb/d), and EPIC Midstream’s 300mb/d expansion to their existing crude

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system (no timeline). If we compare this to the recent rate of growth in Permian production though (+400 mb/d YoY and +800 mb/d since April 2022), it's clear that this may not be enough to satisfy the export desires of producers. Keep in mind too, there's all sorts of deepwater export projects underway (SPOT, Blue Marlin, GulfLink), that will rely on takeaway capacity to maintain pace in output in order to keep utilization rates up. Vested interests at all points in the stream, it would seem. We will keep an eye on Permian growth vs. pipeline expansion. Our Supplemental Documents package includes the RBN report.

Figure 21: Permian output vs. pipeline capacity and midland differential, 2016 -2028



Source: RBN, Bloomberg

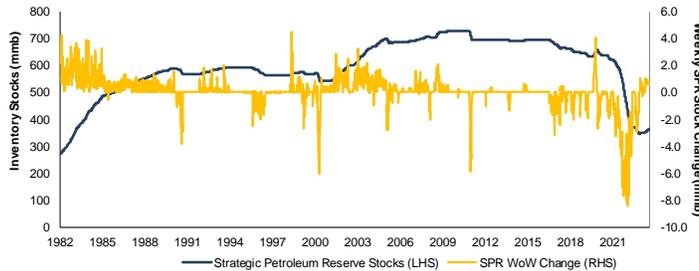
Oil: US SPR less commercial reserve deficit widens, now -95.109 mmb

The US Strategic Petroleum Reserves (SPR) continues to be much lower than total US commercial crude oil reserves. The SPR went back below commercial for the first time since 1983 in the Sep 16, 2022 week. Again this week, we saw a build on the SPR side, but the commercial build was bigger. The EIA's weekly oil data for Apr 12 [LINK] saw the SPR reserves increase +0.648 mmb WoW to 364.884 mmb, while commercial crude oil reserves increased +2.735 mmb to 459.993 mmb. There is now a -95.109 mmb difference between SPR reserves and commercial crude oil reserves. The below graphs highlight the difference between commercial and SPR stockpiles, along with the weekly changes to SPR stockpiles.

US SPR reserves

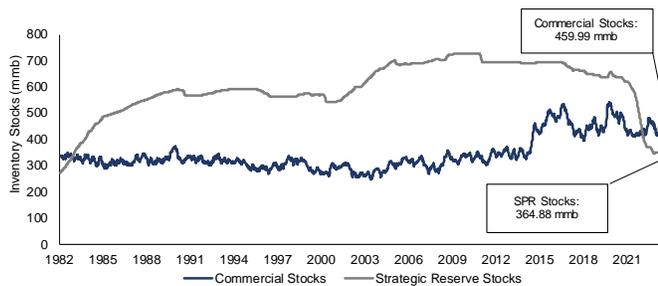
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Figure 22: Strategic Petroleum Reserve Stocks and SPR WoW Change



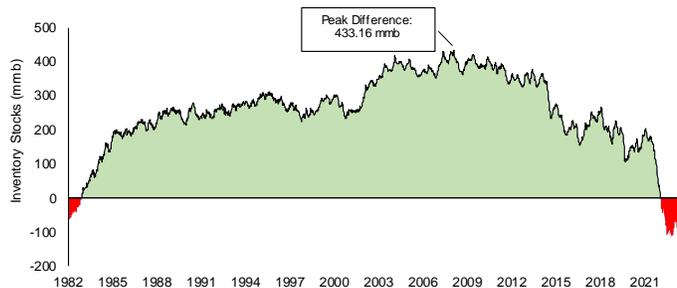
Source: EIA

Figure 23: US Oil Inventories: Commercial & SPR



Source: EIA

Figure 24: US Oil Inventories: SPR Less Commercial



Source: EIA

Oil: US national average gasolines prices +\$0.05 this week to \$3.68

Yesterday, we tweeted [LINK](#) "US gasoline prices keep creeping higher. US +\$0.05 WoW, +\$0.16 MoM to \$3.68. California -\$0.01 WoW, +\$0.50 MoM to \$5.44. Plus US gasoline prices normally seasonally increase into June. Biden doesn't want \$4 gas in election year. Thx @AAAnews #OOTT." Yesterday, AAA reported that US national average prices were \$3.68, which was +\$0.05 WoW, up \$0.16 MoM, and now down \$0.01 YoY. As of yesterday, the California average gasoline prices were -\$0.01 WoW to \$5.44, which is a \$1.76 premium to

US gasoline prices

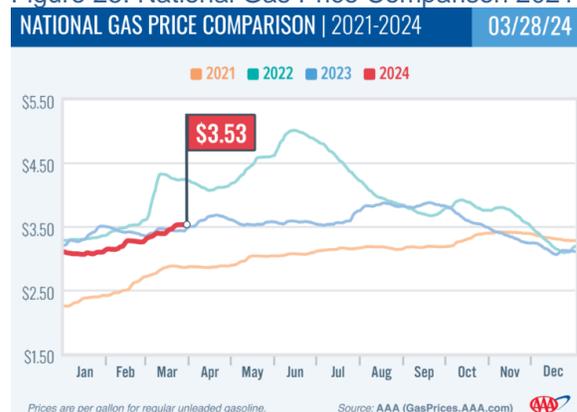
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the national average gasoline price of \$3.68. California gas prices are +\$0.50 MoM and \$0.53 YoY.

AAA “Don’t get April fooled by wobbling gas prices”

US gasoline prices have been creeping higher and we remind we are still early in the normal season for increasing US gasoline prices. AAA reminded this last week. Here is what we wrote in our March 31, 2024 Energy Tidbits memo. “On Thursday, AAA reminded that US gasoline prices are currently moving up and down but that they are expected to go higher. They posted a blog “Don’t get April fooled by wobbling gas prices.” [\[LINK\]](#). AAA wrote “After an early spring surge, the national average for a gallon of gas spent the past week drifting up and down by a fraction of a cent before settling a penny higher at \$3.53. But the break may be temporary, as gas pump prices will likely resume a spring increase.” Our Supplemental Documents package includes the AAA blog.

Figure 25: National Gas Price Comparison 2021-2024 (as of 03/28/24)



Source: AAA

Oil: US gasoline prices normally start seasonal ramp up in March

Normally US gasoline prices increase in the run up to the start of the big driving season – Memorial Day weekend. On Mar 28, we tweeted [\[LINK\]](#) “Gasoline 101. See 📌 Mar 9 tweets. ~Mar 1 is when US gas prices start normal seasonal ramp up in driving post winter into the summer. Plus @NACSONline reminds switch to more summer blend fuels costs as much as \$0.15 more to produce. Gas +\$0.15 since Mar 9. #OOTT.”

Seasonal increase in US gasoline prices

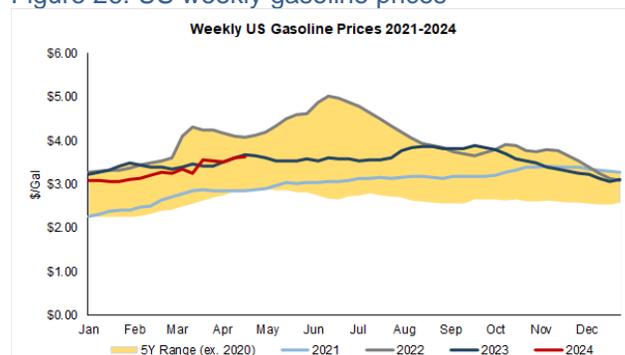
Around Mar 1 is when gasoline prices normally start to ramp up

Here is what we wrote in our Mar 17, 2024 (2024) Energy Tidbits memo on the normal seasonal increase in US gasoline prices. “Yesterday, we tweeted [\[LINK\]](#) “Reminder March is normally when US #Gasoline prices start to seasonally ramp up. Like air travel, Presidents' Day marks start of increasing driving thru Labor Day. Plus May 1 is when the switch to more expensive summer blend gasolines to minimize evaporation. #OOTT.” Gasoline prices are impacted by more than seasonal trends, in particular, refinery outages as seen in the recent gasoline price increases from the unplanned outage of BP Whiting. However, there are seasonal reasons why US

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gasoline prices normally increase from March thru at least Memorial Day. Key reason is that this is the normal seasonal pickup in driving. It's like the Delta Airlines CEO said last month, the recent Presidents Day weekend marks the start of their increase travel that goes right thru Labor Day. The second reason is that the switch to summer blend gasoline blend starts on May 1. Summer blend gasoline is more expensive to make and is higher quality to minimize emissions that evaporate into the air. Hot temperatures lead to more evaporation. And szCalifornia Gov Newsom allowed an early switch to winter blend to lower the price of gasoline and it worked. NACS (see following item) estimates summer blend gasoline can cost up to 15 cents per gallon to cost to produce." Below is our updated US weekly gasoline price graph.

Figure 26: US weekly gasoline prices



Source: EIA

Switch to summer blend gasoline can add 15¢/gallon to cost

Here is what we wrote in our Mar 10, 2024 Energy Tidbits memo on the reminder on why summer blend gasoline costs more than winter blend gasoline – it costs more to make. Here is what we wrote last week. “Yesterday, we tweeted [\[LINK\]](#) “Summer blend #Gasoline is more expensive as production process takes longer & overall yield of gasoline per barrel of oil is lower. 02/28/24, 📌 @NACSONline “these complexities add as much as 15 cents per gallon to the cost to produce these higher-grade fuels.” #OOTT.” Our tweet included the NACS (Association for Convenience & Fuel Retailing, originally founded as National Association of Convenience Stores) Feb 28, 2024 “Seasonal Gas Prices Explained. From refinery maintenance to consumer demand, seasonal fuel production affects gasolines prices at the dispenser.” [\[LINK\]](#). NACS led off “Traditionally, gasoline prices are at their lowest during the first week of February and then begin to climb, often peaking right before Memorial Day. Seasonal increases in demand plus a transition to unique fuel blends put pressure on gas prices each spring.” And they highlighted how the switch to summer blend can add 15 cents a gallon to cost. NACS wrote “Summer-blend fuel is also more expensive to make than winter-blend fuel. First, the production process takes longer and, second, the overall yield of gasoline per barrel of oil is lower. These complexities add as much as 15 cents per gallon to the cost to produce these higher-grade fuels.” Our Supplemental Documents package includes the NACS report.”

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Crack spreads closed at \$28.30

Oil: Crack spreads narrowed \$2.09 WoW to \$28.30

On Friday, we tweeted [LINK](#) “Less than last week, but still positive support for WTI. WTI - \$2.52 WoW to close \$83.14. 321 crack spreads narrowed \$2.09 WoW to \$28.30. Crack spread \$28.30 still provides big margin for refiners, big incentive to buying crude to maximize runs. #OOTT #Oil Thx @business.” The message for the past two months is unchanged - crack spreads continue to be at high levels and certainly high enough to incentivize refineries to run as much crude as possible. Crack spreads closed at \$28.30 on Apr 19, which was narrowing of \$2.09 WoW from \$30.39 on Apr 12. We always say crack spreads around \$30 are still big and a huge incentive for refiners to maximize runs. Apr 19 crack spreads of \$28.30 are still a big incentive for refineries to maximize run and make big margins. So crack spreads are a good indicator if refiners will be looking to buy more or less oil. And \$28.30 crack spreads are still strong and close to \$30 so a big incentive to refiners to want more crude and produce more product. This week, crack spreads narrowed \$2.09 WoW to \$28.30 on Apr 19, which followed \$30.39 on Apr 12, \$29.45 on Apr 5, \$29.73 on Mar 29, \$32.20 on Mar 22, \$33.00 on Mar 15, \$29.61 on Mar 8, \$31.11 on Mar 1, \$30.61 on Feb 23, and \$25.23 on Feb 16. Crack spreads at \$28.30 are well above the high end of the more normal pre-Covid that was more like \$15-\$20, which is why we believe refineries continue to be incentivized to take more oil. And if refiners are incentivized to take more oil, it should provide positive near-term support for WTI.

Crack spreads point to near term oil price moves, explaining 321 crack spread

We have focused on crack spreads for since the 90s as they are an unchanged fundamental of refineries – big crack spreads provide incentives for refineries to buy more crude because there are big profit margins to be made. People often just say “cracks”, which refers to the 321 crack spread. This is the spread or margin that refiners make from buying crude at a certain price and then selling the finished petroleum products at their respective prices. The 321 crack spread is meant to represent what a typical US refinery produces. It assumes that for every three barrels of crude oil, the refinery will produce two barrels of gasoline and one barrel of distillates. So the crack spread is based on that formula and worked back to a crack spread per barrel. Below is the current 321 crack spread vs WTI that we put in our tweet where we marked the gaps where the crack spread normally drags up oil prices. The crack spread was \$28.30 as of the Friday April 19, 2024 close.

Figure 27: Cushing Oil 321 Crack Spread & WTI Apr 19, 2014 to Apr 19, 2024



Source: Bloomberg

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Oil: Cdn heavy oil differentials narrowed \$1.20 WoW to close at \$12.10 on Apr 19

Early in the year, every year, we start to remind that that Cdn WCS less WTI differentials normally narrow in late Feb thru May as US refiners maximize production of asphalt for annual paving season. Refineries have, for the most part, finished planned winter turnarounds and are moving to maximize production of summer grade fuels as well as asphalt ahead of the annual summer driving and paving season. As is said in Canada, there are two seasons in Canada – winter and paving season. Below is graph showing WCS-WTI differentials that shows this normal seasonal trend of narrowing WCS-WTI differentials from Feb thru May. The seasonal narrowing is in motion. The WCS less WTI differential closed on Apr 19 at \$12.10, which was a narrowing of \$1.20 WoW from \$13.30 on Apr 12. These are both well below the Feb peak of \$19.75. And it seems like we are starting to see the impact on WCS less WTI differentials as TMX moves to the May 1 start of commercial operations.

**WCS diffs
narrowed \$1.20
WoW**

Figure 28: WCS less WTI oil differentials to April 19 close



Source: Bloomberg

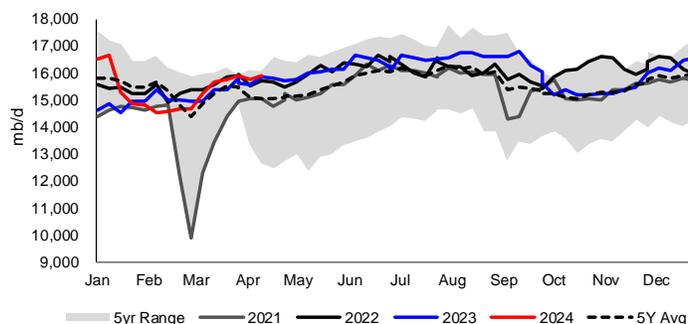
Oil: Refinery Inputs up +0.131 mmb/d WoW to 15.913 mmb/d, Joliet still down

There are always unplanned refinery items that impact crude oil inputs into refineries. And there are always different timing for refinery turnarounds. And our Apr 7, 2024 Energy Tidbits memo highlighted Exxon's 250,000 b/d Joliet refinery going down for ~50 days turnaround. But, as a general rule, this is the normal seasonal ramp up in refinery runs following winter maintenance. On Wednesday, the EIA released its estimated crude oil input to refinery data for the week ended April 12 [\[LINK\]](#). The EIA reported crude inputs to refineries were up +0.131 mmb/d this week to 15.913 mmb/d and are up +0.069 mmb/d YoY. Refinery utilization was down -20 bps WoW to 88.1%, which is -290 bps YoY.

**Refinery inputs
+0.131 mmb/d
WoW**

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Figure 29: US Refinery Crude Oil Inputs



Source: EIA, SAF

Oil: US net oil imports -1.991 mmb/d WoW as oil exports up +2.018 mmb/d WoW

The EIA reported US “NET” imports were down -1.991 mmb/d to 1.735 mmb/d for the April 12 week. US imports were up +0.027 mmb/d to 6.461 mmb/d against exports which were up 2.018 mmb/d WoW to 4.726 mmb/d. (i) Venezuela weekly imports. We know why the EIA doesn’t have any data in the row for Venezuela weekly oil imports but we still don’t know if the weekly oil imports are off or if Venezuela is included in the weekly oil imports in the Others number. But we do know the EIA monthly data shows Padd 3 imports from Venezuela >150,000 b/d. Give the EIA credit for putting out weekly oil import estimates, but it’s a reminder that we have to be careful about using the weekly oil import estimates. Rather we need to make sure we go to the monthly data for oil imports. (ii) Top 10 was down -0.265 mmb/d. Some items to note on the country data: (i) Canada was down -0.088 mmb/d to 3.458 mmb/d. (ii) Saudi Arabia was down -0.302 mmb/d to 0.229 mmb/d. (iii) Mexico was down -0.001 mmb/d to 0.208 mmb/d. Note imports from Mexico are down over 400,000 b/d since the beginning of March. Below we pasted in an item from last week’s (Apr 14, 2024) Energy Tidbits memo on the reducing Mexico (Pemex) oil exports. (iv) Colombia was up +0.132 mmb/d to 0.246 mmb/d. (v) Iraq was up +0.166 mmb/d to 0.308 mmb/d. (vi) Ecuador was down -0.231 mmb/d to 0.000 mmb/d. (vii) Nigeria was up +0.130 mmb/d to 0.173 mmb/d.

US net oil imports

Figure 30: US Weekly Preliminary Imports by Major Country

	Feb 16/24	Feb 23/24	Mar 1/24	Mar 8/24	Mar 15/24	Mar 22/24	Mar 29/24	Apr 5/24	Apr 12/24	WoW
Canada	3,669	3,766	3,632	3,458	3,735	3,652	3,874	3,546	3,458	-88
Saudi Arabia	224	139	366	265	254	338	321	531	229	-302
Venezuela	0	0	0	0	0	0	0	0	0	0
Mexico	784	569	640	303	353	525	263	209	208	-1
Colombia	286	71	351	0	289	143	316	114	246	132
Iraq	226	240	176	93	252	244	91	142	308	166
Ecuador	158	0	218	102	147	9	146	231	0	-231
Nigeria	159	165	222	132	57	215	136	43	173	130
Brazil	44	234	178	272	114	230	147	257	189	-68
Libya	92	65	0	66	0	88	117	24	21	-3
Top 10	5,642	5,249	5,783	4,691	5,201	5,444	5,411	5,097	4,832	-265
Others	1,012	1,136	1,439	800	1,077	1,258	1,207	1,337	1,629	292
Total US	6,654	6,385	7,222	5,491	6,278	6,702	6,618	6,434	6,461	27

Source: EIA, SAF

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Reality setting in, Pemex (Mexico) to cut exports by >330,000 b/d in May

Here is what we wrote in last week's (Apr 21, 2024) Energy Tidbits memo on Mexico's declining oil exports. *"The reality of Pemex (Mexico) cutting oil exports in Q2 seems to be finally setting in with markets. It's been a long time coming and we have been warning of this day for years as it impacts US and Cdn crude oil because less Pemex oil exports means less Mexico oil into the Gulf Coast refineries, which should only help Cdn oil differentials. (i) 04/01/24, Pemex cancelled some export contracts. Last week's (Apr 7, 2024) Energy Tidbits memo highlighted our Apr 1, 2024 tweet) [\[LINK\]](#) "Less MEX #Oil to PADD 3 = Positive to Cdn oil. Pemex canceled some export contracts, incl to PADD 3, as 340 kbp Olmeca refinery ramps up. @lkassai. Plus Q2 start of 590 kbd Trans Mountain TMX expansion will move Cdn oil to Asia. Biden needs 📈 155 kbd VEN oil to Padd 3. #OOTT." (ii) Pemex to cut >330,000 b/d of oil exports in May. This week, we saw the followup on how many barrels are being cut from exports. On Monday, Reuters reported [\[LINK\]](#) "Mexico's state energy company, Pemex, is planning to cut at least 330,000 barrels per day (bpd) of crude exports in May, leaving customers in the United States, Europe and Asia with a third less supply, two sources said. The plan follows the withdrawal of 436,000 bpd of Maya, Isthmus and Olmeca crudes this month, ordered by Pemex to its trading arm PMI Comercio Internacional because it needs to supply more to its domestic refineries as it targets energy self-sufficiency." There was no indication of the Reuters report on the specific cuts by region ie. how much was being cut from the Gulf Coast refineries. But Apr 1, 2024 tweet included a Bloomberg report that also said "Petroleos Mexicanos, also called Pemex, canceled contracts to supply its flagship Maya crude oil to refiners in the US, Europe and Asia, according to people with knowledge of the situation, who asked not to be named because the information is private. " And "US refiners are likely to bear the brunt of the cut in Maya exports. Fuelmakers including Valero Energy Corp, Chevron Corp and Marathon Petroleum Corp import 420,000 barrels of the heavy sour variety per day. In 2023, Maya exports reached 612,000 barrels a day." (iii) Our Supplemental Documents package includes the Bloomberg Apr 1 report and Reuters Apr 8 report."*

Oil: US doesn't extend General License 44 but still lets Venezuela oil flow

On one hand, the Biden Administration surprised many, including us, that it didn't renew General License 44 by the April 18 deadline, which was the licence that effectively opened up Venezuela oil. As the assumption was that by not extending it, it would be the effective return of sanctions on Venezuela oil and cause it to revert back to what it was a year ago including a return to zero Venezuela oil to US Gulf Coast refineries. But the Biden Administration also allowed for the continuation of Chevron and also others to continue their Venezuela oil coming to US Gulf Coast markets. On Wednesday, we tweeted [\[LINK\]](#) *"Must Read! Yes, US not renewing #Oil #NatGas sanctions relief for VEN. "However, the move did not impact Chevron's General License 41 and it leaves open the door for other companies to apply for similar individual licenses" report @KateAnnWinston @MowerJeff #OOTT."* Our tweet included the Platts report [\[LINK\]](#) that wrote *"Companies will have 45 days to wind down operations. But US leaves door open for company-specific licenses. The United States announced April 17 that it will snap back sanctions on Venezuela's oil and gas sector with a 45-day window to wind down operations, after Venezuelan President Nicolás Maduro failed to meet his commitment to make progress toward a free and fair election in July. The policy*

**US to let
Venezuela oil
keep coming to
US**

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change could have some impact on global oil flows by shifting more Venezuelan crude purchases to China. And expectations that sanctions would be reimposed on Venezuela have helped to tighten crude and fuel oil price spreads. However, the move did not impact Chevron's General License 41, and it leaves open the door for other companies to apply for similar individual licenses. License options. "With the wind down today of the public general license individual companies may now apply for specific licenses related to activities in Venezuela's oil and gas sector, which will then be evaluated on a case-by-case basis," a senior administration official said during an April 17 background press briefing." Our Supplemental Documents package includes the Platts report.

Oil: Norway March oil production of 1.843 mmb/d is up MoM but basically flat YoY

On Friday, the Norwegian Offshore Directorate released its March production figures [\[LINK\]](#). It reported oil production of 1.843 mmb/d, up +4.5% from its revised February figures of 1.764 mmb/d and barely up +0.5% YoY from 1.834 mmb/d in March 2023. March's production actuals came in +4.5% (+0.080 mmb/d) over the forecast volumes of 1.763 mmb/d. The NOD does not provide any explanation for any MoM changes. The watch on Norway oil production will intensify as Norway expects Norway oil production to reach peak oil production in 2025. Note that, prior to 2024, the Norwegian Offshore Directorate was called the Norwegian Petroleum Directorate.

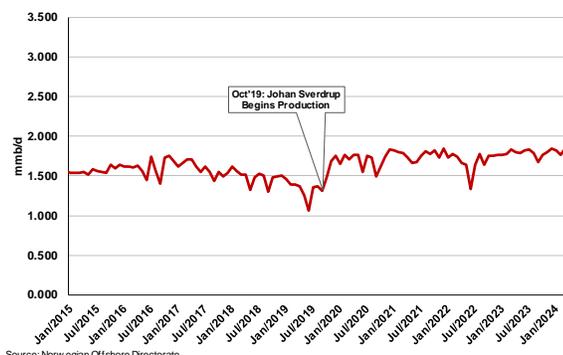
Norway March oil production

Figure 31: Norway March 2024 Production

		Oil mill bbl/day	Sum liquid mill bbl/day	Gas MSm ³ /day	Total MSm ³ o.e./day
Production	March 2024	1.843	2.086	364.5	0.696
Forecast for	March 2024	1.763	2.008	360.9	0.680
Deviation from forecast		0.080	0.078	3.6	0.016
Deviation from forecast in %		4.5 %	3.9 %	1 %	2.4 %
Production	February 2024	1.764	2.000	360.3	0.678
Deviation from	February 2024	0.079	0.086	4.1	0.018
Deviation in % from	February 2024	4.5 %	4.3 %	1.1 %	2.7 %
Production	March 2023	1.834	2.060	354.4	0.682
Deviation from	March 2023	0.009	0.026	10.1	0.014
Deviation in % from	March 2023	0.5 %	1.3 %	2.8 %	2.1 %

Source: Norwegian Offshore Directorate

Figure 32: Norway Monthly Oil Production 2015-2024



Source: Norwegian Offshore Directorate

Source: Norwegian Offshore Directorate

Norway forecasts Norway reaching peak oil production in 2025, then to decline

As noted above, the watch on Norway monthly oil production numbers should escalate moving into Q4/24 because that is when the giant oilfield, Johan Sverdrup is expected to start to decline. Here is what we wrote in our Mar 17, 2024 Energy Tidbits memo. “No one should be surprised to see Norway forecast that Norway will hit peak oil production in 2025 and then begin to decline. That conclusion was obvious on Feb 8 when Aker BP, a partner in the giant Johan Sverdrup oilfield, told investors that Johan Sverdrup was going to reach peak production level around year-end 2024 and then begin to decline. Our thesis on Norway oil production has been that we expect Norway oil production to peak around end of 2024 or early 2025 based on the recent Aker BP comments that Norway’s giant Johan Sverdrup oil field will start to decline in late 2024, which we believe would likely lead to Norway hitting peak oil production and then begin to decline. It looks like that these is supported by Norway’s energy agency (the Norwegian Offshore Directorate) blog on Monday. On Tuesday we tweeted [\[LINK\]](#) “ICYMI. Norway forecasts it will hit peak #Oil production in 2025 & then decline therefrom. Jan 2024 was 1.8 mmb/d. See 📌 Feb 8 tweet. Giant oil field Johan Sverdrup to hit peak & begin decline ~yr-end 2024. Start of decline in giant oilfield = decline in oil for Norway. #OOTT.” On Monday, we tweeted [\[LINK\]](#) “Norway #Oil production peak in 2025 and in decline says @sokkeldir. Makes sense, see 📌 Feb 8 tweet. massive Johan Sverdrup oil field led to a return to Norway oil growth. But it starts to decline in late 2024/early 2025. Positive for #Oil post 2024. #OOTT.” Norway’s Mar 11 blog was “High price to pay for halting exploration for oil and gas” [\[LINK\]](#) Their blog was a big picture warning that Norway shouldn’t stop further exploration, production development activity as it will be a big hit to Norway. It’s worth a read as it sounds like the Norway Climate committee is saying they want to stop all new exploration but also production, installation and operation. So that means an ever earlier end of life for oil and gas production and facilities. I.e. no more tie-in of smaller satellite fields to an existing platform. But included in the blog is a sentence that fits our Feb thesis – Norway oil production will peak in 2025 and then start to decline. They write “Production is declining on its own. The Committee presumes that activity in the oil and gas industry on the

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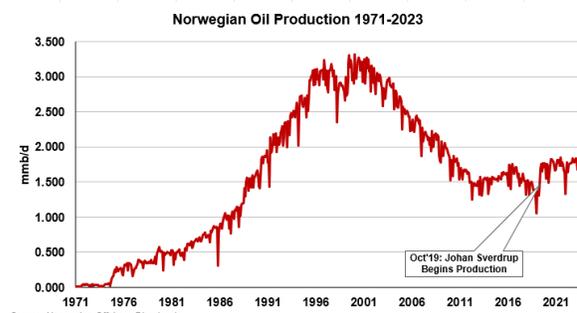
Norwegian shelf is too high leading up to 2050, which means that measures must be implemented to cut production. On the other hand, the Norwegian Offshore Directorate expects activity in the industry to naturally decline following a production peak in 2025. The production decline towards 2050 is within what the Intergovernmental Panel on Climate Change and the IEA have projected is in line with successfully following up the Paris Agreement.” Norway is forecasting reaching peak oil production in 2025 and then beginning a decline therefrom. Our Supplemental Documents package includes the Norwegian Offshore Directorate blog.”

Has Norway oil production peaked w/ Johan Sverdrup field moving to decline?

As noted above, Aker BP provided the key disclosure on Feb 8 as to why oil watchers should be expecting Norway to reach peak oil production in 2025 and then begin to decline. Here is what we wrote in our Feb 11, 2024 Energy Tidbits memo on why Norway would be hitting peak oil production. “We have to believe Norway will be in a “show me” phase over the next 12 months. There was big news on Thursday, when Aker BP said Norway’s biggest oil field, the 755,000 b/d Johan Sverdrup, is moving from plateau to decline in late 2024 or early 2025. There was no disclosure of how much it will decline in 2025 or if the decline can be offset, but it will raise the question what does it mean to Norway’s oil production base. (i) On Thursday, we tweeted [\[LINK\]](#) “#Oil bulls will like this. Johan Sverdrup 0 to 0.75 mmbd led to Norway 1.31 mmbd in 09/19 to 1.85 mmbd today. BUT Aker BP says JS moving from plateau to decline in late 24/early 25. Water now hitting some wells. Can they arrest decline with H2O handling, more wells, etc? Are there other fields to offset? Or is Norway #Oil about to start to decline? #OOTT.” (ii) Our tweet included the below graphs that reminded Johan Sverdrup started production in Oct 2019 and is now 755,000 b/d. And Norway oil production was 1.31 mmb/d in Sept 2019 and is now 1.85 mmb/d in Dec 2023. Johan Sverdrup is currently 40% of total Norway oil production. (iii) There was a great Q&A exchange on the Aker BP Q4 call on Thursday that led to the CEO noting a few key points. Aker BP has 31.6% in Johan Sverdrup but is not the operator. Equinor is the operator. CEO noted that water is hitting some undisclosed number of wells. And everyone knows water in conventional oil wells is a negative. And the more water, the more water handling capacity is required. The CEO said there is sufficient water handling capacity, didn’t specify how much more longer that would be the case and that water handling capacity will impact some operations. The CEO noted that plateau is ending and declines should start in late 2024 or early 2025. This is earlier than expected. But he would not say what decline rate going forward and if their development options (adding more water handling, drilling more wells, etc) can offset or more than offset the start of declines. There is more in the Q&A and we recommend reading the excerpt. (iv) The key items to come out in 2024 is what will the declines look like at Johan Sverdrup in 2025, can they offset the declines at Johan Sverdrup and for how long, are there other Norway projects that can more than offset any declines at Johan Sverdrup. (v) Until these questions are answered, we have to take the Aker CEO comments at face value and that Johan Sverdrup plateau oil production is ending in late 2024/early 2025 and declines are about to start. Our Supplemental Documents package includes excerpts from Aker BP call transcript.”

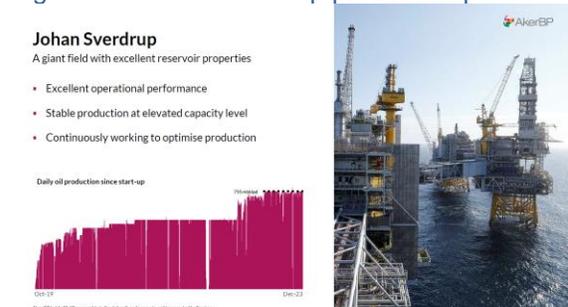
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Figure 33: Norway oil production



Source: Norwegian Offshore Directorate

Figure 34: Johan Sverdrup production plateau 755,000 b/d



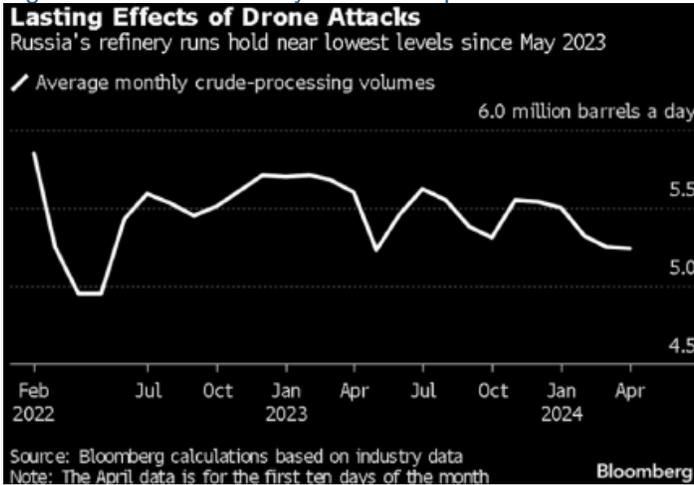
Oil: Russian refinery runs sink to almost 11-month low due to drones and floods

Ukraine drone attacks have had an impact on Russian refineries over the past month but now the question is how much Russian refinery capacity is offline and for how long. Then there is another question on much of the crude oil that normally flows to these disrupted refineries can be moved to other refineries or to export terminals. Russia is doing all they can to move these oil volumes to export terminals as evidenced by the reports of increasing oil and products being moved by rail and the increasing Russia oil shipments noted in the following item. On Tuesday, Bloomberg reported *“Russia’s crude-refining rates are languishing near an 11-month low, as the recovery of operations damaged in Ukrainian drone attacks slowed. The nation processed 5.24 million barrels a day over the April 4-10 period”*. While there were slight increases at Lukoil’s refineries (only +0.3% WoW), Rosneft’s refineries fell -0.7%, Surgutneftegas’s Kirishi refinery fell -11% (-41,000 b/d), and floods in Russia’s Orenburg region caused the Orsk refinery to halve runs to just 27,000 b/d. We have included a map of the flooding in the Orenburg Oblast. Our Supplemental documents package includes the Bloomberg report.

Russia oil refinery runs

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Figure 35: Russia refinery runs thru Apr 10 week



Source: Bloomberg

Figure 36: Orenburg Oblast Flood Region



Source: Kazakhstan emergencies ministry



Source: BBC, Kazakhstan emergencies ministry

Oil: With crude freed up, Russia oil shipments skyrocket to 11-month high

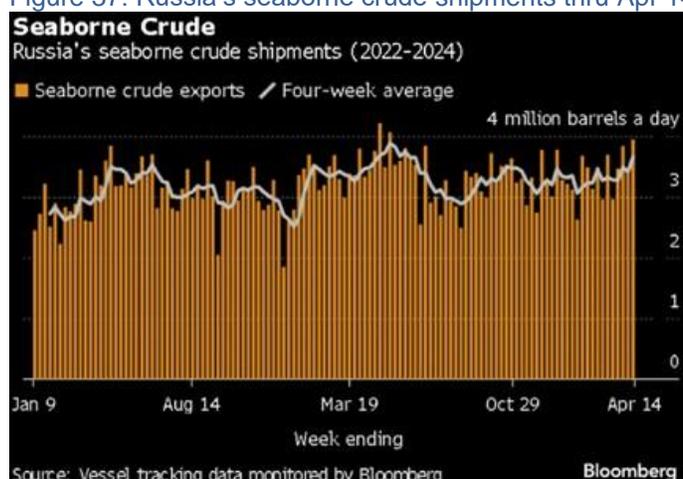
On Tuesday, we tweeted [\[LINK\]](#) "Ukraine drones impact. Russian refinery capacity still not back on from drones means its "seaborne crude exports soared to an 11-month high in the second week of April with flows from all major ports near peak levels." @business @JLeeEnergy's great weekly report. #OOTT." We have been writing about how drone strikes reducing refinery capacity in Russia would free up crude for export assuming the crude oil volumes can be moved to export terminals. And as noted previously, there are reports of Russia moving more crude and products via rail. As processing hit an 11-month low (see above item), the inverse happened to crude shipments. Bloomberg reported "Russia's seaborne crude exports soared to an 11-month high in the second week of April

Russia oil shipments over commitment

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with flows from all major ports near peak levels. Last week's jump propelled total weekly flows to the highest since May 2023, for a level that has been exceeded only twice since the start of 2022, vessel-tracking data compiled by Bloomberg show. The less volatile four-week average also rose sharply, climbing to the highest since early June. Weekly shipments were well above a target for this month that's part of the EPC+ alliance's broader effort to curb supplies and support prices". Bloomberg also echoed our point that we have been saying for weeks: "cargoes from Primorsk, Ust-Luga, Novorossysk and Kozmino were close to historical highs... possibly reflecting a diversion to exports of crude that would have been processed at refineries hit by Ukrainian drones". In the week to April 14, Russia exported 3.95 mmb/d of crude via tankers, up +560,000 b/d WoW and +490,000 b/d above their April target. Remember that Russia will be shifting towards a production-based cut rather than export control for their OPEC+ commitments this quarter Our Supplemental Documents package includes the Bloomberg report.

Figure 37: Russia's seaborne crude shipments thru Apr 14 week



Source: Bloomberg

Oil: Iran downplays Israel's Friday night attacks

The key reason why oil pulled back is that oil markets believe Iran and Israel aren't aggressively going after each as much as they could. Rather the market is interpreting their moves as both sides trying to avoid a full-on all-out direct war. The latest was Iran's response to the latest Israel attacks on Friday. Iran's Foreign Minister's comments to NBC News were not viewed as a smoke screen. Rather they were viewed as Iran clearly pointing to no response. Last night, we tweeted [\[LINK\]](#) "ICYMI, Iran FM downplays Israel attack, setting up expectation for no Iran response thereto. FM ""What happened last night was not a strike," "They were more like toys that our children play with – not drones." Thx @LlamasNBC." NBC also reported ""As long as there is no new adventurism by Israel against our interests, then we are not going to have any new reactions," he said. But the foreign minister warned that if Israel did attack Iran, the response would be swift and severe. "If Israel takes a decisive action against my country and this is proven to us," he said, "our response will be immediate and to the maximum and will cause them to regret it." Our Supplemental Documents package includes the NBC News report.

Iran downplays attacks

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Israel media says missile attack was show Israel can penetrate defense

Earlier this morning, the Times of Israel report “*Satellite image appears to show damaged Iranian radar allegedly struck by Israel*” [\[LINK\]](#) included comments by the New York Times yesterday. The Times of Israel wrote “*The New York Times reported on Saturday that Israel used a high-tech missile that was able to evade Iran’s radar systems to attack the site, in a move meant to send a message of deterrence by displaying Israel’s offensive abilities. It cited two Iranian officials as saying that the S-300 system was hit in the attack. The air defense post was reported to be part of an array defending the nearby top-secret Natanz nuclear site, some 100 kilometers away. The Iranian officials told the newspaper that Iran had not detected intrusions into its airspace from drones, missiles or aircraft.*”

Oil: Did Iran warn Israel or not on its 300+ drone/missile attack?

We will probably never know but one of the immediate storylines on why Iran’s 300+ drones/missiles attack on Israel didn’t have more damage and deaths was the Iran supposedly warned Israel about its attack. This, as the story goes, allowed Israel to have maximum defense capabilities. This was the immediate narrative on Iran’s massive drone/missile attack. And then the denials came with most seeming to discount the denials. It’s why we say n one will know what really happened. On Tuesday, we tweeted [\[LINK\]](#) “*Iran didn’t warn Israel says White House. See 🗨️ "seen reporting that the Iranians meant to fail, that this spectacular and embarrassing failure was all by design. I've also seen Iran say that they provided early warning to help Israel prepare its defenses and limit any potential damage. All of this is categorically false." Thx @business #OOTT.*” Our tweet included an excerpt from the White House Apr 15 briefing whereat John Kirby (National Security Communications Advisor) said “*And I'd like to take just a few minutes to correct the record on a few points that have come out in the last several hours. I've seen reporting that the Iranians meant to fail, that this spectacular and embarrassing failure was all by design. I've also seen Iran say that they provided early warning to help Israel prepare its defenses and limit any potential damage. All of this is categorically false. To coin the phrase from the President, or steal a phrase from the President, it's malarkey. This attack failed because it was defeated by Israel, by the United States, and by a coalition of other partners committed to Israel's defense. So, let's be straight. Given the scale of this attack, Iran's intent was clearly to cause significant destruction and casualties. Iranian leaders launched so many missiles and other munitions because they knew that many were going to be defeated, but the aim was to get as many of them through Israel's defenses as possible. Now, I've also seen this speculation about messages passed forth and warnings. We did receive messages from Iran, and they received messages from us, too, but there was never any message to us or to anyone else on the timeframe, the targets or the type of response. In fact, before yesterday, it was presumed that 100 ballistic missiles might overwhelm even the best defensive systems. That was Iran's intent. And as you all saw for yourself, it didn't work.*”

Did Iran warn Israel?

Oil: Iran says any future counterattacks against Israel will come from within Iran

Here is what we wrote in last week’s (Apr 14, 2024) Energy Tidbits memo on Iran saying that any counterattacks against Israel would be coming directly from Iran and not via any of its proxies. “*Perhaps the most significant change from Iran is how they did this attack directly on Israel. Earlier this morning, Iran’s IRGC chief commander stated any future counterattacks*

US ironclad commitment to Israel

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against Israel will be coming from within Iran. We tweeted [\[LINK\]](#) “Iran says no more hiding behind proxies. “From now on, if the Zionist regime attacks our interests, assets, figures, and citizens at any point, it will face counterattack from within the Islamic Republic of Iran,” says Chief Commander of IRGC. #OOTT.” So no more hiding behind the proxies.”

Oil: Biden’s new Iran sanctions do nothing to hit Iran’s oil & condensate exports

As promised, Biden leveled new sanctions on Iran post their massive missile/drone attack on Israel. And, unsurprisingly, the new sanctions do nothing to hurt Iran’s oil and condensate production and exports. On Thursday, we tweeted [\[LINK\]](#) “Biden election year priority - don’t let US gasoline prices hit \$4. Today, Biden new Iran sanctions do not include anything to hit Iran’s cash flow: #Oil & #Condensate exports. Yesterday, 🟡 not renewing VEN sanctions relief didn’t VEN oil exports to Gulf Coast. #OOTT.” The “Statement from President Joe Biden on Iran Sanctions” wrote “And today, we are holding Iran accountable—imposing new sanctions and export controls on Iran. The sanctions target leaders and entities connected to the Islamic Revolutionary Guard Corps, Iran’s Defense Ministry, and the Iranian government’s missile and drone program that enabled this brazen assault. As I discussed with my fellow G7 leaders the morning after the attack, we are committed to acting collectively to increase economic pressure on Iran. And our allies and partners have or will issue additional sanctions and measures to restrict Iran’s destabilizing military programs.” Our Supplemental Documents package includes the full Biden statement.

Biden’s Iran sanctions

Last night, House passed opportunity for Biden to hit Iran oil exports

Last night, the House passed H.R. 8038, which included “Division F – Ship Act” “This division may be cited as the “Stop Harboring Iranian Petroleum Act” or the “SHIP Act”. We have only seen initial reports but they all expect the Senate to pass this and ultimately for Biden to sign into law. Biden made no mention of the potential in his Iran sanctions announcement noted above. And, assuming there are no amendments in the process thru the Senate and to Biden for signing, this would give Biden the potential to hit Iran’s exports of oil and condensates. Earlier this morning, Bloomberg’s Javier Blas noted the wiggle room for Biden to do something or not once this is law. Blas tweeted “The new bill gives President Joe Biden room of manoeuvre with waivers and also a 180 day period before implementation. So let’s see how it impacts ultimately any flows. But clearly targets Iranian oil exports into China. (The White House has promised support of the approval of the bill already).” Our Supplemental Documents package includes the excerpt from H.R. 8038 on the Ship Act.

Oil: Is there no risk to Iran shutting down Strait of Hormuz as most expect?

Everybody recognizes the Strait of Hormuz is the most significant chokepoint in the world for oil and that a closure of the Strait would lead to a big spike up in oil prices as well as LNG prices. And everybody recognizes Iran has the ability to effectively stop tankers from going thru the Strait of Hormuz. It is considered the big spike event for oil. However, this week, oil prices were down following Israel and Iran attacking each other and one of the primary reasons is that oil market and news watchers don’t see a real risk of Iran shutting down the Strait of Hormuz as it would hurt China and India more than the US and UK. And it would hurt Iran itself by cutting off its cash flow. As a reminder, last week’s (Apr 14, 2024) Energy Tidbits memo highlighted Iran’s reminder that it could shut down the Strait of Hormuz. Here is what

Iran on Strait of Hormuz

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we wrote in last week's (Apr 14, 2024) Energy Tidbits memo. "Iran's IRGC Navy Commander Admiral Alireza Tangsiri's April 9 interview had a number of Iran reminders/warnings. On Tuesday, we tweeted [\[LINK\]](#) "Worth a read: Iran IRGC navy comd interview. could shut Strait of Hormuz if they wanted. will be responding to bombing of consulate in Syria. warned neighbour countries with Israel relations - an attack on Iran better not start from there. Houthis make their own weapons. #OOTT." Tangsiri warned Iran could close the Strait of Hormuz if they want and that the Strait of Hormuz are "our waters". Tangsiri said " During talks with neighboring countries regarding the Strait of Hormuz, our message has always been that of peace and friendliness. Iran suffered under the oppression of a tyrant, so it revolted and offered martyrs in the quest for victory, but since then, we have been faced with the enmity of those same countries, as well as the United States and more. The US Army has now come to the Strait of Hormuz and the Persian Gulf, but they do not belong in our waters. We previously told our neighbors that the Persian Gulf and Oman's Sea are national concerns of both them and Iran and that Iran's security is theirs. We told them the West does not want this region to be stable or secure. The West considers these countries as a "milk cow", but when the milk runs out, as in oil and gas resources in the region, it would slaughter us. Therefore, we have always advocated for the security of the region, and have assured that we can host joint military exercises in the Strait, in collaboration with our brothers from the Persian Gulf's neighboring countries. We can maintain the region's peace and security. Our oil and gas terminals are close to those of the neighboring countries. If we really wanted to, we could close these waterways down."

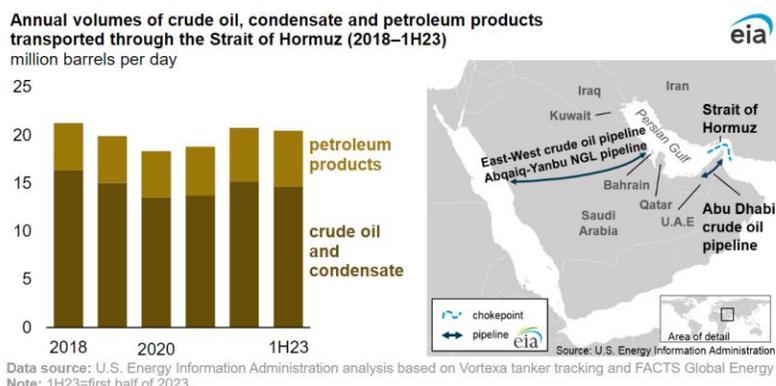
There are no workarounds to fully compensate for the Strait of Hormuz closure

The reason why the Strait of Hormuz is considered the most important chokepoint for oil and LNG is that there isn't a workaround, to the most part, if the Strait of Hormuz becomes closed. The Red Sea/Bab el Mandeb can be worked around, it just means a much longer voyage. Here is what we wrote in our Nov 26, 2023 Energy Tidbits memo. "To dated, the market has been focused on the Strati of Hormuz risk as it is the most important world oil chokepoint. We have been more worried to date on interruptions via the Red Sea and Bab el Mandeb but have also been noting how the Strait of Hormuz is more significant to supply if any interruption. And we have been included the EIA's latest Strait of Hormuz blog, which is four years old. But on Tuesday, the EIA updated its Strait of Hormuz blog "The Strait of Hormuz is the world's most important oil transit chokepoint" [\[LINK\]](#). "The Strait of Hormuz, located between Oman and Iran, connects the Persian Gulf with the Gulf of Oman and the Arabian Sea. The Strait of Hormuz is the world's most important oil chokepoint because large volumes of oil flow through the strait. In 2022, its oil flow averaged 21 million barrels per day (b/d), or the equivalent of about 21% of global petroleum liquids consumption. In the first half of 2023, total oil flows through the Strait of Hormuz remained relatively flat compared with 2022 because increased flows of oil products partially offset declines in crude oil and condensate." "Between 2020 and 2022, volumes of crude oil, condensate, and petroleum products transiting the Strait of Hormuz rose by 2.4 million b/d as oil demand recovered after the economic downturn from the COVID-19 pandemic. In the first half of 2023, shipments of crude oil and condensates dropped because OPEC+ members implemented crude oil production cuts starting in November 2022. Flows through the Strait of Hormuz in 2022 and the first half of 2023 made up more than one-quarter of total global

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seaborne traded oil. In addition, around one-fifth of global liquefied natural gas trade also transited the Strait of Hormuz in 2022.” Our Supplemental Documents package includes the EIA blog. “

Figure 38: Crude oil, Condensate & Petroleum Products Flows Thru Strait of Hormuz



Source: EIA

Figure 39: Volumes thru the Strait of Hormuz 2018-1H23

Volume of crude oil, condensate, and petroleum products transported through the Strait of Hormuz (2018–1H23)
million barrels per day

	2018	2019	2020	2021	2022	1H23
Total oil flows through Strait of Hormuz	21.3	19.9	18.3	18.8	20.8	20.5
Crude oil and condensate	16.4	15.0	13.5	13.7	15.2	14.7
Petroleum products	4.9	4.9	4.8	5.1	5.6	5.8
World maritime oil trade	77.4	77.1	71.9	73.2	75.2	76.3
World total petroleum and other liquids consumption	100.1	100.9	91.6	97.1	99.6	100.3
LNG flows through Strait of Hormuz (billion cubic feet per day)	10.3	10.6	10.4	10.6	10.9	10.8

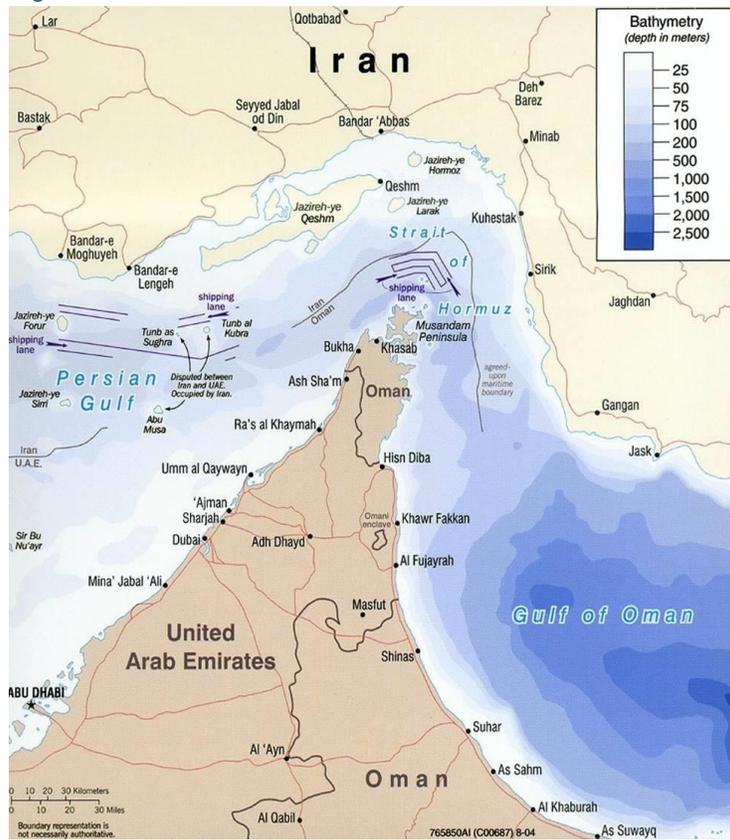
Source: EIA

The significance of these islands is water depth for super tankers

On Monday, we tweeted [LINK](#) “Strait of Hormuz reference map. Tankers just can't go anywhere in the Strait, they have to have sufficient water depth. I have used 📍 map for years as it shows the water depths and why it is a narrow shipping lane in each direction for #Oil #LNG tankers. #OOTT.” Here is what we wrote in our April 26, 2020 Energy Tidbits memo. “There is no dispute that the Strait of Hormuz is the most important oil transit chokepoint in the world. The logistical issue for tanker traffic comes because it is an extremely narrow traffic route at least for the greater water depths to allow ease of supertanker traffic. There are separate inbound and outbound shipping lanes plus a two-mile wide buffer zone. The below map [LINK](#) shows Abu Mousa, Greater and Lesser Tunbs and the water depths in the Strait of Hormuz.”

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Figure 40: Strait of Hormuz – Abu Mousa, Greater and Lesser Tunbs



Oil: Is there any oil risk premium for the Iran/Israel missile/rocket attacks?

As noted above, it seems like oil watchers and news followers of Iran/Israel don't seem to place any real fear (and therefore risk premium in oil) to the potential for Iran to shut down the Strait of Hormuz. Arguably, the Vortexa Iran and China oil comments later in the memo point to a weaker oil market. But that aside, oil prices moved up but are back below the oil price when Israel blew up the Iran consulate in Damascus, then Iran launched its >300 drones/missile attack and then again after Israel hit Iran this week. On Friday, we tweeted [LINK](#) "Do #Oil markets effectively place zero risk premium for any Israel/Iran potential? Brent price is back to where it was before Israel bombed Iran consulate, Iran launched its missile/drone attack and now Israel strike on Iran last night. #OOTT." The Brent price action certainly seems to point to no significant geopolitical risk premium in oil prices. Below is the Brent graph attached to our tweet.

Oil back below Israel attack on Iran consulate

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Figure 41: Brent price 30-days to Apr 19



Source: Bloomberg

Oil: Iran says its oil & condensate production is +1.3 mmb/d in last 3 years

On Wednesday, Shana (news agency for Iran's oil ministry) report "Sanctions aimed at limiting Iran's oil output, exports thwarted by Oil Ministry: PBO head" [\[LINK\]](#) noted Iran said its oil and condensates production is 3.5 mmb/d, which is +1.3 mmb/d since Q2/21. Iran didn't say it, but this basically ties to when Biden was inaugurated. Shana wrote "The 13th administration has tried to bring Iran's oil production and exports closer to pre-sanctions volumes since it took office in August 2021, said Manzour, adding the country is now producing over 3.5 million barrels of crude oil and gas condensates a day while the figure stood at 2.2 million barrels per day (bpd) in the first half of the Iranian calendar year of 1400 (starting March 21, 2021). Iran's oil production in the pre-sanctions era amounted to 3.8m bpd, continued the vice president, concluding that the government plans to boost the daily output by 100,000 to 200,000 barrels this year as it is seeking to make the maximum use of the oil and gas sectors' capacities for domestic development."

Iran oil +
condensate
production +1.3
mmb/d

Oil: IMF estimates Iran Fiscal Breakeven Prices is down to \$121/b from \$375

Iran's increasing oil production and exports has made a huge impact on the IMF's estimated Fiscal Breakeven Price. On Friday, we tweeted [\[LINK\]](#) "#IMF Fiscal Breakeven #Oil Price. Saudi up big YoY, now \$96.20 for 2024, vs \$75.10 in Apr 23. It's why need big OPM \$\$\$ for Vision 2030. Increasing #Oil #Condensate exports a huge boost to Iran. FBP now \$121.00 BUT vs \$375.40 in Apr 23. See 📈 IMF Apr 24 vs Apr 23 est. #OOTT." On Thursday, the IMF posted its "Regional Economic Outlook: Middle East and Central Asia", which included its forecast for Fiscal Breakeven Prices (FBP) for oil for the major Middle East oil exporting countries. Our tweet our May 3, 2023 tweet on last year's IMF report and forecast on FBP that we highlighted in our May 7, 2023 Energy Tidbits memo. The IMF's new forecast is that Iran has a FBP of \$121.00 for 2024, which is still a big price but down 2/3 from the IMF's April 2023 forecast for Iran's FBP of \$375.40 for 2024. Below is the IMF's Apr 2024 table of FBP for the Middle East oil exporting countries.

Iran Fiscal
Breakeven Price

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Figure 42: IMF Estimated Fiscal Breakeven Prices

Table 6. Breakeven Oil Prices *IMF APR 2024*
(US dollars per barrel)

	Average				Projections	
	2000–20	2021	2022	2023	2024	2025
FISCAL BREAKEVEN OIL PRICE¹						
Oil and Gas Exporters						
Algeria	101.1	111.4	109.8	93.8	125.7	119.4
Azerbaijan	52.6	57.5	67.3	76.4	88.2	89.3
Bahrain	85.0	131.6	131.8	138.4	125.7	127.8
Iran	92.4	118.8	131.4	105.1	121.0	123.9
Iraq	70.9	54.2	68.5	80.4	93.8	90.0
Kazakhstan	...	183.5	95.3	109.3	123.5	109.3
Kuwait ²	59.6	87.6	81.5	81.0	83.5	78.3
Libya	75.0	52.2	64.4	65.9	66.0	63.7
Oman	70.1	76.7	55.4	57.2	58.1	53.9
Qatar	45.3	47.7	46.3	46.5	43.1	40.4
Saudi Arabia	80.0	83.6	88.1	93.3	96.2	84.7
Turkmenistan	37.9	28.9	31.5	34.2	35.8	37.1
United Arab Emirates	50.0	53.0	46.6	51.6	56.7	54.3

Source: IMF

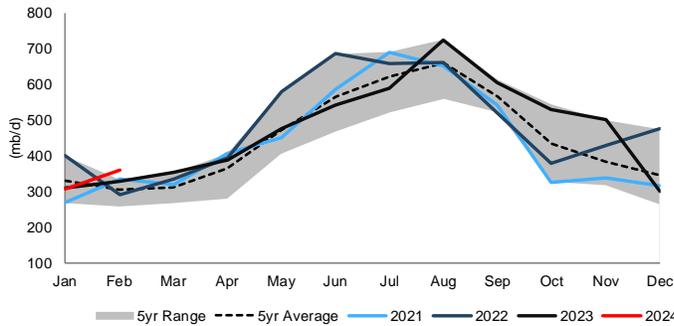
Oil: Saudi use of oil for electricity up MoM, most crude used in Feb over past 5 years

Saudi Arabia is now moving into its normal season increasing use of oil for electricity for air conditioning. It happens every year and this means that, all things equal, there is less oil for exports. Saudi use of oil for electricity was +52,000 b/d in February as Riyadh saw hotter temperatures. The key seasonal theme for Saudi oil exports is that, all things being equal, Saudi can export more oil in winter months as it uses less oil for electricity and, conversely, it would have less oil for export in summer months as it uses more oil for electricity ie. air conditioning. Note that a normal peak to trough decline is ~400,000 b/d. If there is less oil used for electricity, then there is more oil for export and vice versa. The JODI data for Saudi Arabia oil supply and demand for February [\[LINK\]](#) was updated on Wednesday. We checked AccuWeather’s monthly data for Riyadh, and we saw daytime highs during February were now in the mid-30’s, while the nighttime lows were mild in the teens. Oil used for electricity generation (direct use) in February was 360,000 b/d (vs February 2023 of 329,000 b/d) and January was 308,000 b/d (vs January 2023 of 312,000 b/d). Direct use in February 2024 is above the 5-year average and set a new seasonal high for the month (on a 5-year lookback basis). Also note that this year fits the normal trough-to-peak swing of 400,000 b/d. Remember, we saw as much as 726,000 b/d in August. Below are the AccuWeather Temp maps for Riyadh for January and December.

Saudi oil use for electricity up in Feb

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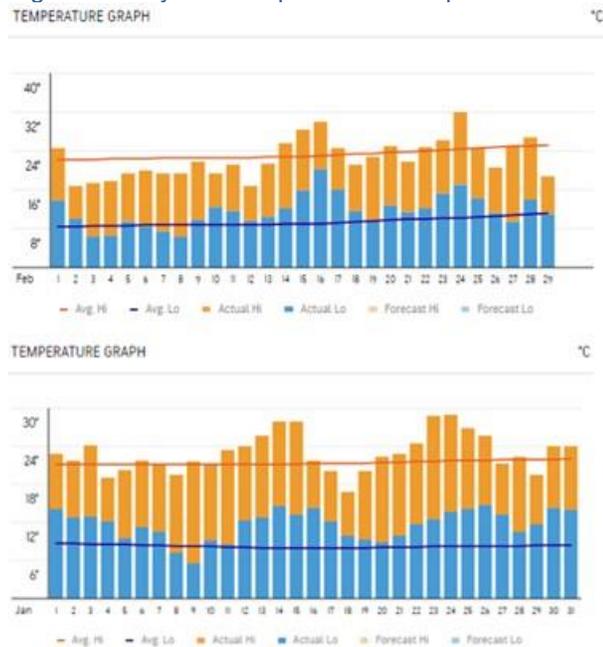
Figure 43: Saudi Arabia Direct Use of Crude Oil for Electricity Generation



Source: JODI

Source: JODI, SAF

Figure 44: Riyadh Temperature Recaps for February (top) and January (bottom)



Source: AccuWeather

Oil: Saudi net oil exports up +70,000 b/d to 6.208 mmb/d in February

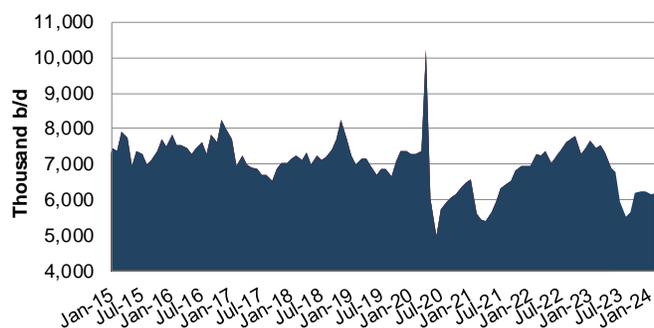
Note, until recently, JODI did not have access to Saudi import data. We realized only recently it began being disclosed in the fall, so this should explain at least some of the gaps in inventory draws/builds we have been pointing out. In February, the JODI data showed Saudi net oil exports were up +70,000 b/d MoM to 6.208 mmb/d. This comes as imports were down -50,000 b/d and exports are up +20,000 b/d. February is winter and, as noted above, it means less oil is used for electricity and this normally frees up more oil for export especially

Saudi net oil exports up +70,000 b/d MoM

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when production was +55,000 b/d MoM to 9.011 mmb/d in February. Below is our graph of Saudi Arabia monthly net oil exports.

Figure 45: Saudi Arabia Net Oil Exports (mb/d)



Source: JODI

Source: JODI, SAF

11/10/23 Saudi reminds oil exports are seasonal, less in summer/more in winter

Here is what we wrote in the Nov 12, 2023 Energy Tidbits memo. “We probably should have called it Saudi Oil 101, but we were a little surprised that Saudi Energy Minister felt the need to explain how there is seasonality to Saudi’s oil exports because Saudi domestic consumption of oil has a seasonal pattern. So seasonally, there is more Saudi oil available for export in the fall than in the summer. On Friday, we tweeted [\[LINK\]](#) “Agreed, he is explaining Saudi Oil 101. Summer heat = more #Oil used to generate electricity for A/C ie. less for export. Aug 2023 was 726,000 b/d, +414,000 b/d vs Jan 2023. See 📌 SAF 10/22/23 Energy Tidbits graph. Thx @SVakhshouri for flagging. #OOTT.” Well known oil strategist Dr. Sara Vakhshouri tweeted “Saudi Energy Minister on #oil price drop: demand is healthy & speculators are to blame for the recent drop. OPEC exports don’t indicate increased production. Shipments are seasonal, dipping in summer & rebounding in Sep & Oct; not a sign of output changes.” This is the theme we highlight every month when we report on the monthly Saudi oil data for oil to refineries, production, exports, oil for electricity and oil into inventories. Our tweet showed our Oct 22, 2023 Energy Tidbits graph on how Saudi used 414,000 b/d more oil for electricity in Aug than it did in Jan because of the weather. The hot summers always drive up Saudi use of oil for electricity.”

Oil: Saudi oil inventories down -6,731 mmb MoM in Feb, math suggests bigger draw

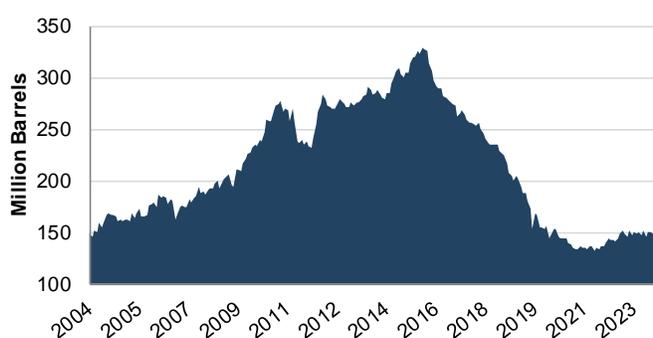
We have seen this in the past, when there were unexplained builds or draws in inventories than what the basic math from production, refinery intake, and exports would suggest. We guessed the culprit was unreported Russian imports or exports. Remember the October data where there was a huge drop in production, a big hike in exports, minor drops in direct use and refinery intake, but a huge build in inventories. We chalked that up to being potentially unreported Russian imports because the math suggested there should have been a draw on

Saudi oil
inventory data

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inventory. For February, JODI data shows inventories were down -6.731 mmb MoM, or -0.232 mmb/d. Looking at the basic components for February, we would have expected a draw in inventory closer to -0.317 mmb/d MoM or down -9.193 mmb MoM: On the supply side, production was up +55,000 b/d but imports were down -55,000 b/d (so +5,000 b/d net), while on the draw side refinery intake was up +250,000 b/d, Direct Use +52,000 b/d, and exports +20,000 b/d (a total of -322,000 b/d draw). So, all together, that should have worked out to -317,000 b/d coming out of storage each day, or a -9.193 mmb draw over the month. This suggests there are 2.462 mmb (0.079 mmb/d of unexplained items). There is always some minor unexplained variance, and this was a lot smaller than October's variance, but the smaller draw suggests some unreported imports. We aren't sure what was the holdback to what should have been a bigger build.

Figure 46: Saudi Arabia Oil Inventories (million barrels)



Source: JODI

Source: JODI, SAF

Oil: IMF est Saudi Arabia fiscal breakeven oil price +\$21/b in 2024 to \$96.20

On Friday, we tweeted [\[LINK\]](#) "#IMF Fiscal Breakeven #Oil Price. Saudi up big YoY, now \$96.20 for 2024, vs \$75.10 in Apr 23. It's why need big OPM \$\$\$ for Vision 2030. Increasing #Oil #Condensate exports a huge boost to Iran. FBP now \$121.00 BUT vs \$375.40 in Apr 23. See 📌 IMF Apr 24 vs Apr 23 est. #OOTT." On Thursday, the IMF posted its "Regional Economic Outlook: Middle East and Central Asia", which included its forecast for Fiscal Breakeven Prices (FBP) for oil for the major Middle East oil exporting countries. Our tweet our May 3, 2023 tweet on last year's IMF report and forecast on FBP that we highlighted in our May 7, 2023 Energy Tidbits memo. The IMF's new forecast is that Saudi needs an oil price of \$96.20 for 2024 for its Fiscal Breakeven Price based assuming it holds production steady at 9.3 mmb/d. Our tweet noted that last year's IMF forecast was that Saudi Arabia needed a FBP of \$75.10/b for 2024. Approx half of the difference is due to lower production levels and the IMF estimates that the FBP would go down to \$84.70 if Saudi Arabia produced 10.3 mmb/d. The other item that we are reminded by seeing the higher FBP is that it reinforces our longstanding #1 financial theme for Saudi Arabia for the 2020s – they will need increasing amount of Other People's Money to finance Vision 2030.

Saudi Fiscal Breakeven Price up to \$96/bbl

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Figure 47: IMF Estimated Fiscal Breakeven Prices

Table 6. Breakeven Oil Prices **IMF APR 2024**
(US dollars per barrel)

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	2000–20	2021	2022	2023	2024	2025
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Oil and Gas Exporters						
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Azerbaijan	52.6	57.5	67.3	76.4	88.2	89.3
Bahrain	85.0	131.6	131.8	138.4	125.7	127.8
Iran	92.4	118.8	131.4	105.1	121.0	123.9
Iraq	70.9	54.2	68.5	80.4	93.8	90.0
Kazakhstan	...	183.5	95.3	109.3	123.5	109.3
Kuwait ²	59.6	87.6	81.5	81.0	83.5	78.3
Libya	75.0	52.2	64.4	65.9	66.0	63.7
Oman	70.1	76.7	55.4	57.2	58.1	53.9
Qatar	45.3	47.7	46.3	46.5	43.1	40.4
Saudi Arabia	80.0	83.6	88.1	93.3	96.2	84.7
Turkmenistan	37.9	28.9	31.5	34.2	35.8	37.1
United Arab Emirates	50.0	53.0	46.6	51.6	56.7	54.3

Source: IMF

Oil: No production update from Libya NOC since Mar 21

We still haven't seen any oil production updates from the Libya National Oil Corporation since their Mar 21 update that oil production was 1.241 mmb/d. Other than the short protest that briefly shut in Sharara oil field in Q1/24, Libya's oil production has been stable at ~1.2 mmb/d for the past several months. Our March 31, 2024 Energy Tidbits memo highlighted the suspension of then Libya Oil Minister Aoun for undisclosed reasons and the subsequent accusation of Libya NOC Chair Bengdara of conflict of interest. Last week's (Apr 14, 2024) Energy Tidbits memo highlighted the appointment a new Libyan oil minister Khalifa Abdul Sadiq, who was previously Deputy Oil Minister.

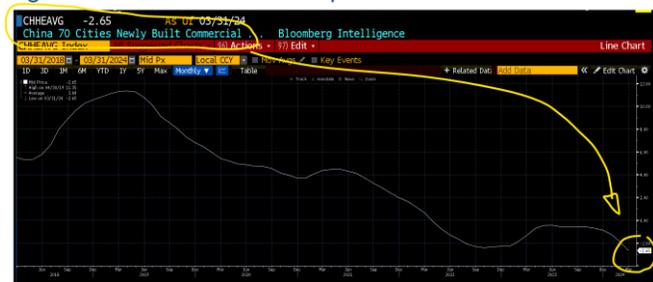
No Libya oil production update

Oil: China new and used home prices continue to lose value

We have been seeing positive indicators on China economy over the past month but one areas that is still in the negative are China new and used home prices. On Tuesday, China's National Bureau of Statistics posted its new and used home prices for March. New home prices in March were -0.34% MoM vs 0.36% MoM in Feb. New home prices were -2.65% YoY vs -1.90% YoY in Feb. Used home prices were -0.53% MoM in March vs -0.62% MoM in Feb. Used home prices in March were -5.90% YoY vs -5.15% YoY in Feb.

China houses keep losing value

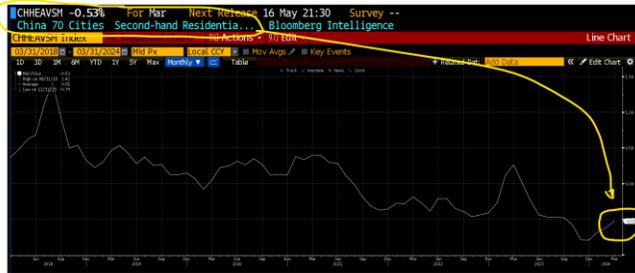
Figure 48 China new home prices



Source: Bloomberg, National Bureau of Statistics

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Figure 49 China used home prices



Source: Bloomberg, National Bureau of Statistics

Oil: Baidu China city-level road congestion recovers after tomb-sweeping holidays

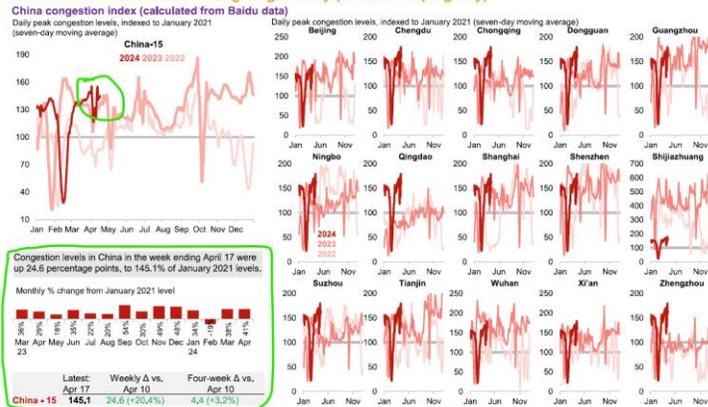
It's only one indicator but it is positive to see the Baidu city-level road congestion continue to increase, save for last week where there was the national holiday with the annual tomb-sweeping festivities. More driving activity in cities is a good indicator. On Thursday, BloombergNEF posted its Global Road Traffic Indicators Weekly Apr 18 report, which includes the Baidu city-level road congestion for the week ended Apr 17. Note that this data follows China's "Tomb-Sweeping" festival, a day where people go to visit the graves of their loved ones and tidy up their tombs. We have been seeing an uptick in Chinese road congestion over the past month, but after the dip last week, this week there was a +20.4% WoW increase in congestion levels across select Chinese cities. Baidu city-level road congestion was -2460bps WoW to 145.1% of Jan 2021 levels. Below is the BloombergNEF key graph.

China city-level traffic congestion

Figure 50: China city-level road congestion for the week ended Apr 17

China's city-level road congestion

China traffic rebounds after Qingming holiday (Tomb Sweeping Day)



Source: BloombergNEF

Oil: Strong Brunello sales show Chinese ultra quiet/gentle luxury buyers are spending

It's far from a perfect indicator, but a good indicator that China's wealthy are spending was seen in the Brunello Cuchinelli Q1 release on Wednesday. We tweeted [LINK](#) "Ultra Quiet/Gentle Luxury Chinese buyers are spending! Brunello Q1 sales: "significant growth

Brunello China sales up again

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achieved in all major Asian areas incl China, Japan, South Korea & the Middle East" "substantial growth prospects in the Chinese market are evident to our great satisfaction" #OOTT." Brunello Cuchinelli doesn't get the same amount of regular press/media as brands like Chanel but its price point is probably a lot more so Brunello buyers tend to be wealthy and not just high income. In their Q1, Brunello had strong sales in all of their major Asian markets including China. Our tweet included excerpts from the Brunello Q1. "Excellent results in all geographical areas and distribution channels". "We are convinced it is important to emphasise how the contribution of the different geographical areas and distribution channels is very healthy, balanced, and synergic. This contribution is characterised by a structural growth in the demand for the highest luxury segment in Americas, Europe and Asia, all of which fully confirms excellent development potential." "thanks to the significant growth achieved in all major Asian areas, including China, Japan, South Korea and the Middle East. The substantial growth prospects in the Chinese market are evident, to our great satisfaction".

Chinese high income but not wealthy consumers pull back on Gucci purchases

Brunello's strong sales in China are in contrast to Gucci in China. Here is what we wrote in our March 24, 2024 Energy Tidbits memo. *"It's far from a perfect indicator, but we thought Gucci's disappointing sales in China were a good indicator that China's higher income, but not necessarily wealthy consumers are feeling the pinch. On Tuesday, Bloomberg and others reported on Kering (owner of Gucci and other brands) warned that Q1/24 sales are expected down 10% driven by lower Gucci sales, and they highlighted the steeper sales drop in Gucci in the Asia-Pacific region expected to be down almost 20% YoY. So a big miss at Gucci. We say not wealthy to refer to higher income that may not have any significant accumulated wealth. Gucci is a luxury brand but we don't think people consider the premium luxury brand like Brunello Cuchinelli, Chanel and Hermes. And the other factor that Bloomberg's Jonathan Ferro also drew the distinction between Gucci being "Loud Luxury" vs Brunello being "Quiet Luxury". Putting the loud vs quiet aside, we look at the price differential as being the key factor. As Ferro put "people who can afford Brunello" know that Brunello's prices are probably close to twice as expensive. So people who buy Brunello have to be those with more than just a higher income, which is why we look at the Gucci sales as being representative of a higher income, but not necessarily wealthy, China consumers still feeling the pinch. On Wed we tweeted [\[LINK\]](#) "China consumer. Great line on Gucci China sales drop from @FerroTV @lisaabramowicz1. JF "They're [Gucci] trying to move from Loud Luxury to Quiet Luxury. Good Luck". LA "Are they really going to migrate to what someone else might wear" JF "Brunello. Something like that. People who can afford Brunello". But reinforces China economy picture. Higher income but not wealthy China consumer is still on the sidelines. #OOTT."*

Oil: China oil imports 11.60 mmb/d in March, up +4.0% MoM and +2.0% YoY

On Monday, China's General Administration for Customs (GACC) reported on the summary data of China's oil and natural gas imports for March [\[LINK\]](#). China's imports of crude oil in March were 4,905 ten thousand tons, or 11.60 mmb/d, a 4.0% increase from 11.16 mmb/d in February, and up +2.0% YoY from 11.37 mmb/d in March 2023. Overall, this was solid MoM

**China oil imports
11.60 mmb/d in
Mar**

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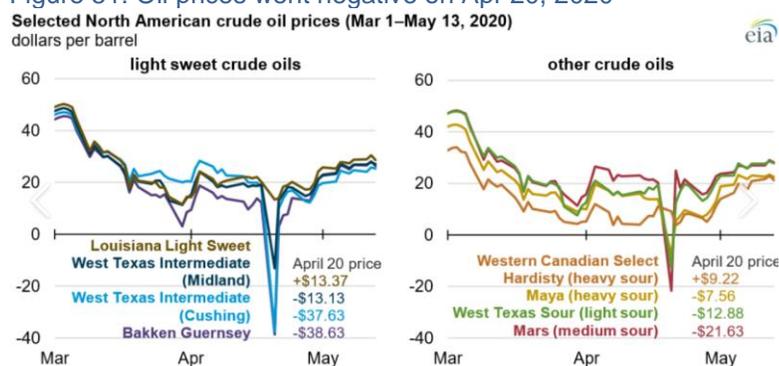
growth, but the question remains if this will convince oil markets that China oil domestic consumption is about to take off.

Oil: Oil prices went negative on April 20, 2020

It depends on your perspective, but we are in the camp that sees Covid as not too long ago. It created huge challenges for the world and also huge opportunity for capital allocation. On the latter, we recall the huge negative view on oil and natural gas four years ago during Covid. Especially on April 20, 2020, when oil prices went negative. A lot of money was made from people allocating capital to oil and gas stocks in April 2020. Below is the EIA's old graph on that day when oil price went negative.

Oil went negative on Apr 20, 2020

Figure 51: Oil prices went negative on Apr 20, 2020



Source: U.S. Energy Information Administration, based on Bloomberg L.P. data
Note: All prices except WTI Cushing are spot prices.

Source: EIA

Oil: Vortexa warns Iran floating storage up, can't find buyers in China for crude

There was negative oil market views on Iran and China from Vortexa on Wednesday that didn't any market attention. On Thursday, we tweeted [LINK](#) "Vortexa seeing "little bit of weakness" on China buying. Iranian crude oil floating storage +10 mmb in Mar. Iran offering wider discounts than normal but "struggling to find buyers in China". See 📌 SAF Group transcript. Thx @Vortexa Jay Maroo, @gulf_intel #OOTT." Vortexa's Jay Maroo highlighted Iran floating storage was up 10 million barrels in March, and that it was struggling to find buyers in China for its crude even though it was offering wider discounts than normal. Maroo was on the Gulf Intelligence Apr 17 podcast and or tweet was a day later. Maroo is Head of Market Intelligence and Analytics MENA, Vortexa. He also highlighted Iran was exporting 1.4 mmb/d in March and that was very high vs year ago levels. Maroo also said the increasing Iran floating storage of 10 million barrels "What that suggests and I think we will probably come to this later on is a little bit of weakness coming in from China on the buying side of things. And I guess that probably feeds into the wider comment about bearishness on oil prices because of demand issues." Maroo also highlighted that "And actually looking ahead to the second half of the year, we think, at best, it will be similar to year ago levels. So when it comes to China importing much more crude, we're not very bullish on that. The only thing that could change that is if there is a significant decrease in the price and obviously Chinese being very opportunistic buyers, they'd be quick to pick that up. But that hasn't really happened yet. Speaking to some of our wider network, we're hearing that some of the Iranian

Vortexa warns on Iran and China oil weakness

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crude that is being offered, is being offered at deeper discounts than usual to some new buyers. And what that suggests to me is that, even with Iranian crude being priced so cheap, they're struggling to find buyers in China that are willing to pay even below market rates. So they are going to have dig deeper to get those barrels into China." Our Supplemental Documents package includes the full transcript we made of Maroo's comments.

Oil: Vortexa crude oil floating storage est 74.14 mmb at Apr 19, -17.91 mmb WoW

Vortexa floating storage

We are referencing the Vortexa crude oil floating storage data posted on the Bloomberg terminal as of 9am MT yesterday. Note that these estimates get revised over the course of the week and the revisions can go back months. We do not check daily for the revisions, so our comments on the new estimates are compared to the prior week's Vortexa estimates posted on Bloomberg on Apr 13 at 9am MT. (i) Yesterday, we tweeted [LINK](#) "Negative. #Oil floating storage 74.14 mmb Apr 19. Low 70s expected BUT big +17.02 revision to Apr 12 to 92.05 mmb. 1st +90 since Aug 18/23. Last 7 wk ave 78.79 vs past 2 mths low 70s 📈 04/18 Vortexa warns Iran floating up & struggling to find buyers in China. Thx @vortexa @business #OOTT." (ii) As of 9am MT yesterday, Bloomberg posted Vortexa crude oil floating storage estimate for Apr 19 at 74.14 mmb, which is -17.91 mmb mmb WOW vs upwardly revised Apr 12 of 92.05 mmb. Note Apr 12 was hugely revised +17.02 mmb vs 75.03 mmb originally posted at 9am on Apr 13. (iii) We have to wonder if Vortexa's comments this week on Iran floating storage and China not taking the Iran cargos are the reason for the first real negative floating oil storage this week, but primarily due to the revisions with Apr 12 being revised up a huge +17.02 mmb to 92.05 mmb is the first week over 90 mmb since Aug 18, 2023. Since Aug 18, 2023, there have been 10 weeks in the 80s, mostly low 80s, 15 weeks in the 70s, 7 weeks in the 60s, and 1 week in the 50s. Note the new Apr 19 is back down to 74.14 mmb. The upward revision included a huge +15.92 mmb upward revision to Asia for Apr 12 data. And Mar 29 revised +1.56 mmb to 81.02 mmb is the first week over 80 mmb since Feb 9, 2023. The last 7-week average was 78.79 mmb, whereas we have been seeing average floating storage levels closer to 70 mmb than >80 mmb. (iv) Revisions. There were big upward revisions to Apr 12 and Apr 12 compared to the estimates originally posted on Bloomberg at 9am MT on Apr 13. Apr 12 revised +17.02 mmb. Apr 5 revised +10.36 mmb. Mar 29 revised +1.56 mmb. Mar 22 revised +3.33 mmb. Mar 15 revised +0.48 mmb. Mar 8 revised +0.30 mmb. Mar 1 revised -1.18 mmb. (v) There is a wide range of floating storage estimates for the past seven weeks, but a simple average for the past seven weeks is 78.79 mmb vs last week's then seven-week average of 73.53 mmb. The big increase was due to the big upward revisions. (vi) Also remember Vortexa revises these weekly storage estimates on a regular basis. For example, when most report on the Vortexa data on Monday morning, they will be reporting on different estimates. We do not track the revisions through the week. Rather we try to compare the first posted storage estimates on a consistent week over week timing comparison. Normally we download the Vortexa data as of Saturday mornings around 9am MT. (vii) Note the below graph goes back to Jan 1, 2020 to show the run up to Covid and then how Covid started to impact Covid in March/April 2020. (viii) Apr 19 estimate of 74.14 mmb is .03 mmb is -54.69 mmb vs the recent June 23, 2023 high of 128.83 mmb. Recall Saudi Arabia stepped in on July 1, 2023 for additional cuts. (ix) Apr 19 estimate of 74.14 mmb is -33.785 mmb YoY vs Apr 21, 2023 of 107.89 mmb. (x) Below are the last several weeks of estimates posted on Bloomberg as of 9am MT Apr 20, 9am MT Apr 13, and 9am MT Apr 6.

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Figure 52: Vortexa Floating Storage Jan 1, 2000 – Apr 19, 2024, posted Apr 20 at 9am MT



Source: Bloomberg, Vortexa

Figure 53: Vortexa Estimates Posted 9am MT on Apr 20, Apr 13, and Apr 6

Posted Apr 20, 9am MT						Apr 13, 9am MT						Apr 6, 9am MT					
FZwWFST VTXA Inde 94.50b						FZwWFST VTXA Inde 94.50b						FZwWFST VTXA Inde 94.50b					
ID	3D	1M	6M	YTD	1Y	ID	3D	1M	6M	YTD	1Y	ID	3D	1M	6M	YTD	1Y
Fr	04/19/2024				74136	Fr	04/12/2024				75026	Fr	04/05/2024				67191
Fr	04/12/2024				92054	Fr	04/05/2024				69302	Fr	03/29/2024				80112
Fr	04/05/2024				79659	Fr	03/29/2024				79457	Fr	03/22/2024				71769
Fr	03/29/2024				81018	Fr	03/22/2024				69596	Fr	03/15/2024				75740
Fr	03/22/2024				72932	Fr	03/15/2024				74838	Fr	03/08/2024				74242
Fr	03/15/2024				75322	Fr	03/08/2024				76090	Fr	03/01/2024				69932
Fr	03/08/2024				76387	Fr	03/01/2024				70442	Fr	02/23/2024				62655
Fr	03/01/2024				69260	Fr	02/23/2024				62771	Fr	02/16/2024				67326
Fr	02/23/2024				62745	Fr	02/16/2024				65808	Fr	02/09/2024				82188
Fr	02/16/2024				65579	Fr	02/09/2024				82112	Fr	02/02/2024				72050
Fr	02/09/2024				81703	Fr	02/02/2024				71897	Fr	01/26/2024				70976
Fr	02/02/2024				71281												

Source: Bloomberg, Vortexa

Oil: Vortexa crude oil floating storage WoW changes by regions

Bloomberg also posts the Vortexa crude oil floating storage in key regions, but not all regions of the world. The regions covered are Asia, Europe, Middle East, West Africa and US Gulf Coast. We then back into the “Other” or rest of world. (i) As noted above, last week’s Apr 12, in total, was revised a whopping +17.02 mmb and we have to wonder if it is related to Iran and China. The big revisions were Asia +15.92 mmb and Others +4.12 mmb. (ii) As noted above, Apr 19 of 74.14 mmb was -17.91 mmb WoW vs the hugely upwardly revised Apr 12 of 92.05 mmb. The major WoW changes by region were Asia -19.94 mmb WoW, Other -3.60 mmb WoW and Middle East +3.21 mmb WoW. (iii) Apr 19 of 74.14 mmb is -54.69 mmb vs the summer June 23, 2023 peak of 128.83 mmb. Recall Saudi Arabia started its voluntary 1 mmb/d production cuts on July 1, 2023. The major changes by region vs the summer June 23 peak are Asia -42.72 mmb and Other -18.24 mmb. (iv) Below is the table we created of the WoW changes by region posted on Bloomberg at of 9am MT yesterday. Our table also includes the “Original Posted” regional data for Apr 12 that was posted on Bloomberg at 9am MT on Apr 13.

Vortexa floating storage by region

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Figure 54: Vortexa crude oil floating by region

Vortexa Crude Oil Floating Storage by Region (mmb)			Original Posted		Recent Peak	
	Apr 19/24	Apr 12/24	WoW	Apr 12/24	Jun 23/23	Apr 19 vs Jun 23
Asia	30.27	50.21	-19.94	34.29	72.99	-42.72
Europe	7.70	6.63	1.07	7.53	6.16	1.54
Middle East	9.76	6.55	3.21	8.49	6.76	3.00
West Africa	7.45	6.84	0.61	6.84	7.62	-0.17
US Gulf Coast	2.90	2.16	0.74	2.34	1.00	1.90
Other	16.06	19.66	-3.60	15.54	34.30	-18.24
Global Total	74.14	92.05	-17.91	75.03	128.83	-54.69

Vortexa crude oil floating storage posted on Bloomberg 9am MT on Apr 20

Source: Vortexa, Bloomberg

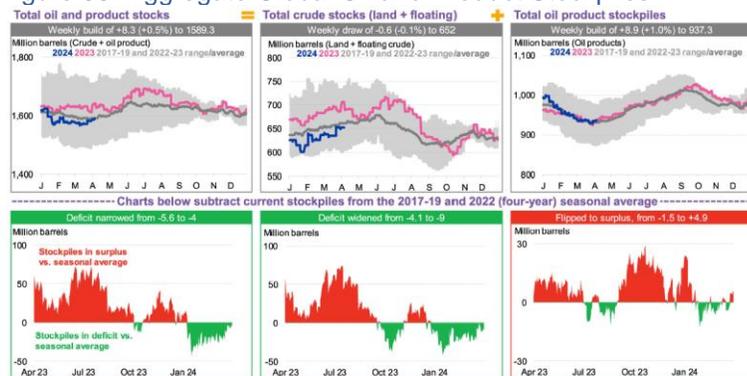
Source: Bloomberg, Vortexa

Oil: BNEF – global oil and product stocks deficit narrows to -4.0 mmb

Please note that the BloombergNEF global oil and products stocks estimate are for the week ending April 5, which is a week earlier than the normal EIA US oil inventory data that is for the week ending Apr 12 which was a build of +2.74 mmb. On Monday, BloombergNEF posted its “Oil Price Indicators” weekly, which provides good charts depicting near-term global oil demand and supply indicators. (i) Note BloombergNEF uses different periods to determine the surplus/deficit, sometimes using a four-year average for 2017-2019 + 2022-2023, and other times using a five-year average 2017-2019 + 2022-2023. In both cases they do not include 2020 and 2021 in the averages. (ii) The global stockpile for crude oil and products deficit narrowed from -5.6 mmb to -4.0 mmb deficit for the week ending Apr 5. (iii) Total crude inventories (incl. floating) decreased -0.1% WoW to 652.0 mmb, while the stockpile deficit widened from -4.1 mmb to -9.0 mmb. (iv) Land crude oil inventories increased +1.6% WoW to 580.7 mmb, narrowing the deficit to -10.1 mmb against the five-year average (2017-2019 + 2022-23). (v) The gas, oil, and middle distillate stocks increased +2.2% WoW to 157.3 mmb, with the deficit against the four-year average narrowing from -12.9 mmb to -8.1 mmb. Jet fuel consumption by international departures for the week of Apr 22 is set to increase by +17,400 b/d WoW, while consumption by domestic passenger departures is forecast to fall by -15,300 b/d WoW. Below is a snapshot of aggregate global stockpiles.

Global oil and products stocks

Figure 55: Aggregate Global Oil and Product Stockpiles



Source: BloombergNEF, US EIA, PJK, IE Singapore, FEDComPlatts, PAJ, Vortexa, Genescope. Note: As of the week ending April 5, 2024.

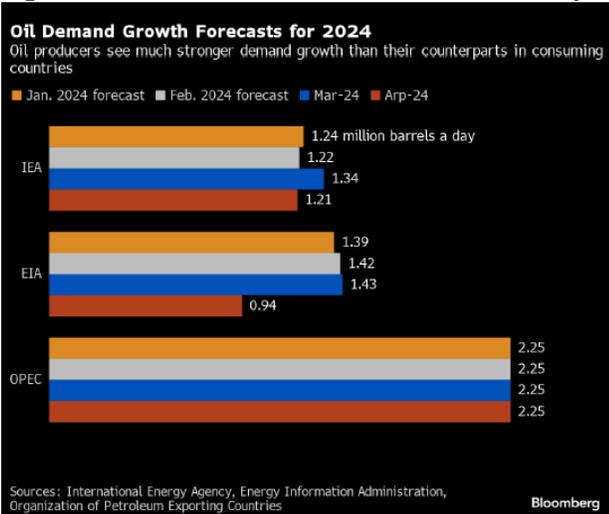
Source: BloombergNEF

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Oil: Bloomberg Oil Demand Monitor “Traders Upbeat but IEA Signals Headwinds”**Bloomberg oil demand monitor**

The Bloomberg Terminal Oil Demand Monitor is a good recap of key oil demand indicators around the world. This week’s report reconciles the IEA’s more bearish tone on oil demand from their recent OMR with the optimism of research firms and producers. As a reminder, the IEA and OPEC are way out of whack with each other on their 2024 demand forecasts – Since their January MOMR, OPEC has forecasted +2.25 mmb/d oil demand growth, while the IEA has taken it down from +1.24 mmb/d to +1.21 mmb/d in the same period, with their latest 2025 numbers showing even slower growth. Last week’s (Apr 14, 2024) Energy Tidbits memo noted that the IEA did NOT change its 2024 oil demand forecast but increased its 2023 oil demand forecast which led to lower YoY growth despite no change to the oil demand as if they want to message a negative of lower growth in demand despite no change to mmb/d. Bloomberg wrote “*At a conference in Switzerland last week, a number of senior industry figures talked up the demand outlook. Vitol Group Chief Executive Officer Russell Hardy said the world’s largest independent oil trader now expects demand growth of 1.9 million barrels a day this year. If achieved, that would be on a par with growth in 2023, which was boosted by the ongoing recovery from the pandemic. Trafigura Group and Gunvor Group also expressed optimism around demand, respectively citing strong global economic growth and robust recent data. Rystad Energy highlighted strong jet fuel consumption. Macquarie has struck a more cautious note though, seeing the potential for US inflation to eat into demand. With a seasonal demand uptick due over the summer, many market watchers say there could be a further rally to come for oil prices. There will be a keen focus on the position of the OPEC+ alliance, which will decide in June whether to bring barrels back as prices climb*”. So some more rosy outlooks from the independent agencies, but still a lack of consensus among the big forecasters. Looking at consumption indicators, the demand monitor showed that global flights continued to track comfortably above both 2023 and 2022 levels during the week of April 15, up +5.4% and +19.0% respectively, and up +5.7% on a MoM basis. diesel and gasoline sales in India were up +3.1% and +6.9% YoY, respectively, and, compared to the first two weeks of March, were +8.1% and +10.0% MoM, respectively. Refinery utilization in the US for the week leading up to Apr 12 was at 88.3%, which is down -20 bps WoW and -290 bps YoY. Keep in mind the 250,000 b/d Joliet refinery is still down for turnaround. Below is a chart summarizing the various energy agencies’ oil demand growth outlooks by edition. Our Supplemental Documents package includes the Bloomberg Oil Demand Monitor.

Figure 56: 2024 Oil Demand Growth Forecasts by Agency



Source: Bloomberg

Oil: Europe airports daily traffic 7-day average is -3.2% below pre-Covid levels

Yesterday, we tweeted [LINK](#) "Daily Europe air traffic keeps creeping back closer to pre-Covid. Now only 3.2% below pre-Covid as of Apr 18, vs 3.7% below as of Apr 11, 6.2% below as of Apr 4, and 7.0% below as of Mar 28. Thx @eurocontrol. #OTT." Other than over Christmas, European daily traffic at airports has been below pre-Covid. However it has been inching closer over the past four weeks. As of our 7am MT news cut off, the latest Eurocontrol daily traffic at Europe airports shows the 7-day rolling average to the end of Apr 18 was up WoW to -3.2% below pre-Covid levels, which an improvement from -3.7% to end of Apr 11, -6.2% to end of Apr 4, and -7.0% to end of March 28. Eurocontrol updates this data daily and it is found at [LINK](#)

Europe airports daily traffic

Figure 57: Europe Air Traffic: Daily Traffic Variation to end of Apr 18



Source: Eurocontrol

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Look for more to follow Vitol and say jet fuel consumption back to 2019 levels

The Euroncontrol data showing Europe is inching back closer to pre-Covid is a positive. But our Apr 7, 2024 Energy Tidbits memo highlighted the IATA monthly data for Feb that noted that both international and domestic air travel was back to above pre-Covid levels. Here is what we wrote in our Apr 7, 2024 Energy Tidbits memo. "After seeing the above IATA monthly data for Feb that showed both international and domestic air passenger travel was above pre-Covid, we tweeted [LINK](#) "Positive for #Oil. Look for more to follow @vitolnews Gallagher's 📌 03/21 call that jet fuel consumption back to 2019. @IATA Feb passenger data, both international & domestic are above 2019. Plus greater share of less fuel efficient domestic volume. #OOTT," As noted below, on March 21, Vitol came out two weeks ago with their view that jet fuel consumption had returned to 2019 levels. But we should start to see more follow that call post the IATA's release this morning of Feb 2019 air passenger data. Everyone will rightly focus on the below table that shows total market RPK is +5.7% vs Feb 2019 with both international +0.9% and domestic +13.7% being above Feb 2019. Total air passenger being +5.7% vs 2019 gives room to account for some replacement of older planes with newer more fuel-efficient planes. The caveat to that being is that the older planes from the big companies tend to get sold to smaller companies and not necessarily junked. But there is also one overlooked reason for higher jet fuel consumption, all things being equal, is that shorter flights are less fuel efficient due to take-offs and landings allocated over shorter distances. And what people are not likely do is look at the share. In Feb 2024, it was 60.1% international vs 39.9% domestic. We went back to the Feb 2019 data and the splits were 63.9% international vs 36.1% domestic. So shows the increasing share of less fuel-efficient shorter haul trips. A greater proportion of less fuel-efficient shorter haul trips is a positive for jet fuel demand. "

Figure 58: Air passenger market in detail – February 2024

Air passenger market in detail - February 2024

	World share ¹	February 2024 (% year-on-year)			February 2024 (% ch vs the same month in 2019)			
		RPK	ASK	PLF (%-pt)	RPK	ASK	PLF (%-pt)	PLF
TOTAL MARKET	100.0%	21.5%	18.7%	1.9%	5.7%	5.8%	-0.1%	80.6%
International	60.1%	26.3%	25.5%	0.5%	0.9%	1.2%	-0.3%	79.3%
Domestic	39.9%	15.0%	9.4%	4.0%	13.7%	13.7%	0.0%	82.6%

¹% of industry RPKs in 2023

Air Passenger Monthly Analysis – February 2024
Source: IATA

Figure 59: Air passenger market overview – February 2019

Air passenger market overview - February 2019

	World share ¹	February 2019 (% year-on-year)				% year-to-date			
		RPK	ASK	PLF (%-pt) ²	PLF (level) ³	RPK	ASK	PLF (%-pt) ²	PLF (level) ³
TOTAL MARKET	100.0%	5.3%	5.4%	-0.1%	80.6%	5.9%	5.9%	0.0%	80.1%
International	63.9%	4.6%	5.1%	-0.4%	79.5%	5.3%	5.5%	-0.1%	79.7%
Domestic	36.1%	6.4%	5.8%	0.5%	82.4%	6.9%	6.8%	0.1%	80.8%

¹% of industry RPKs in 2018 ²Year-on-year change in load factor ³Load factor level

Source: IATA

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Here's why Vitol's jet fuel consumption back to 2019 call looks right

Here is what we wrote in our March 31, 2024 Energy Tidbits memo as to why Vito's jet fuel consumption back to 2019 levels looks right. *"We had a number of readers note our item last week on Vitol's saying they are seeing jet fuel now back at 2019 levels. One of our readers is a former commercial/private pilot and reminded us of some jet fuel basics as to why the Vitol can make sense given international air travel still hasn't come back. It's why on Thursday we tweeted [\[LINK\]](#) "Here's why #JetFuel can be back to 2019 level per @vitolnews 📌 03/21. @IATA cargo +2.8% vs 2019. @IATA passenger "ASKs" only -0.5% vs 2019 despite slow long-haul recovery. So more shorter flights with higher relative fuel consumption ie. takeoffs/landings over shorter distance & fly at lower altitudes. #OOTT." Our March 10, 2024 Energy Tidbits memo noted the IATA March report with air passenger and air cargo data for Jan. The air cargo component is straight forward – air cargo FTK (freight tonne kilometers) in Jan were +2.8% vs Jan 2019. Passenger ASKs in Jan were -0.5% vs Jan 2019. But our pilot friend explained that there was probably more jet fuel for passengers even with long-haul international air travel still not back. He had two reminders. Short-haul flights are less fuel efficient than a longer haul flight because the heavy fuel usage part of takeoff and landings are spread over a shorter distance. His other reminder is that domestic short-haul flights normally fly at lower altitudes so less fuel efficiency. So this is why there can be less ASKs but the lesser percentage of long-haul international flights is why jet fuel consumption can be more."*

Vitol, global jet fuel consumption reached pre-Covid level, going higher in Q2

Here is what we wrote in our March 24, 2024 Energy Tidbits memo. "On Thursday, we tweeted *"Bullish for near term #Oil. "we're seeing jet fuel now back to averaging around 6.9 million barrels per day over the last 4-weeks, which is back to 2019 levels" "we see growth in Q2, which brings it up to record highs" @vitolnews Kieran Gallagher to @sean_evers #OOTT."* Gallagher is Managing Director for Vitol Bahrain E.C. and was speaking on the Gulf Intelligence Daily Energy Markets podcast on Thurs [\[LINK\]](#) hosted . His comments on jet fuel were straightforward – global jet fuel consumption is back to pre-Covid levels and will be hitting new record levels in Q2. Our tweet included a transcript we made of his comments. Items in *"italics"* are SAF Group created transcript. At 17:00 min mark, Gallagher *"We're seeing jet fuel now back to, averaging around 6.9 million barrels per day over the last 4-weeks, which is back at 2019 levels"*. Evers *"which of course is a global number"*. Gallagher *"It's a global number. And at 6.9, you know we see growth in Q2 which brings it up to sort of record highs."*

Oil & Natural Gas: Edson area wildfire reminds of summer wildfire risk

Luckily it didn't turn in to an out of control wildfire, but the wildfire this week reminded of the big risk to wildfires in Alberta. On Wednesday, we tweeted [\[LINK\]](#) *"Reminder 04/16 of 2024 wildfire risk in Alberta. @TCEnergy : secondary fire 40 km NW Edson is now being held. confirmed pipeline rupture 04/16 and "an initial ignition of natural gas at the rupture is now extinguished" Very low precipitation Nov 1-Mar 31 is bad setup. #OOTT."* TC Energy's media statements confirmed there was a rupture on a segment of their natural gas pipeline system approx. 40 km NW of Edson, and there was an initial ignition of natural gas at the rupture. There was a subsequent wildfire that was brought under control. Our tweet included the

Alberta wildfire risk

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Alberta maps that show Edson is in one of the lower snowfall regions of the province this winter.

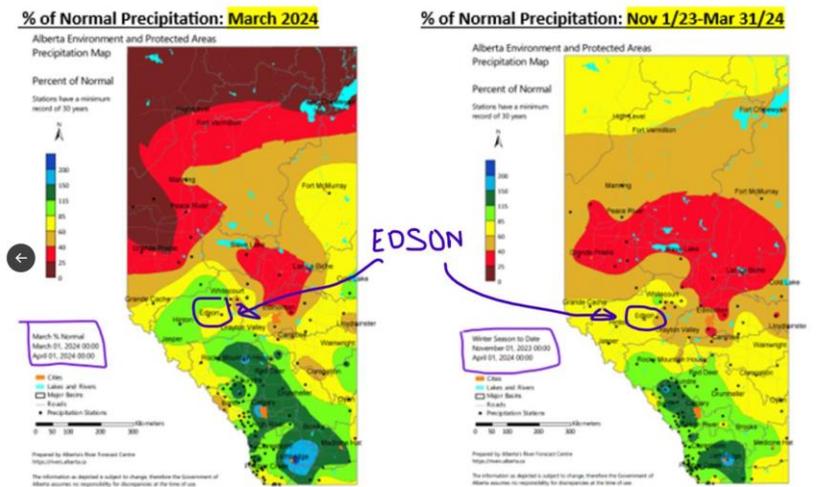
Figure 60: TC Energy natural gas plant rupture & ignition

Further inquiries can be sent to TC Energy media relations at media@tcenergy.com



Source: TC Energy

Figure 61: Alberta % of Normal Precipitation For March 2024 and Nov 1/23 thru March 31/24



Source: Alberta River Forecast Centre

Yesterday, Alberta warns of High Wildfire Danger in Edson area

Yesterday, Alberta Wildfire posted its "Edson Forest Area Wildfire Update - April 20, 2024". [LINK](#). The warning is that the Wildfire Danger is High in the Edson areas. And "The area is experiencing low humidity, warm temperatures and strong gusty

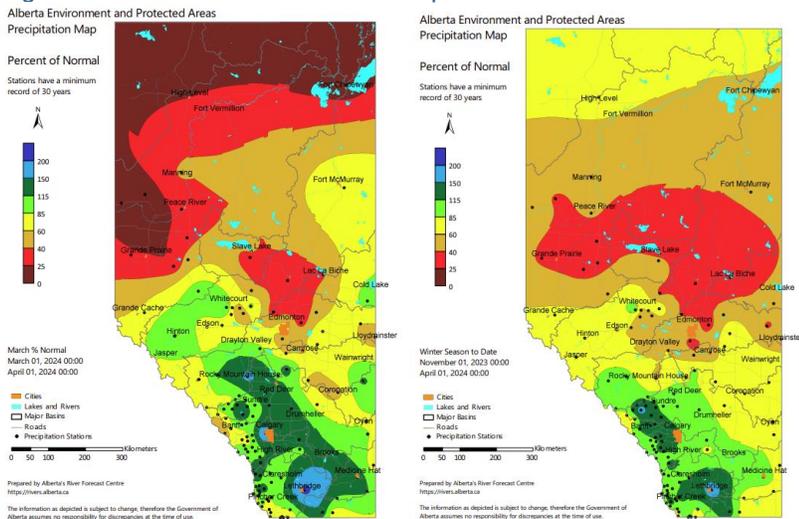
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winds up to 60 km/h. These conditions allow for intense fire behaviour. You must have a permit, with the exception of a campfire, to do any burning. This includes grass, yard clean up, debris piles and any other materials.”

Low Alberta snowfall this winter sets wildfire & water use risk

Here is what we wrote in our Apr 7, 2024 Energy Tidbits memo on the wildfire risk. “There was finally some reasonable snowfall in March in southwest Alberta but it’s been a winter of very low snowfall across most of Alberta. And that is a set up for a tough wildfire season and potential water use restrictions. On Friday, we tweeted [\[LINK\]](#) “Bad setup for 2024 wildfire season in Alberta. Nov 1/23 thru Mar 31/24 precipitation is <60% of norm for half of Alberta incl a sizeable portion <40% of norm. Also could impact water access for oil & gas. #OOTT”. Alberta posted the % of normal accumulated snowfall for March and the updated Nov 1 thru Mar 31 winter maps. There was solid snowfall across southern Alberta in Mar but very small snowfall across northern Alberta. However, the accumulated snowfall from Nov 1 thru Mar 31 is very low for all of Alberta except a strip along the Foothills. This is why we have seen road bans coming March. Below are the Alberta % of normal precipitation maps for the month of Mar and Nov 1 thru Mar 31.”

Figure 62: Alberta % of Normal Precipitation For March 2024 and Nov 1/23 thru March 31/24



Source: Alberta River Forecast Centre

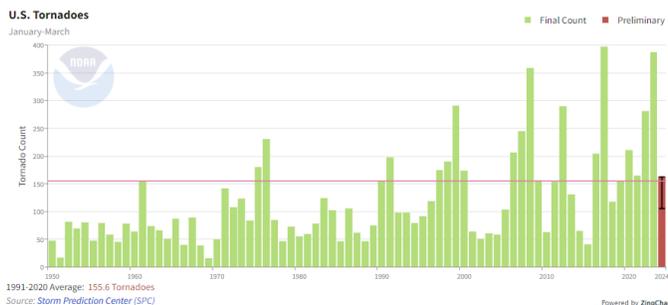
Oil & Natural Gas: Low March tornado activity following very active Feb

We follow tornado activity as it can impact oil and gas onshore operations in Oklahoma and Kansas. Most of Texas oil and gas operations tend to be south of major tornado activity. But so far, we haven’t seen any reports of any major impact to oil and gas in either March or April. While Q1/24 was a big one for tornado activity, the March data shows a big drop-off in tornado activity from a very active Feb to rtornadoes. Last week, NOAA’s National Centers for Environmental Information posted its “March 2024 Tornadoes Report” [\[LINK\]](#). NOAA wrote “According to preliminary data from NOAA’s Storm Prediction Center, during March,

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there were 66 preliminary tornado reports. This was below the 1991-2020 average of 80.1 tornadoes for the month of March and was the lowest count for March since 2018. There were no tornadoes reported for more than half of the days in the month. The 2023 year-to-date U.S. preliminary tornado count is 163, which is below the 1991-2020 year-to-date average of 155.6. Each of the last four years (2020-2023) have had higher year-to-date tornado counts than 2024.” On the NOAA map, it looks like most of March’s tornadoes were concentrated in Ohio and Wisconsin, as opposed to any of the major Midwest oil basins.

Figure 63: U.S. Tornadoes as of March 2024

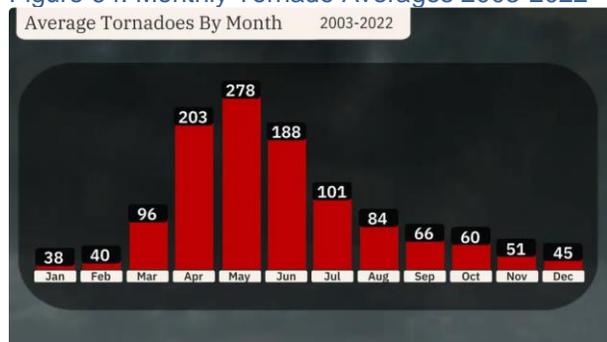


Source: NOAA

Normal peak tornado season is May

On March 15, The Weather Channel provided an updated monthly distribution of tornadoes for the 20-year period 2003-2022. [LINK](#) This is an update from what we included in our May 17, 2023 Energy Tidbits memo that had the monthly distribution for the 20-yr period 1991-2010. The distribution by month is the same: tornado activity really ramps up in April, peaks in May, is still high in June and then in July is below April levels. Below is the graph from The Weather Channel report.

Figure 64: Monthly Tornado Averages 2003-2022



(Data: NOAA/NWS/SPC)

Source: The Weather Channel

Tornados Enhanced Fujita Scale (EF Scale) Intensity & Rating

NOAA’s National Weather Service has a recap of the Enhanced Fujita Scale (EF Scale) for the intensity and rating of tornadoes. [LINK](#). NOAA explains “The Fujita

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Scale. Fujita Scale (or F Scale) of tornado damage intensity. The F Scale was developed based on damage intensity and not wind speed; wind speed ranges given are estimated, based on the extent of observed damage.” But there is also the Enhanced Fujita Scale (EF Scale). NOAA explains “The Enhanced Fujita Scale or EF Scale, which became operational on February 1, 2007, is used to assign a tornado a 'rating' based on estimated wind speeds and related damage. When tornado-related damage is surveyed, it is compared to a list of Damage Indicators (DIs) and Degrees of Damage (DoD) which help estimate better the range of wind speeds the tornado likely produced. From that, a rating (from EF0 to EF5) is assigned. The EF Scale was revised from the original Fujita Scale to reflect better examinations of tornado damage surveys so as to align wind speeds more closely with associated storm damage. The new scale has to do with how most structures are designed.”

Figure 65: Enhanced Fujita Scale (EF Scale) for Tornadoes

EF SCALE	
EF Rating	3 Second Gust (mph)
0	65-85
1	86-110
2	111-135
3	136-165
4	166-200
5	Over 200

Source: NOAA

Oil: On Tuesday, will IEA still forecast EVs will displace 5.5 mmb/d of oil by 2030?

Peak oil demand

On Tuesday, the IEA will be releasing its Global EVs Outlook 2024, which is their annual long term outlook for EVs and it includes their forecast for how much oil EVs will displace by 2030. This is a critical report because it then ties into their view for when they see peak oil demand. After all, EVs replacing ICE and ICE use of gasoline/diesel is probably the biggest factor for peak oil demand calls. The IEA's call last April was that EVs will displace ~5.5 mmb/d of oil by 2030 and that tied into their view for peak oil demand before 2030.

04/12/24: IEA keeps its call for peak oil demand by 2030

Knowing the Global EVs Outlook 2024 was coming in April, we were surprised when we saw the IEA's 04/12/24 blog that maintained its call for peak oil demand by 2030. We would have thought they would wait until after Global EVs Outlook report. Here is what we wrote in last week's (Apr 14, 2024) Energy Tidbits memo. “On Friday morning, we tweeted [\[LINK\]](#) “No change to @IEA call peak #Oil demand by 2030. See 📌 IEA post. But absent added energy/climate policies & increased \$\$ push into clean energy, “decline in global oil demand following the peak will note be a steep one, leaving demand close to current levels for some time” #OOTT.” Separate but alongside the OMR, the IEA posted a brief “Oil demand growing at a slower pace as post-Covid rebound runs its course” [\[LINK\]](#) It's a good recap of the reasons why IEA sees slowing oil demand ahead. The conclusion from the piece is that there is no change to the IEA view that they see peak oil demand by 2030. We were surprised

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that the IEA came out with this call as we have been vocal in our view that we expected the IEA to push back its forecast of peak oil demand by 2030 in light of the EV assumptions they used in their April 2023 global EVs outlook major report. So they have certainly proven us wrong in that call. And the IEA highlighted that, after reaching peak demand, they don't see a steep drop off in demand. Rather, they see oil demand remaining around current levels for some time. They are certainly suggesting a long plateau. The IEA wrote "Global consumption of oil is set to peak, but its centrality remains. While we expect growth in oil consumption in 2024 (1.2 mb/d) and 2025 (1.1 mb/d) to remain robust by historical standards, structural factors will lead to a gradual easing of oil demand growth over the rest of this decade. Continued rapid gains in the market share of EVs, particularly in China; steady improvements in vehicle fuel economies; and, notably, efforts by Middle Eastern economies, especially Saudi Arabia, to reduce the quantity of oil used in power generation are together expected to generate an overall peak in demand by the turn of the decade. Oil remains extremely important to the global economy, and across some of its key applications, alternatives still cannot easily be substituted. In the absence of additional energy and climate policies and an increased investment push into clean energy technologies, the decline in global oil demand following the peak will not be a steep one, leaving demand close to current levels for some time. Nevertheless, cooling Chinese demand growth and considerable progress on the deployment of clean energy transition technologies mean that the oil market is set to enter a new and consequential period of transformation." Our Supplemental Documents package includes the IEA brief."

04/30/23 memo: Will EVs displace 5.5 mmb/d of oil as IEA forecast a year ago?

When we saw last year's Global EVs Outlook 2023 and reviewed the assumptions to their forecast, we came out with our view that their assumptions were overly optimistic as to how much oil would be displaced by EVs. For the past year, we have highlighted our concern on their forecast for EVs to displace ~5.5 mmb/d of oil by 2030 since last April. Here is what we wrote in our Apr 30, 2023 Energy Tidbits memo on the IEA's report. *"The most important assumption on when peak oil demand hits is how quickly the accelerating share that EVs have of all new car sales leads to a big decline in oil consumption. The IEA forecasts EVs will displace nearly 6 mmb/d of oil demand by 2030 if governments deliver on their stated policies. And says that EVs displaced 700,000 b/d of oil demand in 2022. We had a 7-tweet Twitter thread that reminded that the displacement is all about forecast assumptions. We agree that EVs have to displace some oil demand, but we question the primary assumption and therefore believe this nearly 6 mmb/d displacement is too optimistic. (i) On Wed, the IEA released its major report "Global EV Outlook 2023: Catching up with climate ambitions". [\[LINK\]](#). There is no question it is an excellent report with a lot of data and global EV insights. We recommend adding to reference libraries. (ii) We tweeted [\[LINK\]](#) "1/7. @IEA Global EVs Outlook 2023. #Oil Bears and Bulls will both love it! Oil Bears and western leaders like headline, EVs to be 60% of total car sales in 2030, EVs to displace nearly 6 mmbd of oil by 2030, already displaced 0.7 mmbd in 2022. #OOTT." We expect western leaders will just run with the nearly 6 mmb/d displacement and not worry about the key assumption. (ii) Oil bears assume this nearly 6 mmb/d means the IEA expects oil demand to be down ~6 mmb/d by 2030.*

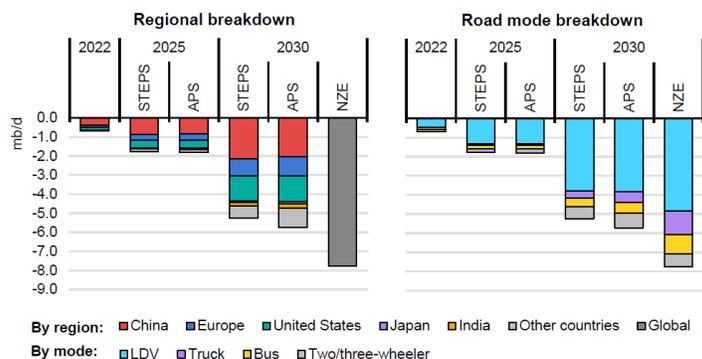
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But we reminded in our tweet [LINK](#) “2/7. Oil bulls remember @IEA World Energy Outlook Oct/22 incl EVs to be 50% of total car sales in 2030, and IEA forecast #Oil demand to increase 0.8%/yr this decade to peak around 103 mmbd n mid 2030s.” The IEA’s flagship annual report World Energy Outlook in Oct 2022 assumed EVs would be 50% of total car sales in 2030, so less than its new forecast of 60% in 2030. But even including a 50% assumption, the IEA WEO forecast oil demand to keep increasing in the 2020s and not peak until the mid 2030s at ~103 mmb/d. (iii) Here is the key assumption that displacing ~6 mmb/d that most probably didn’t read. We are big believers that it is important to look at the key forecast assumption on pg 132. We tweeted [LINK](#) “Oil bulls also note KEY assumption to @IEA #EVs replacing 6 mmbd is that distance travelled by EVs basically replaces the distance an ICE or hybrid would have driven. ie. infers a new EV is added to fleet, an ICE is effectively retired from fleet. #OOTT.” The IEA wrote “How much oil really gets displaced by electric vehicles? Oil displacement through the use of EVs can be estimated by assuming that the distance (total kilometres) travelled by EVs by segment each year would have otherwise been travelled by ICE vehicles or hybrid electric vehicles (HEVs) (based on the stock shares of each).” Basically, the IEA assumes the EV effectively replaces the distance driven by an ICE vehicle. (iv) We don’t believe this effective one-for-one replacement in terms of distance driven has proved out so far. We tweeted [LINK](#) “4/7. But for many, an EV is a 2nd or 3rd car. Norway is recognized leader in terms of EVs penetration. 03/22 tweet. Yet #EVs distance driven 22.6% in 2022. EVs were >80% of new car sales in 2022, been 60% for ~4 years. [LINK](#) #OOTT”. (v) On March 25, Equinor highlighted this EVs are 2nd or 3rd cars in Norway. We tweeted [LINK](#) “5/7. In Norway, EVs are 2nd or 3rd cars! 03/25 Equinor explains why Norwegians #EV mileage is low relative to new car sales. “We’ve bought an EV instead of taking the bus, or it becomes the second or the third car” says @Ewaerness [LINK](#) #OOTT.” (vi) Absent governments mandating ICE vehicles get junked, the other key factor is that ICE vehicles are lasting longer. We tweeted [LINK](#) “6/7. A concept everyone has experienced - ICE vehicles are lasting longer. 03/31. @BloombergNEF. at least in China, ICE vehicles retirements are at a very low level even in the face of increasing EV and ICE sales. #OOTT.” (vii) It is important to remember that the IEA forecasting a 60% EV share of total car sales means a displacement of nearly 6 mmb/d in 2030 is not an IEA forecast that says its oil demand forecast will be reduced by 6 mmb/d. It’s WEO Oct 2022 assumed EVs were 50% of total car sales in 2030 and didn’t see peak oil demand until the mid 2030s. So the incremental 10% EV sales penetration, by itself, isn’t likely to move its peak oil demand closer by very much. Our last tweet [LINK](#) “7/7. #Oil Bears and western leaders will love @IEA EVs headlines on increasing EV sales and oil displacement. #Oil Bulls (Saudi Arabia) will love the IEA report and think this won’t have much impact on @IEA forecast for peak oil demand around 103 mmbd in mid 2030s. #OOTT.” (viii) EVs are having an impact on oil and energy, but it isn’t a one-for-one replacement. Plus we wonder if it’s just additive on an “energy” basis in what it does to the demand for natural gas and other forms of reliable electricity to power the new EV ecosystem. Our Supplemental Documents package includes excerpts from the IEA Global EVs Outlook report.”

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Figure 66: Oil displacement by region and mode, 2022-2030

Figure 3.13. Oil displacement by region and mode, 2022-2030



IEA. CC BY 4.0.

Notes: STEPS = Stated Policies Scenario; APS = Announced Pledges Scenario; NZE = Net Zero Emissions by 2050 Scenario; LDV = light-duty vehicle. Oil displacement based on internal combustion engine (ICE) vehicle fuel consumption to cover the same mileage as the EV fleet.

Source: IEA

Energy Transition: Volvo, it's still early adopters driving EV demand

It's quarterly reporting time so we will see a lot of comments, once again, from the car companies on how they have had to pull back on their EVs outlook. Volvo is in this comp when they had their Q1 call on Wednesday. (i) We tweeted [LINK](#) "#EV market recap by @VolvoGroup CEO. "underlying electric demand is slowing down somewhat" ""regard this more as a blip on the curve" [must be a long blip!]. "from a customer perspective, it is still the early adopters that drive the current demand" #OOTT." (ii) EV demand is slowing down somewhat. Straightforward comment by the CEO ". "When it comes to the electrification progress, underlying electric demand is slowing down somewhat." (iii) Volvo sees the EV slowdown as a blip. Our concern is that they listed a number of uncertainties, which didn't include other uncertainties on EV demand (ie, they didn't include increasing buyer concerns on resale value, rising insurance costs, etc.), which point to more than a blip in demand. The CEO said "In quarter one, booked orders were slightly lower compared to last year, but we regard this more as a blip on the curve, mainly related to the uncertainties that we see right now; uncertainties related to interest rates, inflation incentive systems, but also energy prices and infrastructure availability. In addition, the lower order intake is partly also related to supply issues that we had during last year in North America that slowed down deliveries and built further the order book and order backlog. So from a customer, a bit long order book, and thereby, there's a little bit of hesitation when it comes to the order intake." (iv) Not moving EV markets beyond early adopters. One of our big concerns for the past years is that there were a number of flawed assumptions in the EV adoption forecast. A big flaw was that EVs forecasts assumed the rapid growth rates of EV sales to high-income early adopters would continue to show this rapid growth as EVs moved to middle and lower-income buyers. Volvo confirmed that EV's still aren't able to capture the middle and lower income buyers. The CEO said "But from a customer perspective, it is still the early adopters that drive the current demand and the current order intake."

Volvo EV demand slowing down somewhat

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Figure 67: Volvo's Q1/24 Electrification Progress

VOLVO GROUP

Electrification progress



Volvo Group
First quarter 2024

2024-04-17

Source: Volvo

Energy Transition: EU March car sale, HEVs up YoY EV, PHEV, Petro, Diesel down YoY
On Thursday, ACEA posted its Europe new car registrations for March. [\[LINK\]](#). The March EU new car sales reinforce that hybrids continue to win the day. Hybrids are taking market share from EVs and petrol cars. We tweeted [\[LINK\]](#) “#HEVs winning the day in EU new car registrations. Mar & YTD % YoY change. #EV: -11.3%, +3.8%. #PHEV: -6.5%, +7.5%. #HEV: +12.6%, +19.7%. Others: +8.1%, +13.5% [fuel cell, NGVs, LPG, E85/ethanol, others]. Petrol: -10.2%, -1.0%. Diesel: -18.5%, -10.6%. Total: -5.2%, +4.4%. #OOTT.” For March, EVs, PHEVs, Petrol and Diesel and Total new car registrations were all down MoM, while only HEVs and Other fuel cell, NGVs, LPG, E85/ethanol, others) were up MoM. Our Supplemental Documents package includes the ACEA press release.

EU March new car sales

Figure 68: EU New Car Registrations in March 2024 MONTHLY

	BATTERY ELECTRIC			PLUG-IN HYBRID			HYBRID ELECTRIC*			OTHERS*			PETROL			DIESEL			TOTAL		
	March	March	% change	March	March	% change	March	March	% change	March	March	% change	March	March	% change	March	March	% change	March	March	% change
Austria	4,657	5,075	+8.2	1,477	1,856	+25.2	6,159	5,260	-14.6	6	403	+7.7	18,868	24,776	+31.3	2,267	5,335	+135.5	44,751	51,754	+15.7
Belgium	11,711	9,459	-20.8	7,160	8,450	+18.2	4,321	3,331	-22.9	140	109	-22.4	2,876	2,172	-24.5	644	567	-13.6	3,944	3,053	-22.6
Bulgaria	141	136	-3.7	53	22	-58.9	90	47	-47.2	223	136	-39.0	2,976	3,329	+11.9	1,311	1,262	-4.0	4,410	4,412	+0.0
Croatia	62	219	+254.7	148	91	-38.5	1,690	1,365	-18.6	0	0	0	509	1,010	+98.2	28	63	+125.0	1,437	1,751	+21.9
Cyprus	146	64	-56.2	76	51	-33.1	489	678	+38.4	0	0	0	0	0	0	0	0	0	0	0	0
Czechia	386	590	+52.1	475	399	-16.1	4,029	3,851	-4.4	494	344	-30.2	9,561	12,064	+26.2	3,951	5,130	+29.8	18,916	22,378	+18.3
Denmark	7,011	6,549	-6.6	852	1,326	+55.8	4,021	3,140	-21.9	0	0	0	4,420	5,599	+27.1	480	740	+54.2	16,814	17,954	+6.8
Estonia	92	110	+19.6	68	74	+8.8	648	798	+21.6	17	5	-70.6	571	1,025	+79.7	303	276	-9.1	1,659	2,288	+38.5
Finland	1,850	2,872	+55.2	1,406	1,384	-1.6	2,047	1,921	-6.1	18	25	+38.9	887	1,208	+35.1	275	267	-3.0	6,483	7,877	+21.4
France	33,961	30,635	-9.6	16,294	15,722	-3.5	49,908	38,515	-22.8	7,482	6,473	-15.5	98,861	71,501	-28.1	13,497	19,866	+46.5	180,023	182,712	+1.5
Germany	31,384	44,125	+40.9	16,816	16,776	-0.2	67,033	67,253	+0.3	1,293	1,339	+3.5	99,763	103,271	+3.5	48,365	48,597	+0.5	201,844	201,361	-0.2
Greece	549	724	+31.9	689	822	+19.9	4,662	3,829	-17.7	362	352	-2.8	5,195	5,891	+13.4	1,009	1,626	+61.0	12,465	13,284	+6.5
Hungary	1,174	650	-44.7	492	489	-0.7	6,606	4,616	-30.1	10	60	+500.0	3,363	4,461	+33.0	1,260	1,231	-2.4	12,895	11,496	-11.7
Ireland	1,968	3,412	+71.2	1,291	1,477	+14.5	3,335	3,748	+12.2	0	0	0	4,966	5,207	+4.8	3,087	3,841	+24.4	14,677	17,065	+16.3
Italy	5,327	8,161	+53.2	5,668	7,278	+28.4	62,798	57,962	-7.7	12,990	13,026	+0.3	50,765	48,044	-5.4	24,401	33,710	+38.1	161,979	168,181	+3.8
Lithuania	99	150	+51.5	56	34	-39.3	496	537	+8.3	43	23	-46.5	581	752	+29.4	212	277	+29.7	1,487	1,813	+21.9
Luxembourg	120	147	+22.5	110	74	-33.3	1,000	856	-14.4	46	61	+32.6	686	1,051	+52.4	329	377	+14.7	2,291	2,566	+12.0
Malta	1,245	1,044	-16.1	343	514	+50.1	915	1,043	+14.0	0	0	0	1,478	1,891	+27.9	604	944	+56.8	4,585	5,246	+14.4
Netherlands	13,051	13,200	+1.1	4,969	5,247	+5.6	10,437	7,754	-26.5	256	149	-41.8	7,991	10,505	+31.4	415	454	+9.4	37,119	37,309	+0.5
Poland	1,765	1,913	+8.4	1,377	1,328	-3.6	22,803	19,200	-15.8	1,766	1,252	-29.1	17,658	21,947	+24.3	4,618	4,620	+0.0	49,327	49,460	+0.3
Portugal	3,739	3,549	-5.1	2,550	2,165	-15.0	3,732	3,419	-8.8	2,100	790	-62.4	8,884	8,661	-2.5	1,791	2,888	+60.7	22,796	21,472	-5.8
Romania	660	1,027	+55.0	0	0	0	3,294	3,240	-1.6	589	1,812	+206.1	2,806	4,824	+72.3	1,807	1,348	-25.4	9,156	12,251	+33.8
Slovakia	192	213	+11.0	185	211	+12.4	2,244	2,267	+1.0	160	191	+18.8	3,720	4,503	+21.2	1,253	1,487	+18.7	7,754	8,952	+15.5
Slovenia	349	565	+61.6	99	119	+20.2	571	763	+33.3	46	46	+0.0	3,388	2,866	-15.4	899	912	+1.4	5,272	5,271	-0.0
Spain	4,203	4,324	+2.9	5,559	5,955	+7.0	33,903	28,760	-15.3	2,177	1,571	-27.8	40,412	44,976	+11.3	8,586	13,840	+60.7	94,840	99,526	+5.0
Sweden	8,339	12,577	+50.4	5,551	5,540	-0.2	1,833	2,654	+44.8	768	754	-1.8	6,695	6,423	-4.1	1,705	2,311	+35.2	23,891	30,259	+26.6
EUROPEAN UNION	124,207	150,504	+20.5	70,131	70,131	0.0	290,426	265,504	-8.6	31,420	23,062	-26.6	363,376	406,511	+12.1	128,227	150,255	+16.5	1,801,615	1,900,077	+5.5
Finland	122	92	-24.6	117	161	+37.6	59	311	+425.4	0	0	0	53	205	+285.3	141	201	+42.6	532	633	+19.0
Norway	8,709	16,811	+91.8	210	837	+293.8	557	1,191	+113.3	0	0	0	76	196	+156.6	331	402	+21.5	9,750	19,366	+97.8
Switzerland	4,765	4,812	+1.0	1,994	2,131	+6.7	7,777	6,500	-15.3	1	23	+2300.0	7,362	8,955	+21.7	2,048	2,343	+14.4	23,467	25,194	+7.4
EUFA*	13,648	22,598	+64.5	2,341	3,137	+33.8	7,983	8,498	+6.4	1	21	+2100.0	7,511	9,299	+23.9	2,387	2,875	+20.5	17,0	33,748	+195.0
United Kingdom	48,388	46,626	-3.5	24,517	17,933	-26.8	116,664	92,964	-20.5	0	0	0	119,005	119,278	+0.2	5,212	11,024	+110.4	317,786	287,825	-9.4
EU + EUFA + UK	196,411	220,778	+11.4	99,867	99,201	-0.7	423,993	367,296	-13.4	31,421	29,885	-4.9	491,892	535,688	+9.1	139,826	171,254	+22.5	1,933,410	1,923,222	-0.5

Source: ACEA

Energy Transition: Buttigieg can't believe people don't see EVs are the market
We heard Transportation Secretary on Fox News and our first thought was that Buttigieg probably wanted to call people squareheads for not realizing EVs are where people should be. Here is the transcript we created of comments by Pete Buttigieg (Transportation

Buttigieg on EVs reality

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Secretary) on Fox News on April 3, 2024. [\[LINK\]](#). Items in “*italics*” are SAF Group created transcript. At 0:45 min mark, Buttigieg “*Let’s be clear, consumers have wanted and purchased more EVs every single year than the year before. And Tesla is facing more competition as GM and Ford and Stellantis and other competitive players start to make sure they get a piece of the EV market. Let’s be clear that the automotive sector is moving toward EVs, and we can’t pretend otherwise. Sometimes when these debates happen, I feel like it’s the early 2000s, and I’m talking to some people who think that we can just have landline phones forever. The reality is that the automotive sector is moving towards EVs and the US can either fall behind China or we can claim the lead*”

Energy Transition: Liberals Budget incentivizes data centers to get operational

On Tuesday, we tweeted [\[LINK\]](#) “*Push for data centers to get operational! 🟡 Liberals Budget 2024: Move to immediate 100% deduction in yr becomes operational for Class 44, 46 & 50 used in “Productivity-Enhancing Assets” At least for now, 100% deduction doesn’t seem to cut out #NatGas #Coal powered data centers. #OOTT.*” The Liberals released their budget on Tuesday after the market close and one of the items that jumped out was their incentivizing data centres to get operational. They increased the capital cost allowance for the key equipment categories such that it moves to 100% first year deduction for the year in which the data centre becomes operational. The other aspect that jumped out was that there was no stated exclusion or reduction of the deduction if the data centres are powered by fossil fuels. Here is the Budget language “*Productivity-Enhancing Assets. Currently, assets included in Class 44 (patents or the rights to use patented information for a limited or unlimited period), Class 46 (data network infrastructure equipment and related systems software), and Class 50 (general-purpose electronic data-processing equipment and systems software) are prescribed CCA rates of 25 per cent, 30 per cent, and 55 per cent, respectively. Budget 2024 proposes to provide immediate expensing for new additions of property in respect of these three classes, if the property is acquired on or after Budget Day and becomes available for use before January 1, 2027. The enhanced allowance would provide a 100-per-cent first-year deduction and would be available only for the year in which the property becomes available for use. Property that becomes available for use after 2026 and before 2028 would continue to benefit from the Accelerated Investment Incentive.*”

Liberals want more data centres

Energy Transition: “New US Rule on Tailpipe Emissions Conflicts With Energy Reality”

It is hard for anyone to say that EV sales are anywhere near year ago forecasts or aspirations, which brings up the challenge for the next decade on tailpipe emissions. Last week, RBN posted its April 12 blog on the EPA’s new tailpipe emissions rule. RBN wrote “*The Biden administration recently announced a very ambitious — to say the least — rule on tailpipe emissions. But while the rule’s legal and political standing might be a bit uncertain — it’s seen by many as a de facto ban on conventionally fueled cars and trucks and is likely to face several court challenges — doubts also remain about whether it matches up with the realities of today’s energy world*”. The changes to which RBN is referring to are policy measures proposed by the National Highway Transportation and Safety Administration (NHTSA), which in 2022 amended rules concerning fleet average fuel mileage of 49mpg by 2026 and efficiency improvements by 8% annually (Trump was +1.5%/yr), and in 2023 proposed to increase the fleet average to 58 mpg by 2032. Furthermore, the EPA in April 2023 made changes to tailpipe emission standards, calling for 13% annual average pollution cuts and a 56% reduction in fleet emissions by 2032. RBN points out “*These rules,*

RBN’s blog on the EPA’s emission rules

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interestingly, do not account for GHG emissions from the electricity produced to power EVs. Rather, EVs are counted as having zero GHG emissions, even though electricity production can be a GHG-intensive process". In theory, you could have a coal plant electrifying a grid to power EVs which would be considered more environmentally friendly than ICE cars, in the eyes of the EPA at least. Ultimately, these changes imply that automakers will have to throw more EVs or EV-type cars into the mix of their lineups if they want to get anywhere near that level. RBN contends with the expectations of these agencies (and the Biden administration) in achieving their emission goals, naming several barriers: Insufficient infrastructure, legal opposition, slower fleet turnover of EVs, and the lack of impact on gasoline demand despite EV adoption (citing Norway as an example). On infrastructure, the scale at which the charging grid and stations would need to be rolled out to achieve the EPA's desired 29% ICE mix by 2032 is enormous – think of all the energy from cars today in the form of gasoline and add that to the electricity grid. Legally, opponents point out this change to emissions standards is essentially a "back-door" ban on ICE vehicles, making it impossible by definition for car manufacturers to maintain market-desired fleets of ICE vehicles given their efficiency and mileage requirements. It also poses some national security issues considering the increased reliance manufacturers would have on China for battery metals. Pointedly, even if EVs were adopted in fleets as much as the government wants, since they aren't selling as fast as ICE cars (and people hold onto ICE cars for much longer), their reduced turnover makes the shift in fleet mix a slower process than one would expect. Finally, looking at Norway's journey with EV adoption shows us that while they are some of the biggest buyers of EV vehicles in the world, gasoline consumption hasn't tapered off as much as expected, mostly because EVs aren't displacing ICE miles on the road – people are just buying another car in addition to their reliable, gas-fueled vehicle. Norway's EVs account for 80% of new car sales but only 30% of all cars on the road, speaking to the low fleet turnover mentioned earlier. Below is a table of the EPA's projection of vehicle market share by type and scenario. Our Supplemental Documents Package includes the RBN blog.

Figure 69: EPA's Vehicle Market Share by Scenario

Projected New Vehicle Market Share Under Various Compliance Scenarios							
Pathway	Technology	2027	2028	2029	2030	2031	2032
Pathway A: Higher BEV Pathway (base case)	ICE	64%	58%	49%	43%	35%	29%
	HEV	4%	5%	5%	4%	3%	3%
	PHEV	6%	6%	8%	9%	11%	13%
	BEV	26%	31%	39%	44%	51%	56%
Pathway B: Moderate HEV and PHEV Pathway	ICE	62%	56%	49%	39%	28%	21%
	HEV	4%	4%	3%	6%	7%	6%
	PHEV	10%	12%	15%	18%	24%	29%
	BEV	24%	29%	33%	37%	41%	43%
Pathway C: Higher HEV and PHEV Pathway	ICE	61%	41%	35%	27%	19%	17%
	HEV	4%	15%	13%	16%	15%	13%
	PHEV	10%	17%	22%	27%	32%	36%
	BEV	24%	26%	30%	31%	34%	35%

Source: RBN, Bloomberg

Capital Markets: Liberals budget didn't hit income tax but did hit big capital gains tax

The Liberals introduced their budget on Tuesday after the market close. It was a surprise that they didn't hit income taxes for high income and corporations. But they did hit capital gains taxes on large capital gains. We weren't surprised to see the concern/criticism on this capital gains tax from a wide range of people including former Liberals finance minister. The concern being it will hurt investment capital. We spoke to a number of long-term contacts, mostly

Liberals hike capital gains tax

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wealthier baby boomers, and they were all in this camp. Having said that, we thought the new capital gains tax rules should be able to capture the range of potential capital gains from the wealthy and not just capital gains made in stocks. KMPG summarized the added capital gains tax as *“The budget proposes to increase the inclusion rate for capital gains realized on or after June 25, 2024. In particular, the budget proposes to increase the inclusion rate for corporations and trusts to 2/3 (from 1/2) and for individuals to 2/3 (from 1/2) subject to certain thresholds. The increased inclusion rate will apply to all capital gains realized by corporations and trusts. For individuals (excluding trusts), the increased inclusion rate would only apply on capital gains realized in the year in excess of \$250,000. As such any gains under \$250,000 would remain subject to the 50% inclusion rate. In addition, the amount of net capital losses carried forward from prior years would be adjusted to reflect the new capital gains inclusion rate when deducted against taxable capital gains arising in the current year. This annual \$250,000 threshold for individuals would be fully available in 2024 (i.e., not prorated) and would apply only in respect of net capital gains realized after June 25, 2024.”*//

Capital Markets: BofA “struck by just the sheer amount of cash on the sidelines”

Bank of America held its Q1 call on Tuesday. We tweeted [\[LINK\]](#) *“Positive for markets in 2024 is lots cash on sidelines. “Wealth management ... elevated levels of cash that our clients have” “We’re all struck by just the sheer amount of cash on the sidelines at this point.” BofA Q1 call. Thx @business. #OOTT.”* Cash on the sidelines is always a good sign for the future or at least the potential for the future. BofA highlighted the high level of deposits and also that people with higher deposits have been moving money into markets but not so for people with lower deposit balances. But really got our attention was BofA noting the cash on the sidelines. Mgmt said *“Well, wealth management, I think Lindsay, Katie, and Eric highlight for us regularly just the elevated levels of cash that our clients have. A lot of that is on us. And you can see that on our deposit chart, but there’s a lot that we’ve captured in the investment area, too, where there -- a lot of their flows are coming into, maybe it’s money market funds, maybe the short dated treasuries, but there’s a lot of cash at this point. So, that would tell you it’s supporting the ability to see continued assets under management flows going forward, depending on how the -- obviously the stock market shakes out over time. But we’re all struck by just the sheer amount of cash on the sidelines at this point.”*

BofA “sheer amount of cash on sidelines”

Capital Markets: Schwab reminds why brokers want more AUM opportunity to upsell

There was a good reminder from the Schwab Q1 call on Monday as to why brokers want to get more AUM – it provides a captive audience to upsell other products and services. On the Q1 call, mgmt was talking about the clients they added when they bought Ameritrade. Mgmt said *“In terms of the clients and the overall integration effort and as largely expected after initial settling in period, clients in our transition groups are engaging with Schwab and the expanded array of capabilities we offer. These clients are now beginning to bring new assets to us, and their trading volumes now exceed the levels of trading they were doing pre conversion when they were exclusively at Ameritrade.”* And *“Schwab Wealth Advisory attracted a record \$4.4 billion in net flows for the first quarter, with approximately 30% of those enrollments coming from legacy Ameritrade households, which to us demonstrates the power of the opportunity ahead of us, as we introduce more Ameritrade clients to the breadth of all we have to offer.”*

Schwab on AUM

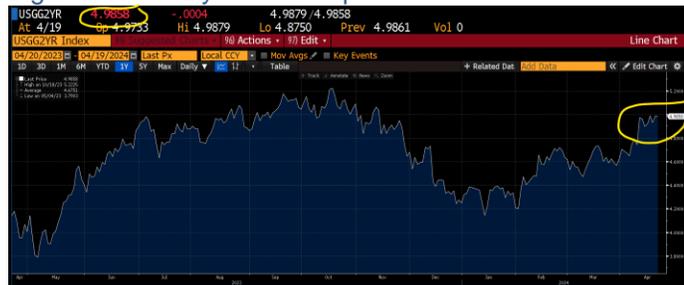
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Capital Markets: Powell's comments moved rates higher

The big market story this week was Fed Chair Powell's Tuesday comments that "it's likely to take longer than expected to achieve that confidence" that price controls are under control i.e. rates would be higher for longer. This sent rates up and they stayed up for the week. On Tuesday, we tweeted [LINK](#) "US 2 yr 4.967% US 10 yr 4.649% 📌 Powell comments. "recent data have clearly not given us greater confidence" that price increases are under control. "instead indicate that it's likely to take longer than expected to achieve that confidence" "If higher inflation does persist, we can maintain the current level of restriction for as long as needed" Thx @business #OOTT." Rates stayed up for the rest of the week. Yesterday, we tweeted [LINK](#) "ICYMI. US rates stayed up post Powell. US 2 yr 4.986% Apr 19 vs 4.897% Apr 12. US 10 yr 4.621% Apr 19 vs 4.522% Apr 12. #OOTT." The US 2 yr closed at 4.986% and the US 10 yr at 4.621% to close on Apr 19.

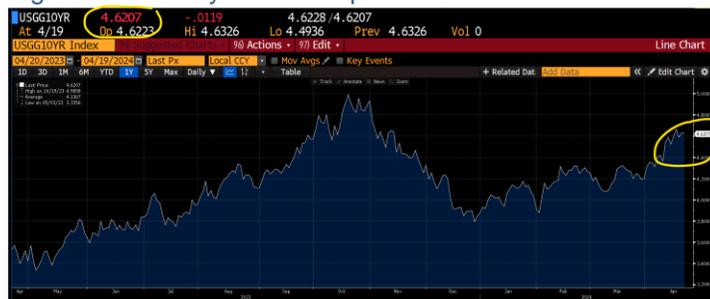
Powell on sticky inflation

Figure 70: US 2 year as of Apr 19 close



Source: Bloomberg

Figure 71 US 10 year as of Apr 19 close



Source: Bloomberg

Capital Markets: Canadian investment in foreign bonds hit all-time high in February

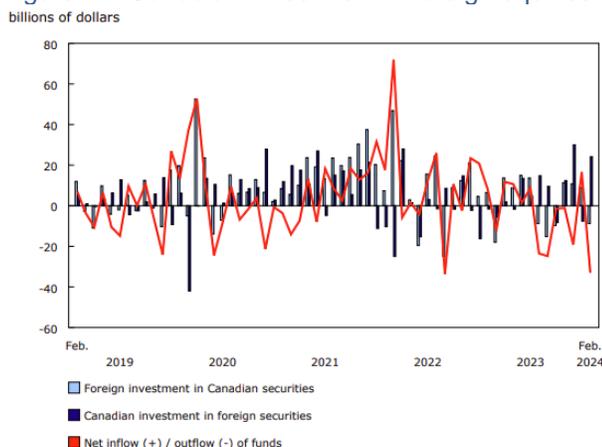
Statistics Canada released Canada's international transactions in securities for February on Wednesday [LINK](#). There was another huge outlay of investment into foreign markets in February, including a record investment in foreign bonds. Canadian investors purchased +\$24.2b of foreign securities in February, including a net reduction to Canadian securities of -\$8.8b, which means \$33.0b left the Canadian economy in February. After a divestment of foreign securities of \$7.6b in January, the exodus of capital in Canadian markets continued for February, with investors re-allocating to a record \$16.3b of foreign bonds, of which \$9.1b were US government bonds. Canadians also purchased \$9.1b of US equities in February,

International transactions in Cdn securities

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mainly in large cap and tech stocks. Foreign investors dumped \$8.8b worth of Canadian equities, marking the month of divestment in 2023. The report stated “Canadian investment in foreign securities resumed in February to reach \$24.2 billion, following a \$7.6 billion divestment in January. The activity in February targeted foreign bonds and, to a lesser extent, US shares. Canadian investors purchased a record \$16.3 billion of foreign bonds in February. Acquisitions of US government bonds (+\$9.1 billion) and non-US foreign bonds (+\$4.5 billion, mostly government instruments) accounted for the bulk of the activity. In February, US long-term interest rates were up to reach the highest levels since November 2023”. Below is a graph illustrating Canadian investments in foreign equities.

Figure 72: Canadian investment in foreign equities and investment funds



Source: Statistics Canada

Capital Markets: Apple CEO Cook “the investment ability in Indonesia is endless”

We might not have thought much of Apple CEO Tim Cook’s comments on Indonesia if we hadn’t read BlackRock’s weekly investment commentary from last week. On Wednesday, we tweeted [\[LINK\]](#) “More capital into Indonesia! “I think the investment ability in Indonesia is endless” @tim_cook. “These countries (ie. Indonesia). If you add up 5 of them, their growth is so much faster than China. I think we have to start thinking there is a mosaic ...”

@jimcramer. 1/2” It may not have been a big commentary but Tim Cook’s comments were clear on investment ability in Indonesia. Then CNBC’s Jim Cramer reminded that there are stronger growth rates in countries like Indonesia and Brazil and how an investor can put together a portfolio of five countries with ~200 million populations that have better growth than China.

Apple CEO
bullish on
Indonesia

BlackRock on Indonesia, aging population on real estate/healthcare

Our above Apple Tim Cook tweet had a part 2/2 tweet [\[LINK\]](#) “2/2 Indonesia! “Growing populations consume more energy, so we expect rising spending on energy infrastructure in places like India and Indonesia. We think higher returns are likely in EMs with stronger growth and greater investment demand.” @BlackRock Apr 8 weekly commentary.” Here is what we wrote in last week’s (Apr 14, 2024) Energy Tidbits memo. “The reality is that I can’t see or get to a lot of great insights

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every week so I always appreciate when friends and contacts give some insight on items to check out. Some weeks, like this week, the news/market focus is on current events so I hadn't read BlackRock's Weekly Commentary April 8, 2024 "Playing demographic divergence now." It had some good food for thought about capital allocation over the coming decade. (i) Don't forget about Indonesia. I was reminded that Indonesia has 275 million people and is projected to keep having strong population growth. And that people who have lived in Indonesia believe the world inevitably will keep pushing to other SE Asian countries as the western world tries to move away from China. Vietnam has been the big winner but people also see Indonesia and Philippines are overlooked. The BlackRock commentary notes India and Indonesia as two countries that will have big buildout of energy infrastructure. (ii) Real estate and healthcare. The BlackRock weekly commentary also had good commentary on the demographic divide and also they don't see that priced in for real estate and healthcare. With good reminders such as that older people aren't really selling their homes as many expected and this has implications to the real estate market mid term. They also highlight the increasing capital required for healthcare on the aging boomers and this has huge implications for governments. BlackRock writes "Plus, governments are likely to spend more on healthcare and pensions. The resulting inflationary pressure is one reason why we expect central bank policy rates to stay above pre pandemic levels. Aging related spending also threatens to push up government debt, with global public debt having already tripled since the mid 1970s to 92% of global GDP in 2022. And that debt is likely to be subject to higher interest costs." There is more in the weekly commentary. Our Supplemental Documents package includes the BlackRock weekly commentary."

Twitter: Thank you for getting me to 10,000 followers

In January, I went over 10,000 followers on Twitter/X. I really appreciate the support and, more importantly, some excellent insights and items to look at from Twitter followers. It helps me do a better job. For new followers to our Twitter, we are trying to tweet on breaking news or early views on energy items, most of which are followed up in detail in the Energy Tidbits memo or in separate blogs. Our Twitter handle is @Energy_Tidbits and can be followed at [\[LINK\]](#). We wanted to use Energy Tidbits in our name since I have been writing Energy Tidbits memos for over 20 consecutive years. Please take a look thru our tweets and you can see we aren't just retweeting other tweets. Rather we are trying to use Twitter for early views on energy items. Our Supplemental Documents package includes our tweets this week.

**@Energy_Tidbits
on Twitter**

LinkedIn: Look for quick energy items from me on LinkedIn

I can also be reached on LinkedIn and plan to use it as another forum to pass on energy items in addition to our weekly Energy Tidbits memo and our blogs that are posted on the SAF Energy website [\[LINK\]](#).

**Look for energy
items on LinkedIn**

Misc Facts and Figures.

During our weekly review of items for Energy Tidbits, we come across a number of miscellaneous facts and figures that are more general in nature and often comment on sports.

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Cdn golf fans will be watching Brooke Henderson & Taylor Pendrith today

Two of our Cdn pros had great 3rd rounds to vault into contention for today's final round so there will be two final rounds for Cdn golf fans to watch today. (i) LPGA's The Chevron Championship. Play was suspended in the afternoon with most of the leaders only thru 11. Brooke Henderson made a huge move up the leaderboard . She was 8 under thru 17 and T2 at -10. Although we would expect her to be further back when the leaders finish as many such as Nelly Korda (tied with Brooke) are only thru 11. But Brooke shooting 8 under for the round is a reminder she can go very low when her putter is hot so she will be in the hunt even is she isn't T2 by the time the 3rd round is finished. (ii) PGA's Corales Puntacana Championship. Taylor Pendrith has the low round of the day yesterday with a 7-under 65 to vault him into T3 at -15. Leading is Westley Bryan at -17, and then Kevin Tway at -16. Pendrith is tied with Justing Lower at -15. Tayhlor is seeking his first win but has had a runner up and a 3rd place finish in his PGA career.

Police are like Matt Damon in The Bourne Identity

I had the opportunity to sit with one of my best friends for over 40 years ago who was a senior police person for 30+ years. We were in a public place with a fair amount of people entering/leaving and sitting. And over the couple hours, he never really seemed to looking around the areas but he was and it reminded me of the scene from the Bourne Identity, where Matt Damon is in the truck stop with Franka Potente. He tells her he has no idea who he is but then says *"I can tell the license plate numbers of all six cars outside. I can tell you that our waitress is left-handed and the guy sitting at the counter weighs 215 lbs and knows how to handle himself. I know the best place to look for a gun is the cab of the grey truck outside"* That is how I felt with my friend. He may not have been having his head on a swivel but he did.

Figure 73: The Bourne Identity



Source: Twitter

Learned about an edge weapon or weapon of opportunity

The other thing I learned from my police friend is that it's not just the he knows who is around, he is also prepared to defend himself. One of the things I learned is that most of bad guys will at least have a knife and likely more. And if the good guys aren't armed, they also have know what might be available nearby as a weapon of opportunity. He then named off a handful of items that he could use right then and

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there as a weapon of opportunity. I learned that a weapon of opportunity can range from glasses that get broken, pop cans, the obvious kitchen utensils, pens/pencils, keys, belts, tiles, wood, etc.

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