SAF GROUP

Energy Tidbits

January 14, 2024

Produced by: Dan Tsubouchi

US/UK Missile Attacks on Houthis, Who Say Their Response Will Be Largest Drone/Missile Attack

Welcome to new Energy Tidbits memo readers. We are continuing to add new readers to our Energy Tidbits memo, energy blogs and tweets. The focus and concept for the memo was set in 1999 with input from PMs, who were looking for research (both positive and negative items) that helped them shape their investment thesis to the energy space, and not just focusing on daily trading. Our priority was and still is to not just report on events, but also try to interpret and point out implications therefrom. The best example is our review of investor days, conferences and earnings calls focusing on sector developments that are relevant to the sector. Our target is to write on 48 to 50 weekends per year and to post by noon MT on Sunday. The Sunday noon timing was because PMs said they didn't have research to read on Sundays and Sundays are a day when they start to think about the investing week ahead.

This week's memo highlights:

1. US/UK finally launched a big missile attack on the Houthis, the Houthi leader then said their response will be their largest drone/missile attack. [click here]

2. On Friday, CER approved Trans Mountain's variance request for construction at the 590,000 b/d TGMX expansion, which should set the stage for line fill to begin in the next few months. [click here]

3. Nigeria's oil exports should be declining in 2024 with the just starting up of a new 650,000 b/d refinery. [click here]

4. Wood Mackenzie forecasts oil demand growth +2.1 mmb/d YoY in 2024, right in line with OPEC's +2.2 mmb/d YoY growth in 2024. [click here]

5. Maersk CEO warns that Suez Canal/Red Sea transit could last for months and threatens global supply chain. [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].

Dan Tsubouchi
Chief Market Strategist
dtsubouchi@safgroup.ca

Ryan Dunfield
CEO
rdunfield@safgroup.ca

Aaron Bunting
COO, CFO
abunting@safgroup.ca

Ryan Haughn
Managing Director
rhaughn@safgroup.ca

Table of Contents

Natural Gas: -140 bcf draw from US gas storage; now +436 bcf YoY surplus

North America finally got some cold weather, and it's beginning to show on the EIA weekly gas storage. For the week of Jan 5, the EIA reported a -140 bcf draw, much bigger than the +11 bcf build reported for the week of Jan 6, 2023. Total storage is now 3.336 tcf, representing a surplus of +436 bcf YoY compared to a surplus of +553 bcf last week. Last week was the highest storage has been in 5 years, with the previous high being 3,460 bcf from 2020. Total storage is +348 bcf above the 5-year average, up from the +302 bcf surplus last week. Below is the EIA's storage table from its Weekly Natural Gas Storage report [LINK].

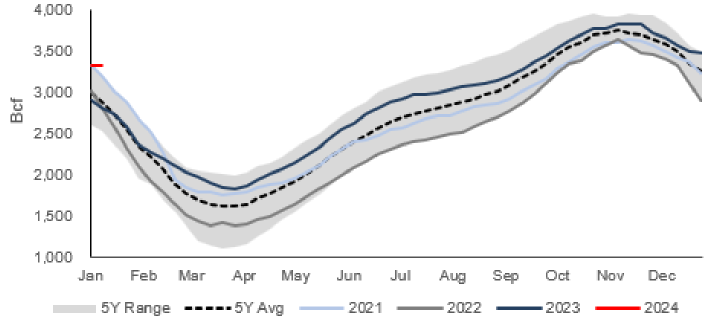
Figure 1: US Natural Gas Storage

	Stocks billion cubic feet (Bcf)				Historical Comparisons: Year ago (01/05/23)		Historical Comparisons: 5-year average (2019-23)	
Region	01/05/24	12/29/23	net change	implied flow	Bcf	% change	Bcf	% change
East	757	799	-42	-42	699	8.3	715	5.9
Midwest	924	968	-44	-44	825	12.0	842	9.7
Mountain	220	228	-8	-8	154	42.9	161	36.6
Pacific	275	280	-5	-5	161	70.8	219	25.6
South Central	1,160	1,201	-41	-41	1,063	9.1	1,053	10.2
Salt	332	344	-12	-12	291	14.1	316	5.1
Nonsalt	828	857	-29	-29	772	7.3	737	12.3
Total	**3,336**	**3,476**	**-140**	**-140**	**2,900**	**15.0**	**2,988**	**11.6**

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

Source: EIA

Figure 2: US Natural Gas Storage – Historical vs Current



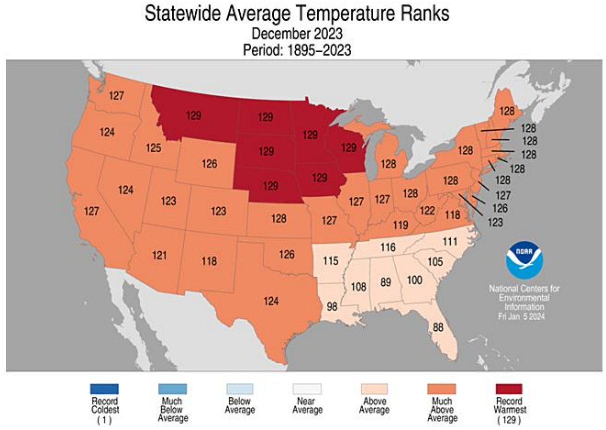
Source: EIA, SAF

Natural Gas: December 2023 was the warmest for US in 129 years

Dec warmest for US in 129 years

We have been highlighting the warmer than normal US temperatures so far this winter that has led to lower natural gas demand. On Wednesday, the NOAA posted its national climate recap for Dec and Dec 2023 was the hottest on record in the past 129 years. Remember, we wrote in our Dec 17 Tidbits Memo that November was the 19th hottest in 129 years, which is definitely reflective of the unusually warm winter we've had so far. NOAA also sees El Nino conditions thru the rest of winter, with 100% probability for Dec/Jan/Feb and Jan/Feb/Mar. Again, we note it's not impossible for natural gas demand to catch up after a warm Nov/Dec, but it really needs to have sustained cold in January and February to make up for it. Below is the NOAA graphic showing indexed average statewide temperatures since 1895.

Figure 3: NOAA Average Temperatures for Dec 2023

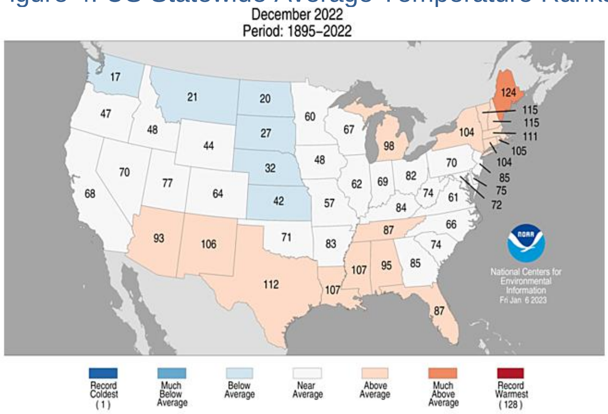


Source: NOAA

Dec 2022 was normal temps, but warmer than normal in NE

Here is what we wrote in our Jan 15, 2023 Energy Tidbits memo n the Dec 2022 temperatures. "*It didn't seem like it for natural gas markets, but overall, the US had a normal Dec fo temperatures. But what hurt natural gas was it was warmer than normal to end Dec in the populous NE US. NOAA posted its recap of US weather for Dec [LINK] that showed Dec 2022 ranked 64th, exactly in the middle, in the 128-year record, despite the warmer temperatures in the northeast and south US."*

Figure 4: US Statewide Average Temperature Ranks December 2022



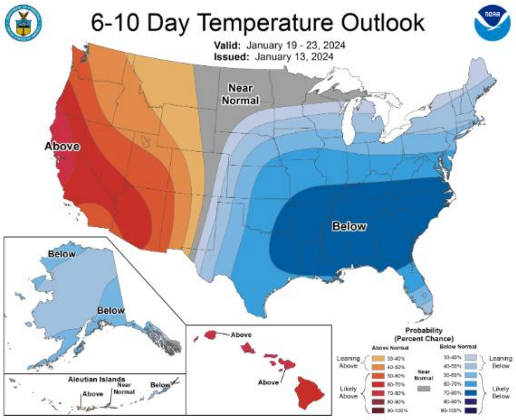
Source: NOAA

Natural Gas: NOAA temperatures turning warmer in late Jan

NOAA 6-10 & 8-14 day temp outlook

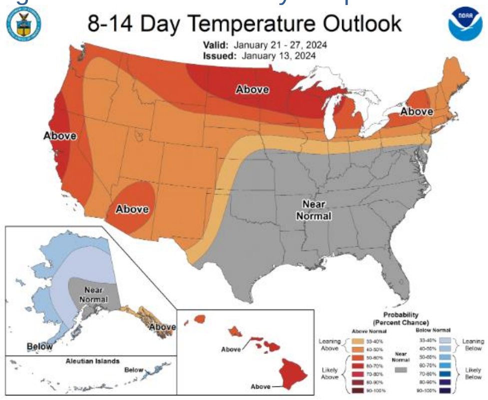
Yesterday, we tweeted [LINK] "*Cold weather in US drove HH #NatGas +$0.44 WoW to $3.31. NFL fans know its really cold this weekend so should support HH prices for most of next week. But today's @NOAA temperature outlook covers Jan 19-27. Expected turning to warmer than normal in late Jan. #OOTT.*" IT was a hot start to winter in both Nov and Dec but the story in Jan the last week has been that it's been cold and that drove HH +$0.44 WoWS to close at $3.31 on Friday. Our tweet included NOAA's yesterday 6-10 and 8-14 day temperature outlook that covers Jan 19-27. NOAA expects it to turn warmer than normal at the end of Jan. Our concern is that if it turns warmer than normal in late Jan and starts Feb that way, HH gas prices will give up their recent gains. But it needs sustained cold in Jan and Feb. Below are the NOAA 6-10 day and 8-14 day termperature outlooks posted yesterday, Jan 13.

Figure 5: NOAA 6-10 day temperature outlook as of Jan 13



Source: NOAA

Figure 6: NOAA 8-14 day temperature outlook as of Jan 13



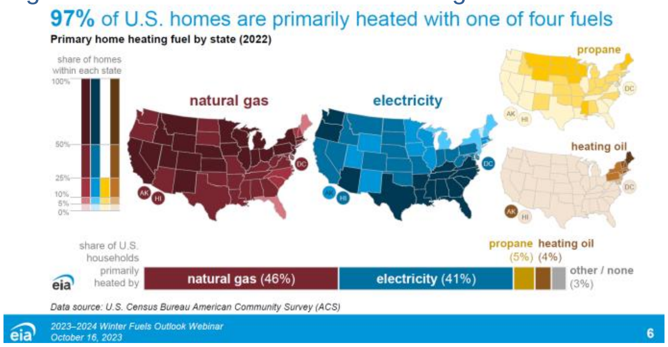
Source: NOAA

Natural Gas: 62% of US homes have winter home heating fueled by natural gas

Natural gas home heating

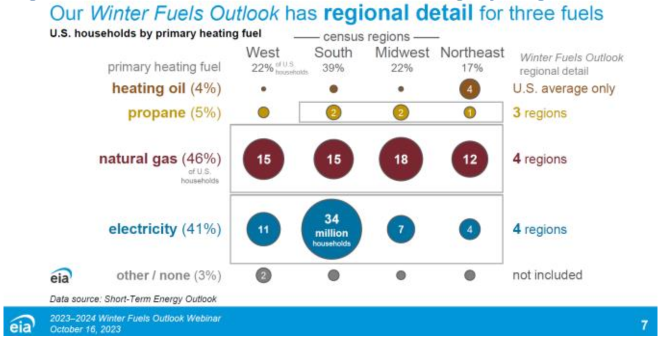
Here is what we wrote in our Nov 19, 2023 Energy Tidbits memo on overview of US home heating by fuel. "*Our primary focus for winter weather tends to be in the US NE and around the Great Lakes for the combination of population density, areas that have colder winters, and a higher percentage of the US homes in these regions that primarily use natural gas for heating. Below is the EIA's map from Oct showing the primary fuel source for heating homes. (i) On Thursday, we tweeted [LINK] "62% of US homes winter heated directly (46%) and indirectly (16%) by #natgas. All direct fuel % splits unchanged YoY ie. #natgas 46%, electricity 41%, etc. @EIAgov #natgas fuels 40% of electricity for home heating ie. indirect 16% #OOTT." (ii) Natural gas continues to be the major fuel for "direct" fuel for home heating with 46% of US homes followed by electricity 41%, propane 5%, heating oil 4% and other/none at 3%. Note these % shares are unchanged vs last year. (ii) much of the electricity is provided by natural gas. (iii) Natural also is the major fuel to generate electricity. On a direct basis, electricity is the primary source for heating 41% of US homes. The EIA notes that natural gas provides the fuel for 40% of electricity. The EIA wrote "Last winter, electricity generation fueled by natural gas reached a new record of 619 billion kilowatthours (kWh), accounting for nearly 40% of all generation in the U.S. electric power sector. We forecast a similar level and share of natural gas generation for winter 2023–24. The addition of new natural gas-fired generating capacity has been one factor keeping natural gas the largest source of power generation. By October 31, we expect U.S. natural gas generating capacity to have grown by 4.7 gigawatts (GW) from the previous October." ivi) Adding the indirect and direct, natural gas provides the fuel for 62% of US homes*."

Figure 7: Fuels for winter home heating of US homes



Source: EIA

Figure 8: Fuels for winter home heating by region



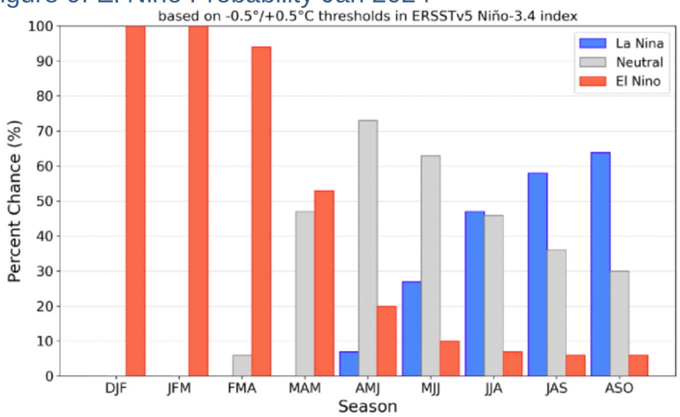
Source: EIA

Natural Gas: NOAA sees El Nino conditions for Jan/Feb/Mar, milder spring

El Nino forecast for Jan/Feb/Mar

The focus for El Nino conditions is for the rest of winter. If temperatures don't cool down soon, natural gas prices are in big trouble. On Thursday, NOAA posted the updated monthly El Nino/La Nina outlook, which is issued on the 2nd Thurs of every month [LINK]. NOAA continues to forecast El Nino conditions in the Northern Hemisphere Winter and Spring 2023-24. NOAA provided a probabilistic forecast for meeting El Nino thresholds for Dec/Jan/Feb at 100%, as well as for Jan/Feb/Mar. Feb/Mar/Apr is also at over 90% probability of warmer than normal temperatures, but the NOAA noted that the spring is supposed to go back to normal temperatures. The NOAA wrote "*The most recent IRI plume indicates El Niño will gradually weaken and then transition to ENSO-neutral during spring 2024*". Below is a chart of El Nino probability forecasts for 2024.

Figure 9: El Nino Probability Jan 2024



Source: NOAA

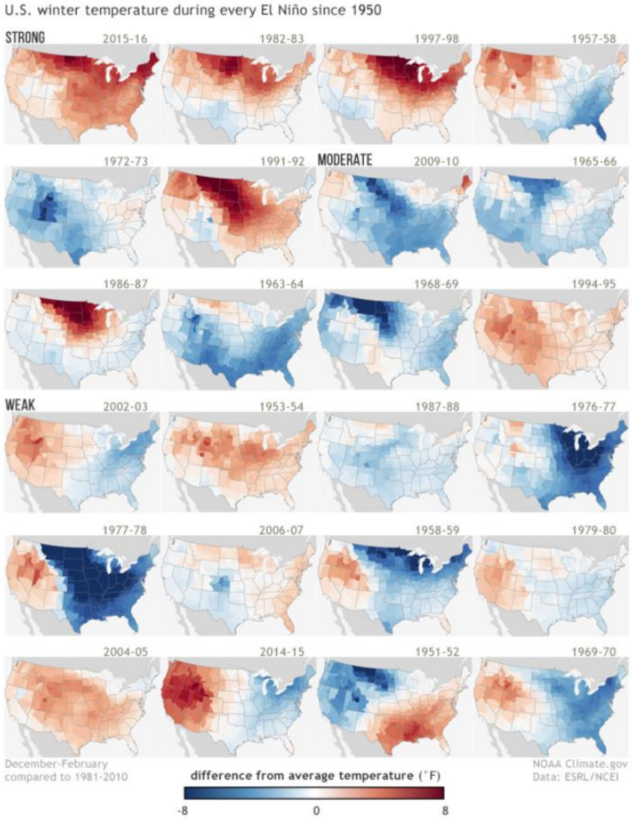
Natural Gas: El Nino correlations to warm winters aren't perfect

El Nino can bring cold winters

So far, this El Nino winter is looking to be another warm winter. El Nino winters are typically warmer than normal in the northern US. But we remind of a Oct 24, 2018 NOAA brief "*U.S. winter temperatures for every El Niño since 1950"* where NOAA looked at all El Ninos since

1950, classified them as strong, moderate or weak El Ninos and then showed the average winter (Dec thru Feb) temperature map. We checked this weekand the link still works [LINK]. NOAA wrote *"The tropical Pacific climate pattern known as "ENSO," which is short for El Niño-Southern Oscillation, has its strongest influence on the U.S. climate during winter (December-February). El Niño in general acts to tilt the odds toward wetter- and cooler-than-average conditions across much of the South, and toward drier and warmer conditions in many of the northern regions. El Niño's influence on temperature is less reliable than its influence on precipitation. The collection of maps at right show the difference from average (1981-2010) winter temperature (December-February) in each U.S. climate division during all El Niño events since 1950. Years are ranked from strongest El Niño (top left) to weakest (bottom right), based on the December–February Oceanic Niño Index value. There is no universal way to define the strength of El Niño events, but for this graphic, events with ONI values above 1.5 are ranked as strong, events with ONI values between 1 and 1.5 are ranked as moderate, and events with ONI values between 0.5 and 1 are ranked as weak." "Four of the six strong events have a warm signal that is nearly nationwide, but even among them, the geographic details—the location of the biggest anomalies, where the few cool spots are—vary from one event to another. Looking at both strong and moderate events, the patterns become even less consistent. Eight of the twelve events have a warm signal in the Northern Plains (a much smaller area than is affected in the strong events), but 4 are colder than normal."* Below are the Nino maps from the NOAA brief.

Figure 10: Winter (Dec-Feb) Temp In Strong, Moderate And Weak El Ninos Since 1950



Source: NOAA

Natural Gas: EIA lowers US gas production forecast for 2023, raises 2024 forecast

EIA US natural gas production forecast

The EIA lowered its forecast of US natural gas production for 2023 but raised 2024 by the same amount, with a big downward revision in Q4/23 likely due to the impact of soft gas prices with the hot Dec. In October, the EIA made the expected catch-up adjustment in its natural gas production forecast after weekly oil estimates were well below actuals (associated gas production would have gone up as well). In October's STEO the EIA made a +1.0 bcf/d adjustment to 2023 and a +0.2 bcf/d adjustment to 2024, but for the past few of months, the EIA has kept 2023 production forecasts relatively flat. As a reminder the key oil plays produce associated natural gas and NGLs, any increase in US oil production lead to increases in associated natural gas production from these oil plays. (i) On Tuesday, the EIA released its monthly Short Term Energy Outlook for January 2023 [LINK]. The EIA lowered its 2023 US natural gas production forecast by -0.1 bcf/d to 103.6 bcf/d, which, on a full year average basis, gives solid YoY growth of +4.0 bcf/d from 2022. The EIA had a couple of quarterly change to estimates, which was Q3/23 +0.2 bcf/d to 104.2 bcf/d, and Q4/23 -0.5 bcf/d to 104.6 bcf/d. (ii) The EIA raised its 2024 forecast +0.1 bcf/d at 105.0 bcf/d, which, on a full year average basis, is up vs 2023 forecast of 103.6 bcf/d. The biggest quarterly change in 2024 is Q1/24 which was bumped up +0.30 bcf/d to 105.1 bcf/d compared to December's

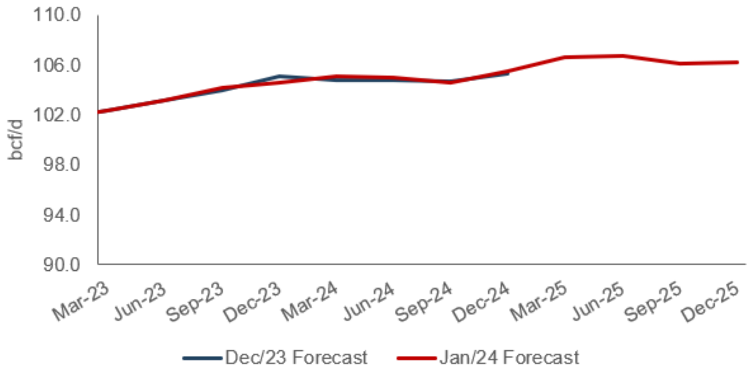
STEO. There were also two +0.20 bcf/d upwards revisions to 105.0 and 105.5 for Q2/24 and Q4/24 respectively, while Q3/24 was revised down -0.10 bcf/d to 104.6 bcf/d. (iii) The EIA also released their first forecast for 2025, which is 106.4 bcf/d, which is a projection of +1.40 bcf/d YoY compared to 2024. The EIA did not comment on the changes in their natural gas consumption forecast. (iv) The EIA lowered its HH natural gas price expectations to $2.64/mcf in 2023 (was $2.66/mcf) and as well as the 2024 expectation to $2.77/mcf (was $2.90/mcf). The EIA did not comment on the change in HH gas prices. (iv) Our Supplemental Documents package includes excerpts from the STEO.

Figure 11: EIA STEO Natural Gas Production Forecasts

bcf/d	2022	Q1/23	Q2/23	Q3/23	Q4/23	2023	Q1/24	Q2/24	Q3/24	Q4/24	2024	Q1/25	Q2/25	Q3/25	Q4/25	2025
Jan-2024	99.6	102.3	103.2	104.2	104.6	103.6	105.1	105.0	104.6	105.5	105.0	106.6	106.7	106.1	106.2	106.4
Dec-2023	99.6	102.3	103.2	104.0	105.1	103.7	104.8	104.8	104.7	105.3	104.9					
Nov-2023	99.6	102.3	103.2	104.1	105.1	103.7	105.1	104.8	104.7	105.9	105.1					
Oct-2023	99.6	102.4	103.2	104.4	104.9	103.7	104.7	104.8	104.8	106.1	105.1					
Sep-2023	98.1	102.1	102.8	102.7	103.1	102.7	104.3	104.7	104.9	105.9	104.9					
Aug-2023	98.1	102.1	102.8	103.4	103.6	103.0	104.0	103.9	104.0	104.6	104.1					
July-2023	98.1	102.0	102.2	103.0	102.2	102.4	101.8	101.5	102.5	103.7	102.4					
June-2023	98.1	102.0	103.7	103.4	101.9	102.7	102.8	102.8	103.0	103.6	103.0					
May-2023	98.1	102.1	101.9	99.9	100.4	101.1	100.7	101.1	101.4	101.8	101.2					
Apr-2023	98.1	101.6	100.5	100.5	100.9	100.9	101.2	101.5	101.8	101.8	101.6					
Mar-2023	98.1	101.0	100.2	100.6	101.0	100.7	101.4	101.4	102.0	102.0	101.7					
Feb-2023	98.1	99.9	100.0	100.3	100.9	100.3	101.2	101.6	102.0	101.9	101.7					
Jan-2023	98.0	100.8	99.9	100.1	100.6	100.3	101.1	101.8	102.7	103.6	102.3					

Source: EIA, STEO

Figure 12: EIA STEO Natural Gas Production Forecasts by Month



Source: EIA, STEO

Natural Gas: EIA STEO forecasts Apr 1/24 storage 2.155 tcf, +0.132 tcf vs Dec STEO

EIA January STEO storage forecast

Given the continued strong YoY increase in forecast US gas production and the mild start to winter, the EIA Jan STEO increased its forecast for storage to end winter 2023/24. (i) The EIA forecasts US Gas Storage out to the end of 2025. Gas storage started the summer 2023 refill season at 1.850 tcf on April 1, 2023, which was +0.448 tcf YoY. For the winter 2023 draw season, the EIA forecasted storage on Nov 1, 2023 at 3.808 tcf, which is +0.238 tcf YoY but down slightly vs the Dec STEO of 3.810 tcf. (ii) The mild winter so far is likely the reason for an upwards revision for storage at the end of the 2023/2024 winter. The EIA forecasts gas storage to end this winter at 2.155 tcf, which would be +0.305 tcf YoY and up vs Dec STEO of 2.023 tcf. (iii) The EIA also released their 2025 storage forecast, which shows the 2024/2025 winter ending with 2.276 tcf and a start to the 2025/2026 winter at 4.136 tcf, which would be the highest level since 2016. Below is a table tracking the working gas inventory forecasts and actuals since 2016.

Figure 13: EIA STEO US Natural Gas in Storage (2016-2025)

	Storage	2016-2025				
	Level	Low	High	Range	Average	Deviation
Mar 2016	2,486.3	1,184.9	2,486.3	1,301.4	1,835.6	35.4%
Oct 2016	4,012.7	3,236.3	4,066.1	829.8	3,651.2	9.9%
Mar 2017	2,062.5	1,184.9	2,486.3	1,301.4	1,835.6	12.4%
Oct 2017	3,816.5	3,236.3	4,066.1	829.8	3,651.2	4.5%
Mar 2018	1,390.3	1,184.9	2,486.3	1,301.4	1,835.6	-24.3%
Oct 2018	3,236.3	3,236.3	4,066.1	829.8	3,651.2	-11.4%
Mar 2019	1,184.9	1,184.9	2,486.3	1,301.4	1,835.6	-35.4%
Oct 2019	3,762.0	3,236.3	4,066.1	829.8	3,651.2	3.0%
Mar 2020	2,029.4	1,184.9	2,486.3	1,301.4	1,835.6	10.6%
Oct 2020	3,928.5	3,236.3	4,066.1	829.8	3,651.2	7.6%
Mar 2021	1,801.2	1,184.9	2,486.3	1,301.4	1,835.6	-1.9%
Oct 2021	3,665.4	3,236.3	4,066.1	829.8	3,651.2	0.4%
Mar 2022	1,401.5	1,184.9	2,486.3	1,301.4	1,835.6	-23.7%
Oct 2022	3,569.4	3,236.3	4,066.1	829.8	3,651.2	-2.2%
Mar 2023	1,849.6	1,184.9	2,486.3	1,301.4	1,835.6	0.8%
Oct 2023	3,807.7	3,236.3	4,066.1	829.8	3,651.2	4.3%
Mar 2024	2,154.9	1,184.9	2,486.3	1,301.4	1,835.6	17.4%
Oct 2024	4,066.1	3,236.3	4,066.1	829.8	3,651.2	11.4%
Mar 2025	2,276.0	1,184.9	2,486.3	1,301.4	1,835.6	24.0%
Oct 2025	4,136.2	3,236.3	4,136.2	899.9	3,686.3	12.2%

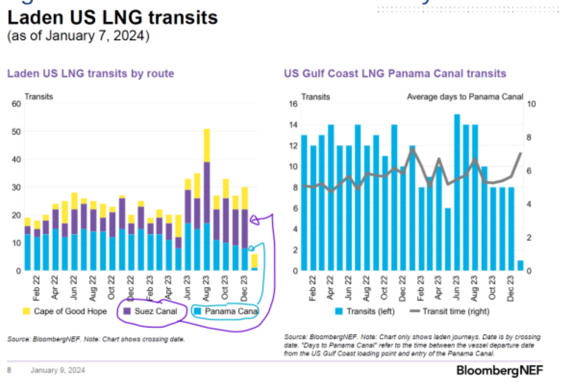
Source: EIA, STEO

Natural Gas: Red Sea now forcing US LNG to Asia via the Cape of Good Hope

US LNG to Asia taking longer

On Tuesday, we tweeted [LINK] "*Good thing Asia isn't worried about #LNG this winter. Suez Canal came to rescue for US LNG to Asia hit by Panama Canal restrictions. Now Houthis hitting Suez Canal and forcing most via Cape of Good Hope to add some more days. thx @BloombergNEF. #OOTT #NatGas.*" On Tuesday, BloombergNEF posted its LNG Trade Weekly. The graphs note how more US LNG to Asia was transiting thru the Suez Canal in H2/23 as the restrictions picked up in the Panama Canal. And now for the first week of Jan, there were no US LNG to Asia via the Suez Canal, instead they were moving around the Cape of Good Hope. This is adding time and cost to US LNG to Asia. It's a good thing Asia isn't having any LNG shortage issues this winter.

Figure 14: Laden US LNG transits by route



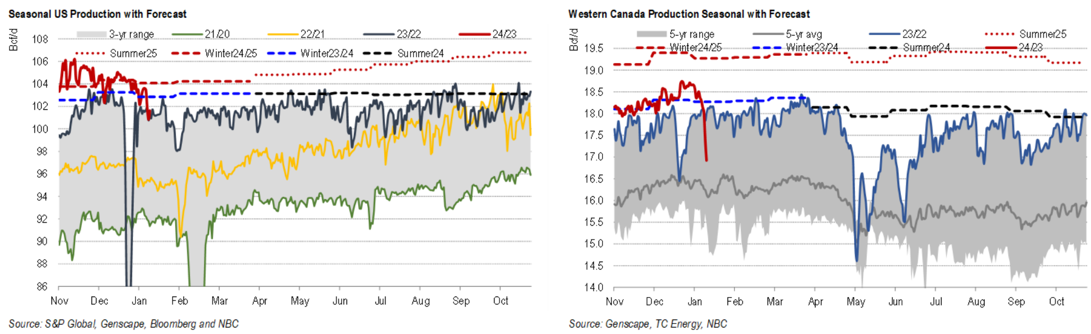
Source: BloombergNEF

Natural Gas: Freeze-offs hit US by 1.6 bcf/d and Alberta by nearly 2 bcf/das freeze-offs

Freeze-offs

One of our favorite investment dealer morning comments is the Energy and FX Commentary prepared by National Bank of Canada's Commodities team. Their Friday comment highlighted the impact of freeze-offs in the US and Canada. They wrote "W*ith temperatures dropping in several producing regions, freeze-offs are the gas topic du jour even if yesterday's build for the lower-48 was the catalyst that caused Nymex to lift following its 10:30 ET release. This morning's freeze-off total for the US increased to 1.6 Bcf yesterday, which is up from 0.66 Bcf/d Wednesday and that's with the worst of the winter cyclone ahead of us this weekend and early next week (depending on the region). We personally love that the US calls Canadian winter weather a "cyclone", really appreciate the creativity. Look, this is winter…it happens every single year…and this is certainly an epic blast. This weekend and early next week are expected to see the depths of this winter weather (or Canadian cyclone) blast the interior US and could lead to further escalation of freeze-offs in the heart of US producing regions. As we've mentioned, US production could dip to under 90 Bcf/d if freeze-offs hit just right. For now, we're also seeing Canadian volumes off by nearly 2 Bcf/d as western Canada production has been reported at ~17 Bcf/d, down from 18.7 Bcf/d only a week ago, and receipts are down to 12.5 Bcf/d from 14.5 Bcf/d. We could see these volumes off by even more through the weekend."*

Figure 15: Freeze-offs in US and Canada



Source: National Bank of Canada

Natural Gas: GAIL & Vitol, Shell & Ksi Lisims sign 10 and 20-year long-term LNG deals

2 Long-term LNG deal

There was a significant slowdown in long-term LNG deals in since the end of H1/22 compared to the activity seen from July 1, 2021 through June 30, 2022. That's because most, if not all the available long term LNG supply available before 2026 was locked up in the July 1, 2021 through June 30, 2022 rush. Since that first rush, there have been a lesser number of long term deals. The long-term deals now being done are generally for long-term supply starting in 2026 or later. There have been some very long-term LNG deals even out past 2050. And the big LNG suppliers have been stepping in more 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 were 2 major long-term LNG deals. (i) Last Friday, Vitol Asia Pte (Singapore) announced they signed a LNG supply deal with GAIL (India) [LINK], whereby GAIL will purchase 0.13 bcf/d from Vitol for 10 years beginning in 2026. Vitol CEO, Mr. Russell Hardy said, "*We are pleased to build on the existing relationship between Vitol and GAIL and to conclude this Long Term LNG supply deal together. India is a significant and growing LNG market and we are excited to bring LNG supply from our global LNG portfolio to meet this rising natural gas demand in India*". Vitol will supply this deal using sources within their global LNG supply chain portfolio. (ii) On Monday, Ksi Lisims (Canada) announced they signed a sale and purchase agreement with Shell Eastern Trading Pte (Singapore) [LINK] whereby Shell will purchase 0.26 bcf/d of LNG for 20 years, expected to begin in 2027 with completion of the Ksi Lisims LNG terminal. Shell will use the LNG to supply their global distribution obligations, likely particularly in Asia. Steve Hill, Executive Vice President of Shell Energy, said: "*LNG is a critical pillar of global energy security and global demand is set to increase in the years to come. We are pleased to sign this agreement with Ksi Lisims LNG which will help Shell to continue providing diverse and flexible LNG supply to its customers*". Our supplemental documents package contains the Vitol and Ksi Lisim news releases.

There have been 19.88 bcf/d of long-term LNG supply deals since July 1, 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 19.88 bcf/d of long-term LNG deals since July 1, 2021. 62% 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 59% 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. Our Supplemental Documents package includes our July 14, 2021 blog.

Figure 16: Long-Term LNG Buyer Deals Since July 1, 2021

Long-Term LNG Buyer Deals Since July 1, 2021							
Date	Buyer	Seller	Country	Volume	Duration	Start	End
			Buyer / Seller	(bcf/d)	Years		
Asian LNG Deals							
Jul 7, 2021	CNOOC	Petronas	China / Canada	0.30	10.0	2022	2032
Jul 8, 2021	CPC	QatarEnergy	Taiwan / Qatar	0.16	15.0	2022	2037
Jul 9, 2021	Guangzhou Gas	BP	China / US	0.13	12.0	2022	2034
Jul 12, 2021	Korea Gas	QatarEnergy	Korea / Qatar	0.25	20.0	2025	2045
Sep 29, 2021	CNOOC	QatarEnergy	China / Qatar	0.50	15.0	2022	2037
Oct 7, 2021	Shenzhen	BP	China / US	0.04	10.0	2023	2032
Oct 11, 2021	ENN	Cheniere	China / US	0.12	13.0	2022	2035
Nov 4, 2021	Unipec	Venture Global LNG	China / US	0.46	20.0	2023	2043
Nov 4, 2021	Sinopec	Venture Global LNG	China / US	0.53	20.0	2023	2043
Nov 5, 2021	Sinochem	Cheniere	China / US	0.12	17.5	2022	2040
Nov 22, 2021	Foran	Cheniere	China / US	0.04	20.0	2023	2043
Dec 6, 2021	Guangdong Energy	QatarEnergy	China / Qatar	0.13	10.0	2024	2034
Dec 8, 2021	S&T International	QatarEnergy	China / Qatar	0.13	15.0	2022	2037
Dec 10, 2021	Suntien Green Energy	QatarEnergy	China / Qatar	0.13	15.0	2022	2037
Dec 15, 2021	SPIC Guangdong	BP	China / US	0.03	10.0	2023	2033
Dec 20, 2021	CNOOC Gas & Power	Venture Global LNG	China / US	0.26	20.0	2023	2043
Dec 29, 2021	Foran	BP	China / US	0.01	10.0	2023	2032
Jan 11, 2022	ENN	Novatek	China / Russia	0.08	11.0	2024	2035
Jan 11, 2022	Zhejiang Energy	Novatek	China / Russia	0.13	15.0	2024	2039
Feb 4, 2022	CNPC	Gazprom	China / Russia	0.98	30.0	2023	2053
Mar 24, 2022	Guangdong Energy	NextDecade	China / US	0.20	20.0	2026	2046
Mar 29, 2022	ENN	Energy Transfer	China / US	0.36	20.0	2026	2046
Apr 1, 2022	Guangzhou Gas	Mexico Pacific Ltd	China / Mexico	0.26	20.0	n.a.	n.a.
Apr 6, 2022	ENN	NextDecade	China / US	0.26	20.0	2026	2026
Apr 22, 2022	Kogas	BP	Korea / US	0.20	18.0	2025	2043
May 2, 2022	Gunvor Singapore Pte	Energy Transfer LNG	Singapore / US	0.26	20.0	2026	2046
May 3, 2022	SK Gas Trading LLC	Energy Transfer LNG	Korea / US	0.05	18.0	2026	2042
May 10, 2022	Exxon Asia Pacific	Venture Global LNG	Singapore / US	0.26	n.a.	n.a.	n.a.
May 11, 2022	Petronas LNG	Venture Global LNG	Malaysia / US	0.13	20.0	n.a.	n.a.
May 24, 2022	Hanwha Energy	TotalEnergies	Korea / France	0.08	15.0	2024	2038
May 25, 2022	POSCO International	Cheniere	Korea / US	0.05	20.0	2026	2036
June 5, 2022	China Gas Holdings	Energy Transfer	China / US	0.09	25.0	2026	2051
Jul 5, 2022	China Gas Holdings	NextDecade	China / US	0.13	20.0	2027	2047
Jul 20, 2022	PetroChina	Cheniere	China / US	0.24	24.0	2026	2050
Jul 26, 2022	PTT Global	Cheniere	Thailand / US	0.13	20.0	2026	2046
Jul 27, 2022	Exxon Asia Pacific	NextDecade	Singapore / US	0.13	20.0	2026	2046
Sep 2, 2022	Woodside Singapore	Commonwealth	Singapore / US	0.33	20.0	2026	2046
Nov 21, 2022	Sinopec	QatarEnergy	China / Qatar	0.53	27.0	2026	2053
Dec 26, 2022	INPEX	Venture Global LNG	Japan / US	0.13	20.0	n.a.	n.a.
Dec 27, 2022	JERA	Oman LNG	Japan / Oman	0.11	10.0	2025	2035
Jan 19, 2023	ITOCHU	NextDecade	Japan / US	0.13	15.0	n.a.	n.a.
Feb 7, 2023	Exxon Asia Pacific	Mexico Pacific Ltd	Singapore / Mexico	0.26	20.0	n.a.	n.a.
Feb 23, 2023	China Gas Holdings	Venture Global LNG	China / US	0.26	20.0	n.a.	n.a.
Mar 6, 2023	Gunvor Singapore Pte	Chesapeake Energy	Singapore / US	0.26	15.0	2027	2042
Apr 28, 2023	JERA	Venture Global LNG	Japan / US	0.13	20.0	n.a.	n.a.
May 16, 2023	KOSPO	Cheniere	Korea / US	0.05	19.0	2027	2046
Jun 1, 2023	Bangladesh Oil	QatarEnergy	Bangladesh / Qatar	0.24	15.0	2026	2031
Jun 21, 2023	Petro Bangla	Oman	Bangladesh / Oman	0.20	10.0	2026	2036
Jun 21, 2023	CNPC	QatarEnergy	China / Qatar	0.53	27.0	2027	2054
Jun 26, 2023	ENN LNG	Cheniere	Singapore / US	0.24	20.0	2026	2046
Jul 5, 2023	Zhejiang 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	Gunvor Singapore Pte	Delfin 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
Total Asian LNG Buyers New Long Term Contracts Since Jul/21				**12.15**			

Long-Term LNG Buyer Deals Since July 1, 2021							
Date	Buyer	Seller	Country	Volume	Duration	Start	End
			Buyer / Seller	(bcf/d)	Years		
Non-Asian LNG Deals							
Jul 28, 2021	PGNiG	Venture Global LNG	Poland / US	0.26	20.0	2023	2043
Nov 12, 2021	Engie	Cheniere	France / US	0.11	20.0	2021	2041
Mar 7, 2022	Shell	Venture Global LNG	US / US	0.26	20.0	2024	2044
Mar 16, 2022	NFE	Venture Global LNG	US / US	0.13	20.0	2023	2043
Mar 16, 2022	NFE	Venture Global LNG	US / US	0.13	20.0	2023	2043
May 2, 2022	Engie	NextDecade	France / US	0.23	15.0	2026	2041
May 17, 2022	PGNiG	Sempra Infrastructure	Poland / US	0.40	20.0	n.a.	n.a.
May 25, 2022	RWE Supply & Trading	Sempra Infrastructure	Germany / US	0.30	15.0	n.a.	n.a.
Jun 9, 2022	Equinor	Cheniere	Norway / US	0.23	15.0	2026	2041
Jun 21, 2022	EnBW	Venture Global LNG	Germany / US	0.20	20.0	2026	2046
Jun 22, 2022	INEOS Energy	Sempra Infrastructure	UK / US	0.21	20.0	2027	2047
Jun 22, 2022	Chevron	Venture Global LNG	US / US	0.26	20.0	n.a.	n.a.
Jun 22, 2022	Chevron	Cheniere	US / US	0.26	15.0	2027	2042
Jul 12, 2022	Shell	Mexico Pacific Ltd	US / Mexico	0.34	20.0	2026	2046
Jul 13, 2022	Vitol	Delfin Midstream	US / US	0.07	15.0	n.a.	n.a.
Aug 9, 2022	Centrica	Delfin Midstream	UK / US	0.13	15.0	2026	2041
Aug 24, 2022	Shell	Energy Transfer	US / US	0.28	20.0	2026	2046
Oct 6, 2022	EnBW	Venture Global LNG	Germany / US	0.26	20.0	2022	2042
Dec 6, 2022	ENGIE	Sempra Infrastructure	France / US	0.12	15.0	n.a.	n.a.
Dec 20, 2022	Galp	NextDecade	Portugal / US	0.13	20.0	n.a.	n.a.
Dec 20, 2022	Shell	Oman LNG	UK/Oman	0.11	10.0	2025	2035
Jan 25, 2023	PKN ORLEN	Sempra Infrastructure	EU/US	0.13	20.0	2027	2047
Jan 30, 2023	BOTAS	Oman	Turkey / Oman	0.13	10.0	2025	2035
Mar 27, 2023	Shell	Mexico Pacific Ltd	UK / Mexico	0.15	20.0	2026	2046
Apr 24, 2023	Hartree Partners LP	Delfin Midstream	US / US	0.08	20.0	n.a.	n.a.
Jun 21, 2023	Equinor	Cheniere	Norway / US	0.23	15.0	2027	2042
Jun 22, 2023	SEFE	Venture Global LNG	EU/US	0.30	20.0	2026	2046
Jul 14, 2023	ONEE (Morocco)	Shell	Africa/US	0.05	12.0	2024	2036
Jul 18, 2023	IOCL	Adnoc	India/UAE	0.16	14.0	2026	2040
Jul 28, 2023	OMV	BP	Austria/UK	0.13	10.0	2026	2036
Aug 4, 2023	ConocoPhillips	Mexico Pacific Ltd	US/Mexico	0.29	20.0	2025	2045
Aug 22, 2023	BASF	Cheniere	Germany / US	0.10	17.0	2026	2043
Aug 30, 2023	Shell	Oman LNG	US / Oman	0.11	10.0	2025	2035
Oct 11, 2023	TotalEnergies	QatarEnergy	France / Qatar	0.46	27.0	2026	2053
Oct 18, 2023	Shell	QatarEnergy	Netherlands / Qatar	0.46	27.0	2026	2053
Oct 23, 2023	ENI	QatarEnergy	Italy / Qatar	0.13	27.0	2026	2053
Oct 31, 2023	Vitol	Chesapeake Energy	Sweden / US	0.13	15.0	2028	2043
Nov 29, 2023	OMV	Cheniere	Netherlands / US	0.11	15.0	2029	2044
Dec 5, 2023	Woodside Energy	Mexico Pacific Ltd	Australia / Mexico	0.17	20.0	2024	2044
Total Non-Asian LNG Buyers New Long Term Contracts Since Jul/21				**7.73**			

Total New Long Term LNG Contracts since Jul/21	**19.88**

*Excludes Asian short term spot deals

*on Dec 20, 2021 CNOOC agreed to buy an additional 0.13 bcf/d from Venture Global for an undisclosed shorter period

Source: Bloomberg, Company Reports

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

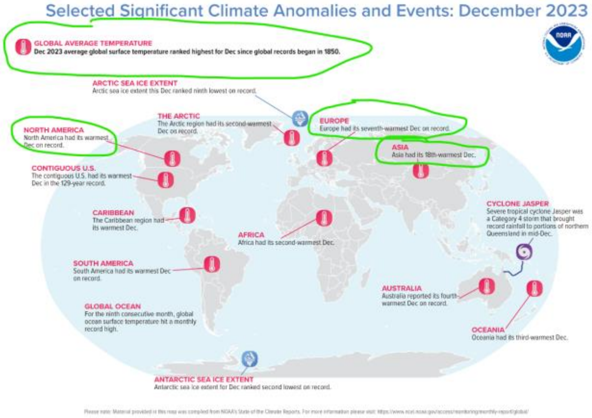
Source: SAF

Natural Gas: Dec 2023 had the hottest average global temperature on record

Hottest Dec on record globally

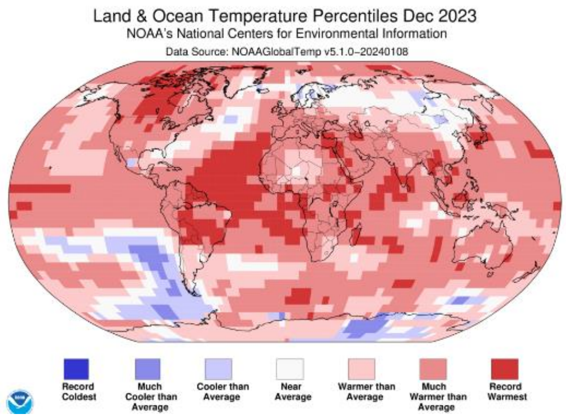
On Friday, we tweeted [LINK] "*Here's why JKM #LNG and Europe TTF #NatGas prices are basically half of a year ago. And why the risk for repeat of 2023 with soft LNG and #NatGas prices carrying thru shoulder season. Hottest average global temperature on record for BOTH Nov 2023 and Dec 2023. #OOTT.*" NOAA's December 2023 Global Climate Report [LINK] had a simple message – it was hot everywhere in December. NOAA noted "*Dec 2023 average global surface temperature ranked highest for Dec since global records began in 1850." "Europe had its seventh warmest Dec on record". "Asia had its 18th warmest Dec". "North America had its warmest Dec on record".* And for the numbers, NOAA wrote "*The Decmeber global surface temperature was 1.43°C (2.57°F) above the 20th-century average of 12.2°C (54.0°F), making it the warmest December on record. This was 0.30°C (0.54°F) above the previous record from December 2015. December 2023 marked the 48th-consecutive December and the 538th-consecutive month with temperatures at least nominally above the 20th-century average."*

Figure 17: Selected Significant Climate Anomalies and Events: Dec 2023



Source: NOAA

Figure 18: Land & Ocean Temperature Percentiles for Dec 2023



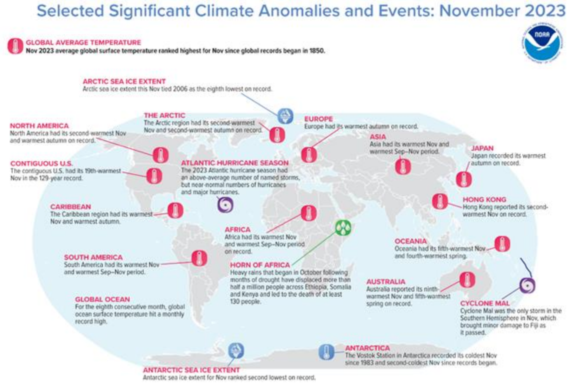
8

Source: NOAA

Nov 2023 had the hottest global average temperature on record

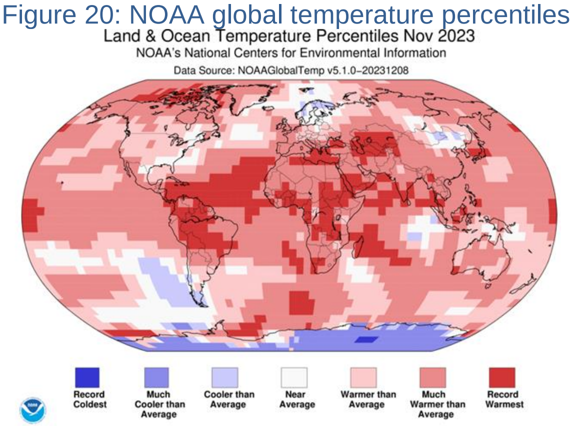
Our Friday tweet also noted Nov 2023 had the highest global average temperature on record. Here is what we wrote in our Dec 17, 2023 Energy Tidbits memo. "*On Thursday, we tweeted [LINK]: "No wonder global #LNG #NatGas prices are weak. - Global warmest Nov on record. - US 19th warmest on record - EU 15th warmest on record - Asia warmest on record. Need sustained cold temps ASAP broadly in world or risk repeat of winter 22/23 hit on 2023 prices. Thx @NOAA #OOTT". The NOAA's Global Climate Report for the month of November [LINK] showed that globally, the average surface temperature was +1.44C above the 20th century average of 12.9C, which made it the warmest November for the planet on record. This makes sense as Asia just had their warmest November on record, Europe tied it's 15th warmest on record, and as we mentioned earlier in this memo, the US saw the 19th warmest Nov in the past 129 years. Given these record temperatures, we aren't surprised to see* *the slow start to winter natural gas demand. Below are clips from the NOAA Global Climate Report, with climate anomalies and land and ocean surface temperatures during November*."

Figure 19: Major climate anomalies across world for Nov 2023



Source: NOAA

Figure 20: NOAA global temperature percentiles for Nov 2023



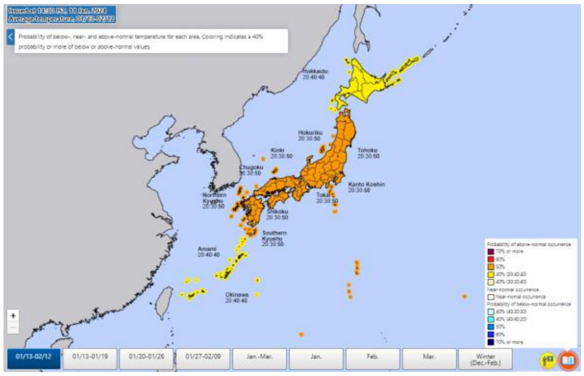
Source: NOAA

Natural Gas: Japan weather warmer than normal next 30 days ie. Jan, 1st half of Feb

Japan's 30-day temperature forecast

Japan is the #2 LNG importer just behind China. It's now Jan and JKM LNG markets are no longer really worried about a risk to winter LNG prices and, with the forecast for warmer than normal Jan, it is setting up a repeat of winter 2022/23 where the warm winter led to JKM LNG prices being held back for months. This is when JKM LNG prices should be high and not showing JKM LNG futures around $11.50 for Feb and then $11.35 in March. Every Thursday, the Japan Meteorological Agency updates its 30-day outlook [LINK]. The January 4 update calls for much than normal temperatures for the rest of January and into the first half of February. The JMA forecast is for Jan 13 – Feb 12, With these next two weeks in particular being extremely warmer than normal in the southern prefectures. The latter two weeks overall is a bit more mild but still warm. Below is the JMA's 30-day temperature probability forecast for Jan 13 – Feb 12.

Figure 21: JMA Jan 13-Feb 12 Temperature Probability Forecast



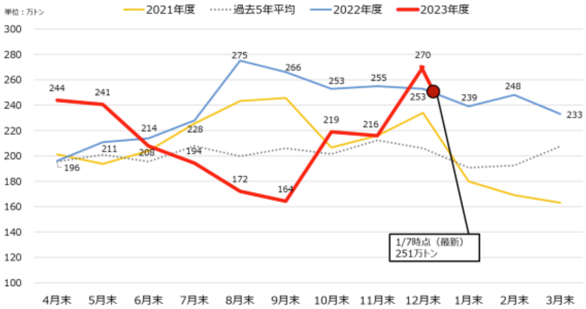
Source: Japan Meteorological Agency

Natural Gas: Japan LNG stocks down WoW, up YoY, and above 5-yr average

Japan LNG stocks down -7.0% WoW

After a solid month of LNG stock build, this week there was a big draw in LNG storage for Japan. Stocks are now essentially in-line with 2022 levels and above the 5-year average. On Wednesdays, Japan's METI releases its weekly LNG stocks data [LINK]. LNG stocks on Jan 7 were 120.6 bcf, down -7.0% WoW from Dec 31 of 129.7 bcf, up +5.0% YoY from 114.8 bcf a year earlier, and well above the 5-year average for the end of January of 91.7 bcf. METI did not comment on the WoW increase. Below is the Japanese LNG stocks graph from the METI weekly report.

Figure 22: Japan LNG Stocks



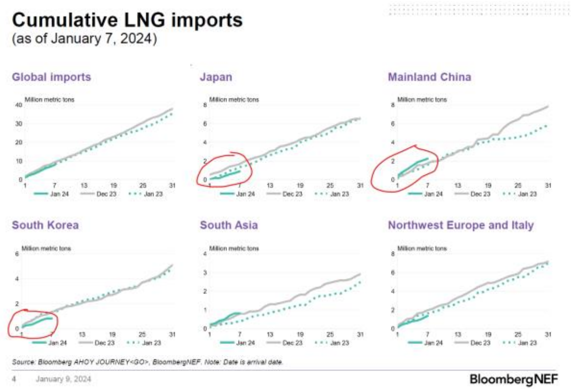
Source: METI

Natural Gas: Japan, Korea warm Dec has more than offset any colder China weather

Japan and Korea warm vs China cold

On Tuesday, BloombergNEF posted its LNG Trade Weekly, which was titled "*Mainland China's Imports at Record High*". There was some colder weather in late Dec in China. But, apart from that colder weather, it has been warm in other key LNG import countries – Japan and Korea, and that more than offset the cold weather in China. On Tuesday, we tweeted [LINK] "*It's Jan 9 & markets pricing in no real risk on winter Asian LNG ie. JKM Feb futures ~$11.50. @BloombergNEF record high China #LNG imports in Jan 1-7 after "major cold snap in Dec, but the 0.6 mmt WoW increase was not enough to offset Korea & Japan's decline" #OOTT #NatGas."* BloombergNEF wrote "*LNG imports: Global weekly liquefied natural gas imports totaled 7.8 million metric tons across January 1-7, about 2% less than a week earlier. The drop was mainly due to volumes into North Asia falling 0.7 million tons. South Korea's imports plummeted by almost 1 million tons, retreating from its all-time high. Deliveries into Japan decreased almost 0.3 million tons, continuing the previous week's fall. Mainland China absorbed record-high volumes after a major cold snap in December, but the 0.6-million-ton week-on-week increase was not enough to offset South Korea and Japan's decline."*.

Figure 23: Cumulative LNG imports



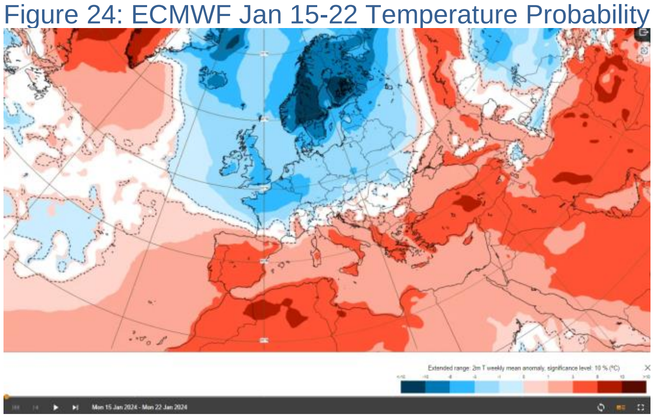
Source: BloombergNEF

Natural Gas: Europe forecast to turn warmer to end Jan

Europe temperature forecast

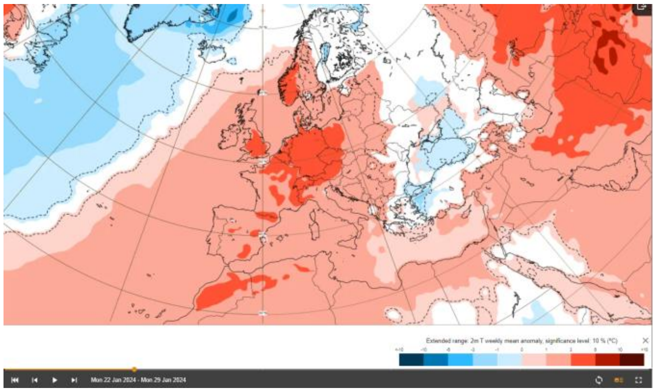
The short-term weather forecasts for Europe have been pretty accurate so far this winter. The ECMWF (European Centre for Medium-Range Weather Forecasts) temperature probability forecasts from yesterday forecasts a change for the current colder weather to warmer than normal temperatures over the next two weeks. Our view remains for Europe gas prices is that it's been too warm this winter which meant markets haven't been worried about a natural gas/LNG issues this winter. Now it's mid Jan and if the forecasts hold true, we suspect it will be the set up for Europe natural gas and LNG prices to be stay soft and for this soft price trend to continue thru shoulder season ie. a warmer than normal winter can be a hold back on natural gas/LNG prices for several months. Last winter 2022/23 was a hot winter in Europe, Asia and the US, and it held back prices for most of 2023.

Figure 24: ECMWF Jan 15-22 Temperature Probability Forecast



Source: ECMWF

Figure 25: ECMWF Jan 22-29 Temperature Probability Forecast



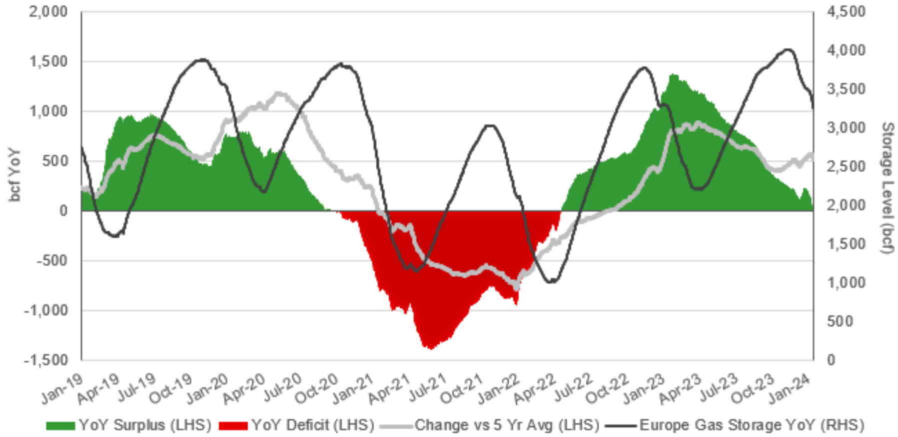
Source: ECMWF

Natural Gas: Europe storage drops big WoW to 80.92%

Europe gas storage

The cold temperatures more typical of winter in Europe over the past couple weeks has finally led to draws in EU gas storage. We checked Bloomberg, and it looks like there were many of delayed LNG shipments to northwest Europe this week, some of which may have been impacted by the Houthi attacks in the Red Sea, so that would interrupt regular LNG deliveries for storage refill. Please note that Europe generally refers to the start of winter natural gas withdraw season as starting Oct 1, whereas North America refers to the start of winter natural gas season as starting Nov 1. After entering winter essentially full at over 99%, Europe is now drawing on its gas storage. This week, Europe storage decreased by -4.55% WoW to 80.92% on Jan 11 vs 85.47% on Jan 4. Storage is now -1.40% greater than last year's levels of 82.32% on Jan 11, 2022. But remember the panic of late 2021 on natural gas, it was because Europe gas storage was only 67.21% full on Dec 1, 2021. Below is our graph of Europe Gas Storage Level.

Figure 26: European Gas Storage Level



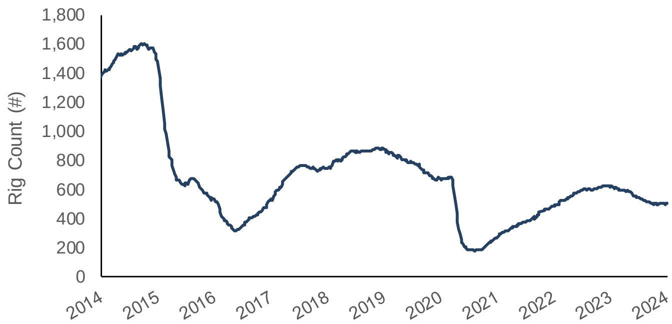
Source: Bloomberg, SAF

Oil: US oil rigs -2 WoW to 499 rigs, US gas rigs -1 WoW to 117 rigs

US oil rigs -2 WoW

On Friday, Baker Hughes released its weekly North American drilling rig data. (i) Total US oil rigs were -2 rigs WoW to 499 oil rigs as of Jan 12. US oil rigs went below 520 rigs on Aug 25 and stayed there for 4 weeks and for the last 14 weeks have been between 494 and 507 oil rigs. (ii) The major basin changes for oil rigs were Permian -4 rigs WoW to 304 oil rigs, Eagle Ford +3 rigs WoW to 51 oil rigs, DJ Niobara -2 rigs WoW to 12 rigs, Williston up +2 rigs WoW to 34 rigs, and Cana Woodford down -1 rig WoW to 21 rigs. (iii) US gas rigs were down – 1 rig WoW to 117 gas rigs.

Figure 27: Baker Hughes Total US Oil Rigs



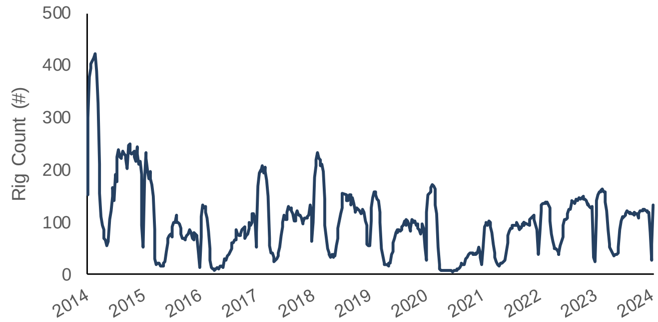
Source: Baker Hughes, SAF

Oil: Total Cdn rigs up +88 rigs to 213 total rigs

Cdn total rigs up WoW

As expected, the big bounce back from the usual Christmas drop-off in Canadian rigs continued this week. For the week of Jan 12, total Cdn rigs were up +88 WoW to 213 total rigs. On a per province basis, Alberta was up +56 rigs WoW to 147 rigs, BC was up+3 rigs WoW to 23 rigs, Saskatchewan was up +26 rigs WoW to 38 rigs and Manitoba was up +3 rigs WoW to 4 rigs. Cdn oil rigs were up +75 rigs WoW to 133 oil rigs and are down -8 oil rigs YoY. Cdn gas rigs were up +13 rigs WoW to 80 gas rigs, which is down -6 rigs YoY.

Figure 28: Baker Hughes Total Cdn Oil Rigs



Source: Baker Hughes, SAF

Oil: US weekly oil production estimates flat WoW at 13.200 mmb/d

US oil production flat WoW

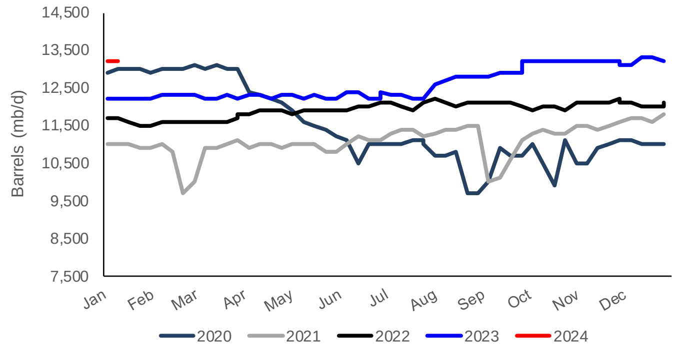
Last month, there was a third upward adjustment (this time a +0.200 mmb/d adjustment) to the EIA weekly estimates in H2/23. The first was in August, when our Aug 13, 2023 Energy Tidbits memo highlighted the EIA increased their weekly US oil production estimates by +0.4 mmb/d. Then, our Oct 15th Energy Tidbits memo highlighted the EIA's second big, another +0.4 mmb/d, adjustment to the weekly production estimates. On Wednesday, Dec 20th, the EIA wrote "*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 increased estimated volumes by 189,000 barrels per day, which is about 1.4% of this week's estimated production total*". This 3rd EIA adjustment was needed to bring the weekly production estimates in line with the EIA's actuals. The latest Form 914 (with October actuals) was +0.048 mmb/d higher than the weekly estimates of 13.200 mmb/d. This week, the EIA's production estimates were flat WoW at 13.200 mmb/d for the week ended January 5. Alaska was down -0.042 mmb/d WoW to 0.393 mmb/d. Below is a table of the EIA's weekly oil production estimates.

Figure 29: EIA's Estimated Weekly US Field Oil Production

	Week 1		Week 2		Week 3		Week 4		Week 5	
Year-Month	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
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								

Source: EIA

Figure 30: EIA's Estimated Weekly US Oil Production



Source: EIA, SAF

EIA STEO US oil production

Oil: EIA Jan STEO keeps 2023 basically flat, increases 2024 US oil production forecast

On Tuesday, the EIA released its Short-Term Energy Outlook for January 2023 [LINK] and increased its oil production forecasts for 2023 but decreased its 2024 forecast. (i) The Jan STEO forecasts for 2023 US oil production estimates was essentially kept flat vs the last STEO in December. The January STEO forecast for 2023 is down -10,000 b/d to 12.92 mmb/d from the December STEO of 12.93 mmb/d. Recall the big +140,000 b/d revision in October's STEO from the September STEO's forecast of 12.78 mmb/d, as the EIA had to play catch-up with higher oil production actuals being reported over weekly estimates. The revisions by quarter were Q3/23 +0.01 mmb/d to 13.07 mmb/d and Q4/23 exit -0.04 mmb/d to 13.22 mmb/d. (ii) The EIA increased its 2024 oil production forecast by +100,000 b/d to 13.21 mmb/d compared to 13.11 mmb/d in the December STEO, which would be a YoY increase of +0.29 mmb/d. The revisions by quarter were Q1/24 +0.18 mmb/d, Q2/24 +0.15 mmb/d, Q3/24 +0.08 mmb/d and Q4/24 exit at -0.02 mmb/d from the December forecast to 13.21 mmb/d (was 13.23 mmb/d). (iii) The EIA also released their 2025 forecast. The EIA expects oil production to ramp up to 13.44 mmb/d over 2025, with Q1/25 at 13.36 mmb/d, Q2/25 13.44 mmb/d, Q3/25 13.42 mmb/d, and Q4/25 at 13.53 mmb/d. If true, these would be record quarters for US oil production. Below is our EIA STEO forecast comparison by month.

Figure 31: EIA STEO Oil Production Forecasts by Month

(million b/d)	2022	Q1/23	Q2/23	Q3/23	Q4/23	2023	Q1/24	Q2/24	Q3/24	Q4/24	2024	Q1/25	Q2/25	Q3/25	Q4/25	2025
Jan-24	11.91	12.63	12.75	13.07	13.22	12.92	13.27	13.22	13.15	13.21	13.21	13.36	13.44	13.43	13.53	13.44
Dec-23	11.91	12.63	12.75	13.06	13.26	12.93	13.09	13.07	13.07	13.23	13.11					
Nov-23	11.91	12.63	12.75	13.07	13.17	12.90	13.06	13.08	13.11	13.35	13.15					
Oct-23	11.91	12.63	12.75	13.13	13.16	12.92	13.07	13.02	13.07	13.31	13.12					
Sep-23	11.91	12.63	12.71	12.86	12.94	12.78	13.03	13.09	13.15	13.36	13.16					
Aug-23	11.91	12.63	12.67	12.81	12.93	12.76	12.98	13.01	13.08	13.27	13.09					
Jul-23	11.89	12.61	12.55	12.48	12.63	12.56	12.67	12.71	12.88	13.13	12.85					
Jun-23	11.89	12.60	12.56	12.57	12.70	12.61	12.69	12.63	12.76	13.00	12.77					
May-23	11.89	12.54	12.51	12.46	12.61	12.53	12.63	12.58	12.68	12.85	12.69					
Apr-2023	11.88	12.54	12.50	12.50	12.61	12.54	12.69	12.71	12.77	12.83	12.75					
Mar-2023	11.88	12.31	12.43	12.48	12.54	12.44	12.58	12.58	12.64	12.71	12.63					
Feb-2023	11.90	12.44	12.46	12.49	12.56	12.49	12.63	12.62	12.65	12.70	12.65					
Jan-2023	11.86	12.37	12.34	12.40	12.51	12.41	12.63	12.72	12.86	13.03	12.81					

Source: EIA STEO

Figure 32: Estimated US Crude Oil Productions by Forecast Month

Source: EIA, STEO

EOG sees lesser US oil growth

Oil: EOG sees US oil growth exit 2024 up ~400,000 b/d YoY vs exit 2023

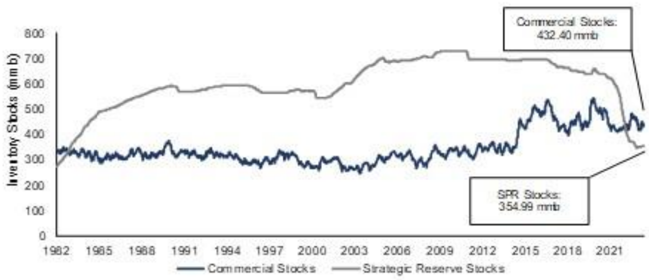
It seems that many didn't see the EOG President comments on US oil production growth from last week. Here is what we wrote in last week's (Jan 7, 2024) Energy Tidbits memo. "*Earlier this morning, we tweeted [LINK] ""But I think it's going to be considerably less, less than half of that number" EOG President Helms when asked what he sees US oil production growth exit 2024 vs exit 2023 compared to exit 2023 that was +900,000 b/d YoY. It's Math: Rigs down, frac crews down, DUCs down! #OOTT." EOG President Billy Helms outlined EOG's constructive view for oil prices in 2024 and a key part being US oil growth will be less in 2024 than in 2023. For EOG the lower growth rate is really about math as rigs are down, frack crews are down, DUCs are down and the US is facing a steeper oil decline given all the new oil that was brought on in 2024. Our tweet included the below transcript we made of the Helms comments. SAF Group created transcript of comments by EOG President Billy Helms at the Goldman Sachs Energy, Clean Tech & Utilities Conference on Jan 4, 2023 [LINK] Items in "italics" are SAF Group created transcript. At 2:10 min mark, Helms "to paint that story, we're looking at pretty constructive [oil] price levels going forward. Now I guess the wildcard last year was the US supply. US supply certainly grew quite a bit last year, I think more than most everybody would have forecasted, certainly outpaced our growth forecast. So is the US going to be able to continue to maintain those levels of growth? We're not seeing that being the possibility. I think. last year, the rig counts were up at the start of last year, they are basically down 20% year over year. Frack crews count are down about the same amount. And so you had a lot of the privates step it up last year and increasing a lot of activity and brought a lot of supply on. Since then, rig count is down, frack fleets count is down, DUC counts down and, on top of that, bringing on a lot of production last year, you've got a steeper decline to offset this next year. So that tells you US production is not going to be able to continue to grow at the pace that it did last year. So all that being aside, it says the market is going to look more constructive as you go through the year. So for us, that's kind of what we take into account when we put together our macro picture." Goldman "When you translate that into oil exit to exit. This year, it looks like we're up 900,000 barrels a day, what does that look for you in 24?" Helms "It will be measurably less. Probably, it's hard to throw a number out there, I 'm not very good at forecasting oil prices or demand. But I think it's going to be considerably less, less than half of that number*."

US SPR reserves

Oil: US SPR reserves now -77.409 mmb lower than commercial crude oil reserves

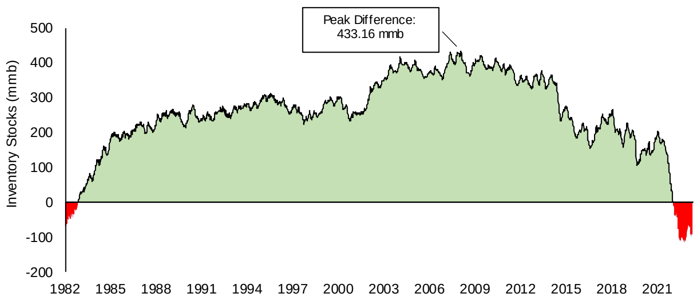
Oil in the US Strategic Petroleum Reserves (SPR) continues to be much lower than total US commercial crude oil reserves. The SPR went back below commercial for the first time since 1983 in the Sept 16, 2022 week. The deficit narrowed this week after a draw in commercial oil stocks of -5.503 mmb. The EIA's weekly oil data for January 5 [LINK] saw the SPR reserves increase +0.606 mmb WoW to 354.994 mmb, while commercial crude oil reserves increased +1.338 mmb to 432.403 mmb. There is now a -77.409 mmb difference between SPR reserves and commercial crude oil reserves. The below graphs highlight the difference between commercial and SPR stockpiles.

Figure 33: US Oil Inventories: Commercial & SPR



Source: EIA, SAF

Figure 34: US Oil Inventories: SPR Less Commercial



Source: EIA, SAF

US gasoline prices

Oil: US gasoline prices -0.01 this week to $3.07

It seems like US gasoline prices, at least for now, seem to be holding around $3.10 for the past few weeks on a national average. Yesterday, AAA reported that US national average prices were $3.07, which is down $0.01 WoW and down $0.05 MoM and $0.22 YoY. Remember the big gasoline crisis in summer 2022 started to see US gasoline prices ease below $4 in August 2022 and were helped in Q4/22 by the SPR releases.

Crack spreads basically flat this week

Oil: Crack spreads widened $2.39 WoW to $24.10

We remind that oil demand is driven by refiners and their ability to make money by processing oil and selling petroleum products. So crack spreads are a good indicator if refiners will be looking to buy more or less oil. Crack spreads have been bouncing around +/-

$2 for the last two months. This week, crack spreads were +$2.39 WoW to $24.10 on Jan 12, which followed $21.71 on Jan 5, $23.57 on Dec 29, $22.87 as of Dec 22, $24.79 on Dec 15, $22.56 on Dec 8, $22.50 on Dec 1, $23.36 on Nov 24, $23.95 on Nov 17, and $22.39 on Nov 10. Crack spreads at $24.10 are a little above the high end of the more normal pre-Covid that was more like $15-$20, which should support the continued normal seasonal ram up in refinery runs.

Explaining 321 crack spread

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, which was $24.10 as of the Friday Jan 12, 2024 close.

Figure 35: Cushing Crude Oil 321 Crack Spread Jan 12, 2014 to Jan 12, 2024

Source: Bloomberg

Oil: CER approves variance for Trans Mountain's 590,000 b/d TMX expansion

CER approves Trans Mountain TMX variance

Yesterday, we tweeted [LINK] "*Good news for Cdn #Oil. 👇CER "the commission has decided to approve the Variance ....." This lets Trans Mountain complete 590,000 b/d TMX expansion. Hopefully in the next few months assuming no construction issues. Thx @RodNickel_Rtrs @nia_eleri for flagging. #OOTT.*" Our tweet included the CER Friday release approving Trans Mountain request for a variance. This means that Trans Mountain can move ahead to finish completion of the 590,000 b/d TMX expansion, which Trans Mountain previously noted could see completion in March and line fill beginning in March. CER concluded "*Having thoroughly and carefully considered all written and oral submissions received, the Commission has decided to approve the Variance, subject to the conditions imposed relating to materials and in-line inspections. Amending Order AO-012-OC-065 is attached, reflecting the Commission's approval and the conditions imposed. The Commission further grants Trans Mountain's request for relief from the requirement to adhere to the QMP filed under Condition 9 of the Certificate, as it applies to the Mountain 3 HDD. Trans*

Mountain may begin constructing the Variance, subject to any other necessary regulatory requirements being met. The Commission will issue its reasons for this decision in due course." Our Supplemental Documents package includes the CER approval letter.

01/03/24: Trans Mountain plans line fill for March with CER approval
Here is what we wrote in last week's (Jan 7, 2024) Energy Tidbits memo on the expected timing for line fill depending on the CER's decision. *"It looks like good news for the Cdn oil patch assuming Trans Moujntain doesn't face any drilling challenges for their pipeline. We have been waiting to see what Trans Mountain would be saying about the startup for their TMX expansion. And Trans Mountain looks to be planning for line fill for the pipeline in either March or May. That's near term. And it seems to take the risk/threat of a 2-yr delay off the table. On Wednesday, we tweeted [LINK] "Whether March or May, it means line fill is about to happen & not the risk of a 2-yr delay (see 👇12/14). Trans Mountain latest TMX filing plans line fill for Mar or May pending regulatory decision on pipe diameter size assuming it faces no delays on drilling challenges. Thx @RodNickel_Rtrs! #OOTT." On Wednesday, Reuters reported [LINK] "Trans Mountain Corp TMC.UL plans to begin line fill in March or May, depending on the diameter of pipe the Canadian oil pipeline uses, it said in a filing on Wednesday, as it awaits a regulatory decision on its request for a construction change. Line fill is a final step before the expanded Alberta to British Columbia pipeline begins service, providing crucial additional access for Canadian oil to the U.S. West Coast and Asia. Trans Mountain, a Canadian-government corporation, said the schedules assume that it faces no delays caused by challenges drilling into hard rock, such as tool damage." We did not review the CER filing.*"

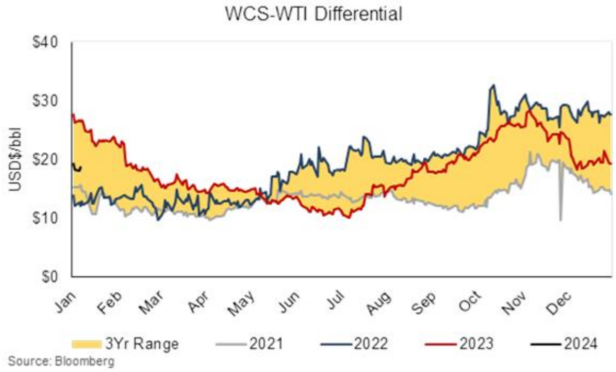
12/14/23: Trans Mountain warns TMX expansion delay could be 2 years
The reporting on the CER's Friday decision included the comment that it averted a potential 2-year delay. Here is what we wrote in our Dec 17, 2023 Energy Tidbits memo on the potential 2-yr dlay. "*There was a big shock from Trans Mountain on Thursday. We tweeted [LINK] "WOW! #TransMountain warns #TMX could be delayed by ~2 yrs & suffer $billions in losses unless get relief. See 👇CER filing. Thx @RodNickel_Rtrs for flagging. [LINK] #OOTT." Our tweet included the excerpt from Trans Mountain's Thursday filing with the Canada Energy Regulator wherein they warned that, unless it can move on the rejected move for a pipeline variance, "If Trans Mountain proceeds with the current plan to install NPS 36 pipe, there is a significant risk that the borehole will become compromised, or the HDD will fail altogether. If the HDD fails and Trans Mountain is required to implement an alternative installation plan, the TMEP schedule will likely be delayed by approximately two years, and Trans Mountain will suffer billions of dollars in losses. These outcomes would not be in the public interest." The potential 2-year delay was a surprise to everyone who would have assuming a potential delay of a few months, perhaps six months."*

Oil – Moving into period when Cdn heavy oil differentials normally seasonally narrow
Every year we will include this reminder that we are moving into the period of normal seasonal narrowing of Cdn heavy oil differentials. There is no hard and fast rule because

WCS differentials normally narrow in spring

there are always unplanned events. But there are also global items that impact Cdn heavy oil differentials. However, int eh next couple months, we will be moving into the time of the year that normally sees Cdn heavy oil differentials narrow. This is the time of year, when refineries tend to maximize production of asphalt ahead of the annual summer 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. We have seen Cdn heavy oil differentials narrowing already and a key factor for that is the OPEC+ cuts, which tend to first be on heavy/medium sour barrels that would tend to compete with Cdn heavy/medium barrels. WCS less WTI differential closed on Jan 12 at $18.80, which was down WoW from $9.25 on Jan 5, 2024. Jan 12, 2024 at $18.80 compares to $24.70 on Jan 12, 2023, $13.05 on Jan 12, 2022 and $12.50 on Jan 12, 2021.

Figure 36: WCS less WTI oil differentials



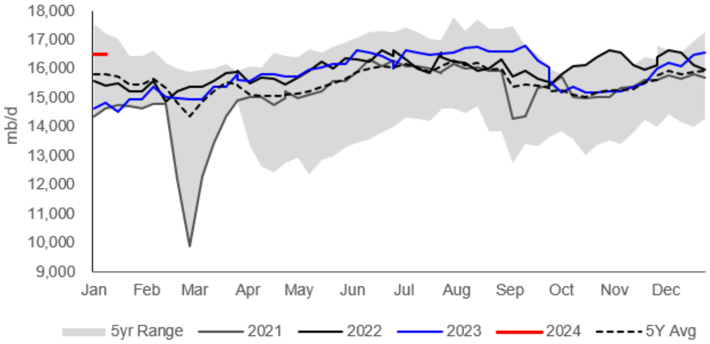
Source: Bloomberg

Oil: Refinery inputs down -0.161 mmb/d WoW to 16.518 mmb/d

Refinery inputs -0.161 mmb/d WoW

There are always unplanned issues that impact crude oil inputs into refineries, but refineries around the world follow seasonal patterns for their maintenance. There was the normal summer ramp up that lasted a little longer than normal given the big crack spreads. We saw the decline in crude oil inputs for the fall turnarounds and US refineries have been in their normal seasonal winter ramp up so we have been seeing a steady increase in crude inputs. But this week, there were reports of some refineries into maintenance which was the reason for the WoW reduction in crude inputs. On Wednesday, the EIA released its estimated crude oil input to refinery data for the week ended January 5 [LINK]. The EIA reported crude inputs to refineries were down -0.161 mmb/d this week to 16.679 mmb/d and are up +2.859 mmb/d YoY. Refinery utilization was down -60 bps WoW to 92.9%, which is +880 bps YoY.

Figure 37: US Refinery Crude Oil Inputs



Source: EIA, SAF

Oil: US net oil imports +1.316 mmb/d WoW as oil exports down -1.970 mmb/d WoW

US net oil imports

The EIA reported US "NET" imports were up +1.316 mmb/d to 2.919 mmb/d for the January 5 week. US imports were down -0.654 mmb/d to 6.241 mmb/d against exports which were -1.970 mmb/d WoW to 3.322 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 that Chevron continues to import >100,000 b/d from Venezuela into the Gulf Coast. 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) The WoW increase in US imports was driven mostly by "Top 10". The Top 10 was down -0.500 mmb/d. Some items to note on the country data: (i) Canada was down -0.239 mmb/d to 3.557 mmb/d. (ii) Saudi Arabia was up +0.335 mmb/d to 0.474 mmb/d. (iii) Mexico was down -0.430 mmb/d to 0.522 mmb/d. (iv) Colombia was up +0.091 mmb/d to 0.220 mmb/d. (v) Iraq was down -0.047 mmb/d to 0.192 mmb/d. (vi) Ecuador was down -0.053 mmb/d to 0.030 mmb/d. (vii) Nigeria was up +0.070 mmb/d to 0.165 mmb/d.

Figure 38: US Weekly Preliminary Imports by Major Country

(thousand b/d)	Oct 6/23	Oct 13/23	Oct 20/23	Oct 27/23	Nov 3/23	Nov 10/23	Nov 17/23	Nov 24/23	Dec 1/23	Dec 8/23	Dec 15/23	Dec 22/23	Dec 29/23	Jan 5/24	WoW
Canada	3,544	3,723	3,387	3,485	3,873	3,835	3,846	3,243	3,972	3,572	3,686	3,428	3,796	3,557	-239
Saudi Arabia	67	208	436	294	192	242	224	141	400	316	406	75	139	474	335
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	656	609	614	1,004	465	366	971	571	876	633	851	380	952	522	-430
Colombia	289	150	146	74	364	316	217	143	289	214	215	157	129	220	91
Iraq	247	127	182	351	187	283	36	178	166	85	22	380	239	192	-47
Ecuador	0	0	92	133	61	36	126	112	252	233	49	142	83	30	-53
Nigeria	46	48	89	30	39	70	79	174	226	111	162	80	95	165	70
Brazil	362	63	221	168	234	135	257	148	274	255	197	238	305	249	-56
Libya	88	47	86	106	0	86	86	0	87	87	86	0	171	0	-171
Top 10	5,299	4,975	5,253	5,645	5,415	5,369	5,842	4,710	6,542	5,506	5,674	4,880	5,909	5,409	-500
Others	1,030	967	760	780	979	1,004	687	1,123	966	1,011	1,076	1,396	986	1,486	6,741
Total US	6,329	5,942	6,013	6,425	6,394	6,373	6,529	5,833	7,508	6,517	6,750	6,276	6,895	6,895	6,241

Source: EIA, SAF

Oil: Colombia oil production still below pre-Covid, October was 0.778 mmb/d

Colombia oil production up in October

It's hard to see how Colombia oil production ever sustainably rallies anywhere back to 1 mmb/d or even 900,000 b/d given Colombia's goal to reduce oil and natural gas. Despite stronger oil prices post Covid, Colombia oil production has been stuck below 800,000 b/d. The National Hydrocarbons Agency (ANH) reported [LINK] October's oil production was up +0.8% MoM to 0.778 mmb/d. This puts October's production up +2.8% YoY to 0.778 mmb/d vs 0.757 mmb/d in October 2022. October's data brings the average YTD production to 0.775 mmb/d, up +2.85% YoY from 2022's 0.754 mmb/d but production remains -12.2% below pre-Covid levels of 0.886 mmb/d in 2019.

Figure 39: Colombia Oil Production

mmb/d	2016	2017	2018	2019	2020	2021	21/20	2022	22/21	2023	23/22
Jan	0.986	0.860	0.860	0.899	0.884	0.745	-15.7%	0.740	-0.7%	0.774	4.6%
Feb	0.955	0.864	0.823	0.893	0.878	0.746	-15.1%	0.740	-0.8%	0.759	2.6%
Mar	0.917	0.804	0.856	0.885	0.857	0.745	-13.0%	0.751	0.8%	0.771	2.6%
Apr	0.915	0.857	0.865	0.891	0.796	0.745	-6.4%	0.751	0.8%	0.782	4.1%
May	0.904	0.851	0.866	0.895	0.732	0.703	-3.9%	0.746	6.1%	0.774	3.8%
June	0.888	0.857	0.864	0.892	0.730	0.694	-4.9%	0.752	8.4%	0.778	3.4%
July	0.843	0.856	0.860	0.869	0.735	0.731	-0.5%	0.748	2.3%	0.782	4.5%
Aug	0.827	0.858	0.866	0.883	0.742	0.748	0.8%	0.749	0.1%	0.782	4.4%
Sept	0.859	0.851	0.869	0.879	0.749	0.744	-0.7%	0.754	1.3%	0.771	2.3%
Oct	0.846	0.864	0.879	0.883	0.751	0.740	-1.5%	0.757	2.3%	0.778	2.8%
Nov	0.855	0.851	0.883	0.880	0.761	0.747	-1.9%	0.771	3.2%		
Dec	0.837	0.870	0.889	0.882	0.759	0.745	-1.8%	0.784	5.2%		

Source: ANH, SAF, Bloomberg

Oil: Nigeria oil exports to be down in 2024 with start of 650,000 b/d Dangote refinery

Nigeria 650,000 b/d Dangote refinery

We are a little surprised that an overlooked change in OPEC oil exports in 2024 is the start up of Nigeria's 650,000 b/d Dangote refinery. On Monday, we tweeted [LINK] "*ICYMI. Nigeria expected to cut #Oil exports by 350,000 b/d in early 2024, then ultimately up to 650,000 b/d in later 2024 with the just starting up 650,000 b/d Dangote refinery. Thx @MDzirutwe. #OOTT.*" Nigeria refined almost zero barrels of its production in 2022 and therefore imports essentially all of its petroleum products. So the startup of the new Dangote refinery will refine Nigerian crude oil, which means less for exports. Reuters reported [LINK] "*Nigeria's Dangote oil refinery could begin test runs as early as this week after receiving a sixth crude cargo on Monday, company officials said, finally bringing the 650,000 barrels per day (bpd) plant to life after years of construction delays*." "*The plant received 1 million barrels of oil from the Agbami field in the Niger Delta, bringing to 6 million barrels the amount of crude that has been delivered since the first cargo arrived in December, Dangote's spokesperson said in a statement. The next step is to start up the crude distillation unit, which is a major component of the refinery, a senior company executive, who spoke on condition of anonymity, said. That process would "most probably" begin this week, the executive added. "Subsequently, we will be continuously buying crude and start commissioning the other departments," said the executive*." And "*Dangote has said it will start by refining 350,000 bpd and hopes to ramp up to full production later this year*." Note in the Dangote LinkedIn post below, they note they have started production of diesel and aviation fuel. Our Supplemental Documents package includes the Reuters report and the Energy Institute table of global refining volumes in 2022 by country.

Dangote is a 650,000 b/d refinery in Nigeria
Our tweet included the brief description of the 650,000 b/d Dangote refinery as per the company website.[LINK] "*The Dangote Petroleum Refinery. Dangote Oil Refinery is a 650,000 barrels per day (BPD) integrated refinery project under construction in the Lekki Free Zone near Lagos, Nigeria. It is expected to be Africa's biggest oil refinery and the world's biggest single-train facility. The Pipeline Infrastructure at the Dangote Petroleum Refinery is the largest anywhere in the world, with 1,100 kilometers to handle 3 Billion Standard Cubic Foot of gas per day. The Refinery alone has a 435MW Power Plant that is able to meet the total power requirement of Ibadan DisCo. The Refinery will meet 100% of the Nigerian requirement of all refined products and also have a surplus of each of these products for export. Dangote Petroleum Refinery is a multi-billion dollar project that will create a market for $21 Billion per annum of Nigerian Crude. It is designed to process Nigerian crude with the ability to also process other crudes."* Yesterday, Dangote Industry Limited had a LinkedIn post [LINK] "*Dangote Petroleum Refinery has commenced production of diesel and aviation fuel. President of Dangote Group, Alhaji Aliko Dangote, elatedly thanked President Bola Ahmed Tinubu for his support, encouragement, and thoughtful advice towards the actualisation of this project."* The post also included a 1 min video showing the refinery, but it was all a nighttime shot.

Figure 40: Dangote 650,000 b/d refinery in Nigeria

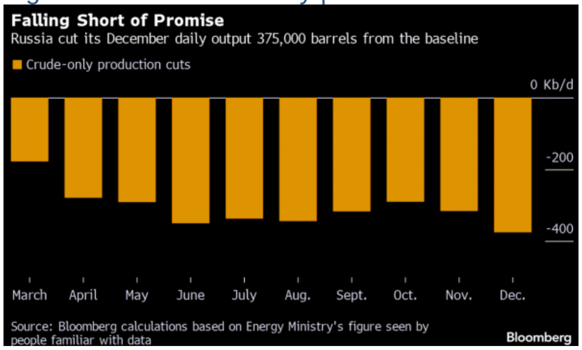
Source: Dangote Industries Limited

Oil: Russia oil production -60,000 b/d MoM to 9.57 mmb/d in Dec

Russia produced 9.57 mmb/d in Dec

On Tuesday, we tweeted [LINK] "*Saudi will also like this. Russia crude #Oil production in Dec was -60,000 b/d MoM to 9.57 mmbd in Dec, which was down 375,000 b/d vs Feb 2023 baseline reports @ja_herron. #OOTT."* Looks like, at least for Dec, Russia is working to fulfill its commitments to OPEC+. Bloomberg had reported "*Russia curbed its crude oil output in December by the most since starting its cuts in early 2023, yet the nation still pumped more than its target, according to Bloomberg calculations based on official data. Daily crude production averaged 1.306 million tons last month, said people familiar with data from the Energy Ministry, who spoke on condition of anonymity because the figures aren't public. That equates to 9.57 million barrels a day, based on the typical 7.33-barrels-per-ton conversion ratio for the nation's oil. That means Russia's crude output in December was almost 60,000 barrels a day lower than the prior month and some 375,000 barrels a day below the February* *baseline for its production curbs, Bloomberg calculations show. Russia has pledged to reduce its crude output by 500,000 barrels a day until the end of this year."* Our Supplemental Documents package includes the Bloomberg report.

Figure 41: Russia monthly production vs Feb 2023 baseline



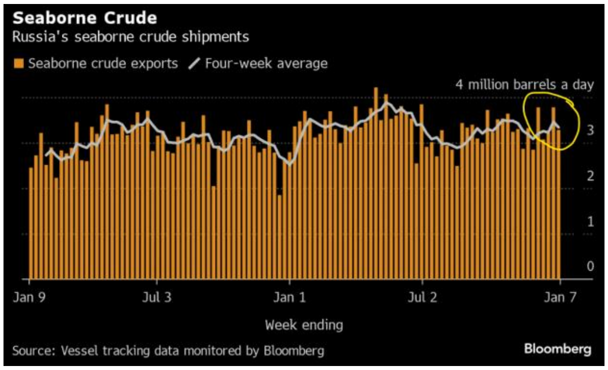
Source: Bloomberg

Oil: Russia crude oil shipments for Jan 7 week are in line with its commitment for 2024

Russia oil shipments in line with commitment

It also looks like Russia, at least for the latest week, is fulfilling its OPEC+ commitment on oil exports. On Tuesday, we tweeted [LINK] "*Russia's Crude Exports Start 2024 in Line With Pledged OPEC+ Cut" reports @JLeeEnergy. Down 0.5 mmbd WoW to 3.28 mmbd for Jan 7 week, 4-wk ave down 0.12 mmbd to ~3.34 mmb/d. #OOTT."* Bloomberg had reported "*Russia's seaborne crude shipments began 2024 exactly in line with Moscow's pledge to cut the country's exports as part of the wider OPEC+ effort to stabilize global oil markets. About 3.34 million barrels a day of crude were shipped from Russian ports in the four weeks to Jan. 7, tanker-tracking data monitored by Bloomberg show. That was down by 120,000 barrels a day from the period to Dec. 31. The more volatile weekly average fell by 500,000 barrels a day to 3.28 million. That was 300,000 barrels below the average export level seen by Bloomberg during May and June, which is the baseline period used by Moscow for the reduction in crudeexports that it has pledged to its OPEC+ partners in the first quarter of 2024. Russia has said it will deepen its oil export cuts to 500,000 barrels a day below the May-June average during the first quarter, after Saudi Arabia said it would prolong its unilateral one-million-barrel-a-day supply reduction and several other members of the OPEC+ group agreed to make further output curbs. The Russian cut will be shared between crude shipments, which will be reduced by 300,000 barrels a day, and refined products. The four-week average crude measure was about 245,000 barrels a day below the May-June level."* Our Supplemental Documents package includes the Bloomberg report.

Figure 42: Russia's seaborne crude shipments thru Jan 7 week



Source: Bloomberg

Escalation in Red Sea

Oil: US/UK bombs the Houthis opening up direct military conflict in the Red Sea

It was an actions packed week for oil prices driven down by Saudi cutting its OSPs and then rallying back after the US bombed the Houthis twice in Yemen. Brent was $78.80 on Jan 5, dropped $75.64 in the reaction to Saudi OSP cuts, went over $80 with the two US attacks before falling back to close at $78.32 on Friday. (i) Early Tuesday morning, we tweeted [LINK] "*Another warning from US to Houthis they will face "consequences" if they don't stop Red Sea attacks. This time it's Blinken. Will the Houthis take this latest warning as the US means it this time? #OOTT* ". On Monday night, Blinken warned the Houthis again. (ii) On Tuesday, the Houthis responded to the US warning with their biggest attack to date. We tweeted [LINK] *"#Houthi attack. "18 OWA UAVs, 2 anti-ship cruise missiles, and one anti-ship ballistic missile were shot down by combined effort of F/A-18s .... " See @CENTCOM [LINK] #OOTT."* CENTCOM wrote "*On Jan. 9, at approximately 9:15 p.m. (Sanaa time), Iranian-backed Houthis launched a complex attack of Iranian designed one-way attack UAVs (OWA UAVs), anti-ship cruise missiles, and an anti-ship ballistic missile from Houthi-controlled areas of Yemen into the Southern Red Sea, towards international shipping lanes where dozens of merchant vessels were transiting. Eighteen OWA UAVs, two anti-ship cruise missiles, and one anti-ship ballistic missile were shot down by a combined effort of F/A-18s from USS Dwight D. Eisenhower (CVN 69), USS Gravely (DDG 107), USS Laboon (DDG 58), USS Mason (DDG 87), and the United Kingdom's HMS Diamond (D34). This is the 26th Houthi attack on commercial shipping lanes in the Red Sea since Nov. 19. There were no injuries or damage reported."* US did not say any of the missiles were tareting US or UK navy ships. (iii) On Wed, UK Secretary of State Grant Shapps confirmed the UK Navy was targeted. We tweeted [LINK] "*Red Sea escalation. "Largest attack on a Royal Navy warship in decades" says UK Secretary of State @grantshapps. Shapps confirms 7 of these Houthi drones were targeted at UK navy ship. Sooner or later, don't the US and UK have to attack the Houthis?? #OOTT."* (iv) Mid-Thursday afternoon (MT), we tweeted [LINK] *"Breaking. See 👇 @Steven_Swinford @thetimes thread. US/UK expected to make air strikes on Houthis #OOTT* . These reports were by The Times that an US/UK attack was imminent. (v) Later Thursday afternoon (MT) we tweeted on the breaking news of explosions being reported in Yemen. And then at 5:50pm MT on Thursday, we tweeted [LINK] "*Biden "U.S. military forces—together with the United Kingdom and with support from Australia, Bahrain, Canada, and the Netherlands—successfully conducted strikes against a number of targets in Yemen* *used by Houthi rebels....." When/how/against who will Houthis respond? #OOTT."* (vi) On Friday, CENTCOM tweeted on a second strike against the Houthis. "*At 3:45 a.m. (Sana'a time) on Jan 13., U.S. forces conducted a strike against a Houthi radar site in Yemen. This strike was conducted by the USS Carney (DDG 64) using Tomahawk Land Attack Missiles and was a follow-on action on a specific military target associated with strikes taken on Jan. 12 designed to degrade the Houthi's ability to attack maritime vessels, including commercial vessels."* (vii) As of our news cut off at 7am MT, we have not seen any reports of a Houthis drone or missile strike.

NY Times, strikes damaged/destroyed ~20-30% Houthis offensive capability
Earlier this morning, we tweeted [LINK] "*#Houthis. "But the two U.S. officials cautioned on Saturday ...... the strikes had damaged or destroyed only about 20 to 30 percent of the Houthis' offensive capability, much of which is mounted on mobile platforms and can be readily moved or hidden." Thx @EricSchmittNYT #OOTT."* This morning, the New York Times reported *"Much of Houthis' Offensive Capability Remains Intact After U.S.-led Airstrikes"* based on comments from two US officials who spoke on the condition of anonymity. The NYT reported "*But the two U.S. officials cautioned on Saturday that even after hitting more than 60 missile and drone targets with more than 150 precision-guided munitions, the strikes had damaged or destroyed only about 20 to 30 percent of the Houthis' offensive capability, much of which is mounted on mobile platforms and can be readily moved or hidden. The two U.S. officials spoke on the condition of anonymity to discuss internal military assessments. Finding Houthi targets is proving to be more challenging than anticipated. American and other Western intelligence agencies have not spent significant time or resources in recent years collecting data on the location of Houthi air defenses, command hubs, munitions depots and storage and production facilities for drones and missiles, the officials said."*

US not too happy with UK's Shapps on his "stay tuned" before the strike
We have noted over the decades on how politicians just can't help signaling to the press something about to come. It happens everywhere. Above we noted The Times (London) tweets a couple hours before the attack that the US and UK were readying an attack. And then a few hours later, the tweets noting explosions in Yemen. What we didn't realize until yesterday was the comments by UK Secretary of State Shapps to the press a few hours before the strikes that signaled an attack was coming. Yesterday, the Express (UK) reported [LINK] "*Grant Shapps reportedly "p***** off" American diplomats with a remark he made in the lead-up to joint US and UK strikes on Houthi targets in Yemen. The Western allies launched airstrikes against the rebel group on Thursday night following repeated Houthi attacks on shipping vessels in the Red Sea. While the strikes represented a key moment of solidarity between Rishi Sunak and US President Joe Biden, a comment by the defence secretary reportedly frustrated the White House due to security concerns. Ahead of the strikes being launched, and prior to the joint announcement that they would be made, Mr Shapps responded "watch this space" when he was asked about whether there would be a response to the Houthi aggression. The defence secretary reportedly intended to make sure the strikes did not seem to come out of the blue*."

Biden said had support from Canda in the attacks on the Houthis

We were a little surprised to see Biden's statement on the US/UK attack on the Houthis included mention of support from Australia, Bahrain, Canada and the Netherlands. Biden said "*Today, at my direction, U.S. military forces—together with the United Kingdom and with support from Australia, Bahrain, Canada, and the Netherlands—successfully conducted strikes against a number of targets in Yemen used by Houthi rebels to endanger freedom of navigation in one of the world's most vital waterways."*

Post US/UK attack, Houthis will target them on land and at sea

Even though the Houthis haven't attacked post the US/UK attacks, the Houthis have reinforced they are not going away. On Friday, we tweeted [LINK] "*Houthis threat to attack US/UK is also "on land" not just "at sea" ". the US and UK bear full responsibility .....this aggression will not go unanswered and without punishment. .... will not hesitate to target threat sources and all hostile targets on land and at sea ..." #OOTT".* Our tweet included the Almasirah news report that said "*The Yemeni Armed Forces have announced that the US-British aggression against Yemen will not go unpunished, affirming that they will not hesitate to target hostile threat sources on land and at sea." ""US-British enemy, as part of its support for the ongoing Israeli crimes in Gaza, launched a brutal aggression against Yemen with 73 airstrikes," the official spokesman for Yemeni Armed Forces, Yahya Sare'e said in a statement. He clarified that the aggression targeted the capital Sana'a, the provinces of Hodeidah, Taiz, Hajjah, and Sa'adah. "The airstrikes resulted in the martyrdom of five and the injury of six others." Sare'e affirmed that the US and UK bear full responsibility for their criminal aggression against the Yemeni people. He affirm that this aggression will not go unanswered and without punishment. He emphasized that the Yemeni Armed Forces will not hesitate to target threat sources and all hostile targets on land and at sea, in defense of Yemen, its sovereignty, and independence."* Our Supplemental Documents package includes the Almasirah report.

Houthis leader says the response will the largest drone/missile attack

On Thursday, the Houthis leader spoke post the US/UK attack. Saba (Yemennews) reported "*The leader of the revolution said, "We in Yemen will not hesitate, God willing, to do everything we can and we will confront the American aggression. Any American aggression will never remain without a response, and the response will not be at the level of the operation that was recently carried out in targeting the American at sea with more than 24 aircraft and a number of missiles, the response is greater than that." He added, "The American and British position will not stop us from protecting ships linked to Israel, so that the Israelis will continue their crimes without disturbance."* And he reiterated they are at ease in fighting the US. Saba wrote "*The leader of the revolution said, "Thank God, we are at ease when there is a direct confrontation with the Americans and the Israelis, and no matter how many martyrs we offer in the direct confrontation with the Americans and the Israelis, this will not affect us or weaken our position."* The Houthis leader also advised other Arab and Islamic countries. Saba reported "*The leader of the revolution also advised all Arab and Islamic countries not to partner with the Americans in an effort to protect Israeli* *ships...pointing out that the biggest criminal in the world is the Israeli and whoever serves him to continue his crimes against the Palestinian people. It is not appropriate for any Arab country to serve Israel and stand with the Zionist enemy to continue its crimes in Gaza. He stated that what happened from the Bahraini regime does not represent the rebellious, dear and oppressed people of Bahrain, indicating that the Al Khalifa in Bahrain are slaves of the Zionists and involved in corruption and crimes that subjected them to the Zionist Jews, while the position of the people of Bahrain is an honorable and great position towards the Palestinian people. He publicly expressed the hope that the rest of the Arab and Islamic countries would never get involved with the Americans, the Israelis and the British*." Our Supplemental Documents package includes the Saba report.

We don't' see the Houthis easily backing off and going away
No one knows how, when, if the fighting against the Houthis is going to end. But one thing to keep in mind is we just don't see the Houthis going away. Surely the US/UK hit some of the capabilities to launch missiles and drones. But the thing to keep in mind is that the Houthis have lasted eight years of getting bombed by the Saudis and never gave up. So unless the US and UK bomb them like crazy or unless someone goes into Yemen with ground forces and takes them out, we just don't see the Houthis going away. We just can't see the US bombing like crazy and there is absolutely no way the US or UK will send in ground troops to Yemen. So we think the Houthis will continue to threaten shipping and now US and UK interests. They may have less ballistic missile and drone capability but we see them still continuing.

Saudi Arabia is doing their best to stay out of the war vs the Houithis
On Friday, we saw the Saudi Press Agency (Saudi state media) reporting of Saudi Arabia's statement on the US/UK attacks. We tweeted [LINK] "*Saudi Arabia doing their best to avoid being aligned with US, UK & allies as hostile forces by the Houthis. Saudi has enjoyed a Houthi missile/drone attack free period and doesn't want to become a target again as it is the simplest target. But also has the most to lose. #OOTT."* The Saudi Press Agency reported [LINK] "*The Kingdom of Saudi Arabia is closely monitoring with great concern the military operations in the Red Sea region and the air strikes against a number of sites in the Republic of Yemen. While the Kingdom emphasizes the importance of maintaining the security and stability of the Red Sea region, as the freedom of navigation in it is an international demand due to its impact on the interests of the entire world, it calls for restraint and avoiding escalation in light of the events the region is witnessing."*

Oman is not supporting US attacks on the Houthis
Oman came out clearly condemning the US/UK attack on the Houthis. On Friday, the Times of Oman reported [LINK] "*The Sultanate of Oman condemned the American-British bombing in Yemen, while Israel persists in its brutal war of Gaza Strip without accountability or punishment. The Foreign Ministry expressed that it is following with great concern the developments of the American-British bombing that affected several cities in the sisterly Republic of Yemen, and it can only condemn the resort to this military action by friendly countries, while Israel persists in its bombing, brutal war, and siege of the Gaza Strip without accountability or punishment. The Ministry*

confirmed that the Sultanate of Oman has repeatedly warned of the expansion of the circle of conflict and confrontation in the region as a result of the ongoing Israeli aggression against the occupied Palestinian territories, especially the killing, abuse, destruction and starvation operations against civilians and residents in the Gaza Strip." Note we were unable to confirm on Times of Oman or other Oman government sites the various military posts that Oman reportedly has closed its airspace to US military.,

Oil: Maersk warns Red Sea could threaten global supply chains

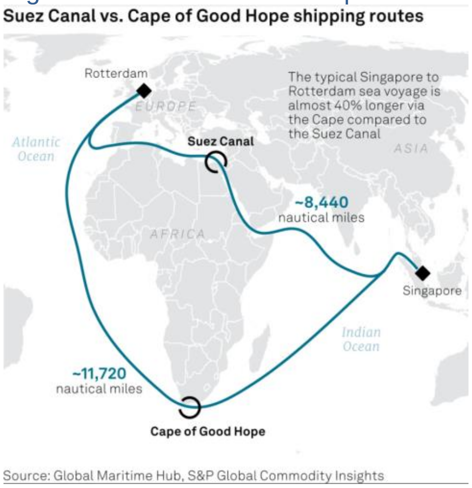
Maersk warns on global supply chains

On Thursday, we tweeted [LINK] "*Reality check: a "chokepoint" impacting the world can be upset by a small group Houthis w/ relatively inexpensive drones & small boats! See 👇 @rmilneNordic on Maersk CEO. Houthis forcing avoiding Red Sea/Suez Canal adding inflationary pressure and supply chain risk "If unresolved, ships will soon be out of position, threatening logistics and global supply chains" Thx @rmilneNordic #OOTT [LINK]."* FT wrote on comments from Maersk CEO Vincent Clerc. The two big warnings from Clerc were that it could last for weeks or months and it could have impact global supply chains. FT wrote "*"It's unclear to us if we are talking about re-establishing safe passage into the Red Sea in a matter of days, weeks or months . . . It could potentially have quite significant consequences on global growth," he said."* And "*"At this time when inflation is a big issue, it's putting inflationary pressure on our costs, on our customers, and ultimately on consumers in Europe and the US," he added. "In the short run, it could cause significant disruptions at the end of January, February and into March." Maersk's fuel bill will be 50 per cent higher as a result of ships taking the longer route. If unresolved, ships will soon be out of position, threatening logistics and global supply chains, Clerc said. "We are urging the international community to mobilise and do what it needs to do to reopen the [Bab-el-Mandeb] strait. It is one of the main arteries of the global economy, and it is clogged right now. "It could have wider ranging consequences not only for the industry but for end consumers, product availability, the global economy as a whole," he added."* Our Supplemental Documents package includes the FT report.

Avoiding the Red Sea adds 3,280 miles and 10-15 days via Cape of Good Hope

Here is an item from our Dec 24, 2023 Energy Tidbits memo. "*The Suez Canal couldn't happen at a worse time given the Panama Canal is still running at far less capacity than normal due to the droughts. So it really only leaves the shippers/tankers with the option of going around the Cape of Good Hope. On Monday, we tweeted [LINK] "Avoiding Red Sea and going the long way around Cape of Good Hope for typical Singapore to Rotterdam for shipping adds ~3,280 miles and 10-15 days. Thx @jcgnana @SPGCI #OOTT." Our tweet included the below map from Jennifer Gnana of Platts."*

Figure 43: Suez Canal vs Cape of Good Hope shipping routes



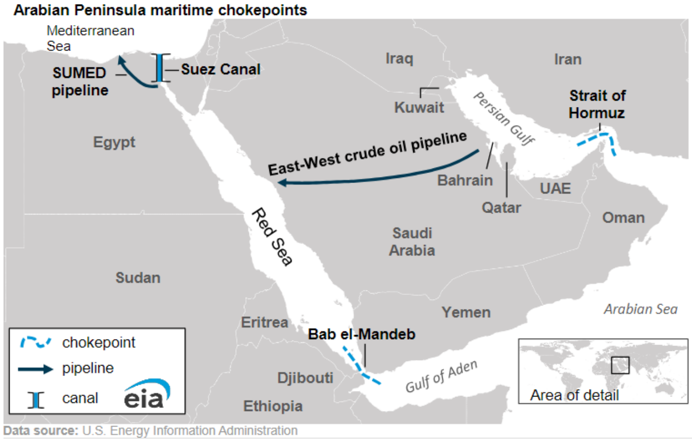
Source: Platts

Oil: EIA estimates 8.8 mmb/d & 4.1 bcf/d thru Bab el Mandeb/Red Sea chokepoint

Here is what we wrote in our Dec 10, 2023 Energy Tidbits memo. "*For the past few years and over the past couple months in particular, we have referenced the EIA's Aug 27, 2019 brief "The Bab el-Mandeb Strait is a strategic route for oil and natural gas shipments", which highlighted the volume of oil, petroleum products and LNG that goes thru the Red Sea and Bab el Mandeb every day. The EIA then wrote "In 2018, an estimated 6.2 million barrels per day (b/d) of crude oil, condensate, and refined petroleum products flowed through the Bab el-Mandeb Strait toward Europe, the United States, and Asia, an increase from 5.1 million b/d in 2014." On Monday, the EIA updated the same data in a blog titled "Red Sea chokepoints are critical for international oil and natural gas flows" [LINK]. The volumes thru the Bab el Mandeb and Red Sea are a lot higher. The EIA's updated data for H1/23 estimates the volume was now up to 8.8 mmb/d and 4.1 bcf/d of LNG. Our Supplemental Documents package includes the EIA blog*."

Bab el Mandeb chokepoint.

Figure 44: Bab el-Mandeb Strait, a world oil chokepoint



Source: EIA

Figure 45: Bab el-Mandeb Strait, a world oil chokepoint

Volume of crude oil, condensate, and petroleum products transported through the Suez Canal, SUMED pipeline, and Bab el-Mandeb Strait (2018–1H23)
million barrels per day

	2018	2019	2020	2021	2022	1H23
Total oil flows through Suez Canal and SUMED pipeline	**6.4**	**6.2**	**5.3**	**5.1**	**7.2**	**9.2**
crude oil and condensate	3.4	3.1	2.6	2.2	3.6	4.9
petroleum products	3.0	3.1	2.6	2.9	3.6	4.3
LNG flows through Suez Canal (billion cubic feet per day)	**3.3**	**4.1**	**3.7**	**4.5**	**4.5**	**4.1**
Total oil flows through Bab el-Mandeb Strait	**6.1**	**5.9**	**5.0**	**4.9**	**7.1**	**8.8**
crude oil and condensate	**3.0**	**2.7**	**2.2**	**1.9**	**3.3**	**4.5**
petroleum products	**3.1**	**3.2**	**2.8**	**3.1**	**3.8**	**4.4**
LNG flows through Bab el-Mandeb Strait (billion cubic feet per day)	**3.1**	**3.9**	**3.7**	**4.5**	**4.5**	**4.1**

Data source: U.S. Energy Information Administration analysis based on Vortexa tanker tracking
Note: LNG=liquefied natural gas, 1H23=first half of 2023

Source: EIA

Oil: Saudi cutting OSPs for Feb drove oil down $2.64 on Monday

Saudi cuts OSP to Asia by $2

Early Monday morning, we tweeted [LINK] *"#Oil story today - Saudi's big MoM cuts in OSPs. Global oil demand is always seasonally lower QoQ in Q1 of each year vs preceding Q4, BUT the bigger than expected MoM OSP cuts will bring concerns about underlying demand. Thx @Amena__Bakr #OOTT."* When we saw the new Saudi OSP for Feb, it was clear that the market would interpret the big cuts in OSPs for Feb as a negative indicator for oil markets. Brent was down $2.64 on Monday. And the common view was that the Saudi's big $2 price cut to OSP to Asia was an indicator that Saudi was expected weaker than expected global oil demand in Q1/23.

Figure 46: Saudi Aramco OSP: Crude Oil (FOB) Differentials (in US$) – February 2024

North America (versus ASCI)

	JANUARY	FEBRUARY	Change	VS. Light
Extra Light	+9.30	+7.30	-2.00	+2.15
Light	+7.15	+5.15	-2.00	0.00
Medium	+7.85	+5.85	-2.00	+0.70
Heavy	+7.40	+5.40	-2.00	+0.25

North West Europe (versus ICE Brent)

	JANUARY	FEBRUARY	Change	VS. Light
Extra Light	+4.20	+2.70	-1.50	+1.80
Light	+2.90	+0.90	-2.00	0.00
Medium	+1.70	+0.20	-1.50	-0.70
Heavy	-1.00	-2.50	-1.50	-3.40

Asia (versus Oman/Dubai)

	JANUARY	FEBRUARY	Change	VS. Light
Super Light	+4.95	+2.95	-2.00	+1.45
Extra Light	+3.55	+1.55	-2.00	+0.05
Light	+3.50	+1.50	-2.00	0.00
Medium	+2.75	+0.75	-2.00	-0.75
Heavy	+1.70	-0.30	-2.00	-1.80

Mediterranean (versus ICE Brent)

	JANUARY	FEBRUARY	Change	VS. Light
Extra Light	+3.80	+2.30	-1.50	+1.90
Light	+2.40	+0.40	-2.00	0.00
Medium	+1.40	-0.10	-1.50	-0.50
Heavy	-1.60	-3.10	-1.50	-3.50

Source: Saudi Aramco

Oil: Iran seizes tanker as payback for last year

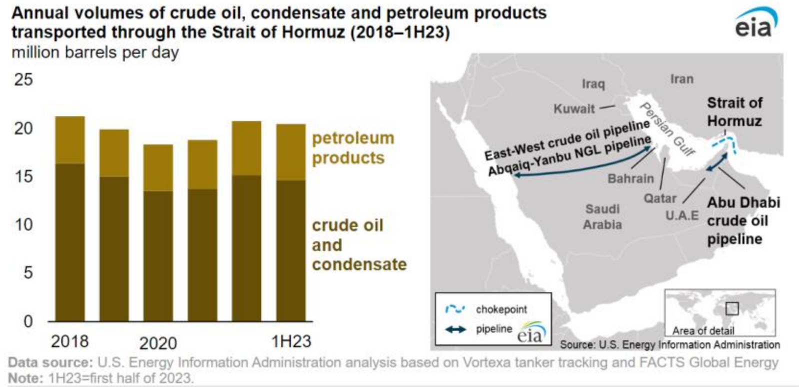
Iran seizes tanker

The wild card to the Middle East remains will Iran and Saudi Arabia stay on the sidelines. If they get involved, then there is the risk for big escalation in the Middle East and for a big risk premium to oil prices. So it is a key item to watch. But so far, this is what we thought would play out and is continuing to do so. Iran, in particular, has had the opportunity to jump in to support Hamas, Hezbollah, Syria and now the Houthis, but Iran is not getting directly involved. Plus their seizing a tanker this week was in theory a one-for-one for the US seizing their tanker last year so it isn't being viewed as a potential war items. On Thursday, PressTV reported [LINK] "*The Navy of the Islamic Republic of Iran has announced the seizure of an American oil tanker with a court order in the Sea of Oman. The United Kingdom Maritime Trade Operations (UKMTO) identified the tanker Marshall Islands-flagged St Nikolas, saying it was boarded at about 7:30 am (0330 GMT) off Sohar in Oman and changed course towards Bandar-e-Jask in Iran. Ambrey, a British maritime risk company, said the recently renamed tanker was previously prosecuted and fined for carrying Iranian oil, which was confiscated by US authorities. "Iran has previously taken action against those it has accused of cooperating with the US," it added. The vessel had been loaded with 145,000 tonnes of crude oil in Basra, Iraq and was destined for Aliaga in Turkey via the Suez Canal, the tanker's Greece-based management company Empire Navigation said. Last August, the US Navy unloaded a tanker of stolen Iranian oil worth around $56 million off the Texas port, despite warnings from Iran and after American oil firms had resisted the temptation of touching the 800,000-barrel tanker for fear of Iranian retaliation in the Persian Gulf waters*.

There are no workarounds for the Strait of Hormuz

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



Source: EIA

Figure 48: 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**

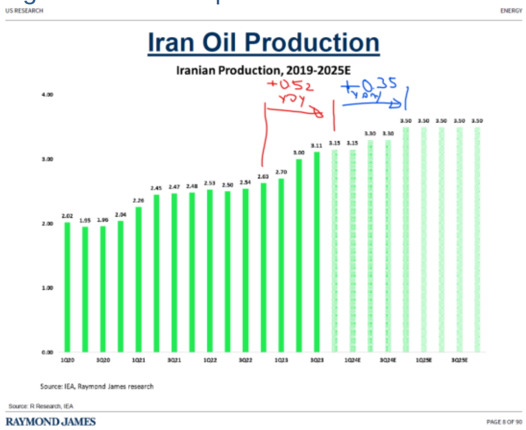
Source: EIA

Oil: Iran oil production +0.53 mmb/d YoY in Q4/23, a further +0.35 mmb/d YoY in Q4/24

Iran oil production growth

For the past several months, we have been highlighting Iran's oil production growth has been higher than expectations as the US has more or less turned a blind eye to enforcing sanctions on Iranian oil. On Wednesday, we tweeted [LINK] "*What Iran #Oil sanctions? Lack of enforcement on Iran sanctions = Iran oil production +0.52 mmbd exit 2022 to exit 2023, and +0.35 mmbd exit 2023 to exit 2024. Highlighted by @RaymondJames John Freeman Pavel Molchanov Justin Jenkins Jim Rollyson J.R. Weston #OOTT.*" Our tweet included the Raymond James energy team's graph of Iran oil production where they estimate Iran's oil production is +0.52 mmb/d YoY exit 2022 to exit 2023, and then a further +0.35 mmb/d exit 2023 to exit 2024.

Figure 49: Iran oil production



Source: Raymond James

08/23/23: Iran warned they were cranking up oil production in H2/23

Iran's ramping up oil production in H2/23 should not surprise anyone unless they just consider any of their oil production to be propaganda. Iran has been clearly warning markets of near-term oil production increases. Our Aug 13, 2023 Energy Tidbits memo was titled "*Can or Will Anyone Stop Iran Adding ~600,000 b/d to Oil Markets in Next Few Months?*" Here is what we wrote in the Aug 13, 2023 memo. "*Oil: Will or can anyone stop Iran from adding ~0.6 mmb/d to oil markets in H2/23? Iran looks to be an overlooked risk to oil prices in H2/23 and not because of sanctions removal. Rather because they are adding oil production capacity and we don't know who will or can stop them from adding the new oil capacity to oil markets. (i) Earlier this morning, we tweeted [LINK] "Near term Oil hold back. Another Iran reminder today that at 3.2 mmb/d & to exceed 3.3 mmb/d by late Aug. Vs #OPEC MOMR Secondary Sources had Iran at 2.828 mmb/d in July. Who can or will stop Iran from adding up 0.6 mmb/d to #Oil markets in next few mths? #OOTT." It follows our tweet yesterday [LINK] "Who can or will stop Iran from adding up to 0.6 mmbd to #OIl markets over coming mths? Iran not subject to #OPEC quota. US negotiating with Iran on prisoners & releases of Iranian funds. See 👇08/09/23 thread - Iran is #oil supply risk in H2. #OOTT @DanialRahmat12." Our Aug 8, 2023 tweet was [LINK] "Iran near term #Oil supply adds! Given #Biden doesn't have any stroke over #MBS*

& tapped SPR, wonder if he effectively turns a blind eye as he sees this as a replacement for an SPR elease to try to help keep a lid on oil/#Gasoline prices for 2024. Thx @DanialRahmat12! #OOTT. " (ii) On Wednesday, Tehran-based analyst, Danial Rahmat, tweeted [LINK] "CEO of #NIOC: Iran's crude prod. to increase by 150 k b/d in a week. By the end of Sep. 100k b/d will be added and output will reach 3.5 mil. b/d. In H2, about $8 b deals will be signed to develop 2 joint fields. #OOTT @Energy_Tidbits @sean_evers @FrankKaneDubai @imannasseri." Rahmat was reporting on comments by National Iranian Oil Company managing director, Khojasteh mehr, at a press conference in Tehran on Aug 9. (iii) Later PressTV (Iran state media) reported on Khojasteh mehr's comments on the press conference. [LINK] "Iran will reach a milestone oil production figure of 3.5 million barrels per day (bpd) in late September, according to the CEO of state oil company NIOC, despite sanctions imposed on the country by the US. Mohsen Khojasteh Mehr said on Wednesday that Iran's oil output will increase by 150,000 bpd within the next week and by another 100,000 bpd by the end of the month to September 22 to reach a total of 3.5 million bpd. The figure would be a major increase from 2.2 million bpd of oil production reported in August 2021 when the current administrative government led by President Raeisi took office, said Khojasteh Mehr. He said the growth in oil output will entirely serve Iran's plans to increase its oil exports." Earlier this morning, our tweet attached the Irna (state media) reporting [LINK] on Iran oil minister saying today that oil production was 3.2 mmb/d and to surpass 3.3 mmb/d by the end of August. (iv) Iran is saying they can hit 3.5 mmb/d in late Sept. Based on this week's OPEC Aug MOMR Secondary Sources production for Iran of 2.828 mmb/d in July, this is an add of >600,000 b/d. We think this is a significant item as we don't see who will or can block Iran from adding these barrels to global markets. Iran is one of three countries not subject to OPEC+ quotas so isn't held back by OPEC+ in increasing production and exports. (v) In theory, Iran is under sanctions but US has turned a blind eye to stopping Iran oil exports. And given the late week breaking news of a potential US/Iran prisoner swap and release of Iran's blocked funds in South Korea, it's hard to see the US stepping up to enforce sanctions. Plus there is the political reality that it's only 15 months to the US 2024 Presidential election. Our Aug 9 tweet said "Given #Biden doesn't have any stroke over #MBS & tapped SPR, wonder if he effectively turns a blind eye as he sees this as a replacement for an SPR release to try to help keep a lid on oil/#Gasoline prices for 2024." US gasoline prices keep inching up. Biden used the SPR to keep a lid on prices in the run up to the 2022 mid-term elections. He doesn't have that cushion now so he can look at Iran's new capacity as a bit of SPR replacement to keep a lid on oil prices. Our Supplemental Documents package include the PressTV report."

Oil: Protests shut in >200,000 b/d of Libya oil production at Sharara

Libya oil production

As of our 11pm MT news cut off last night, we haven't seen any reports or tweets this week from the Libya National Oil Corporation that have updated the status of shut-in oil production at the Sharara oil field and its impact on total Libya oil production. So, at least from the outside, it is unchanged versus last week. Here is what we wrote in last week's (Jan 7, 2024) Energy Tidbits memo. "*Early Wednesday morning, we tweeted [LINK] ""Protesters shut down Libya's Sharara oilfield" "was prompted by the lack of action regarding their demands for development and better services in south Libya" Never know but protest shutdowns tend to* *be short. Sharara ~270,000 b/d. Thx @Abd0Assad #OOTT [LINK].*" However, on Friday, Bloomberg reported on comments from Libya oil minister writing "*Libya's output drops to 981,000 barrels a day following outage at Sharara oil field, Oil Minister Mohamed Oun says in interview.*" *This would be a production loss of over 200,000 b/d as the NOC has been reporting how Libya oil production has been over 1.2 mmb/d for the last several months. We were a little surprised by Bloomberg reporting "*Separately, Mellitah Oil Gas Co. chairman Al-Bashir Ahmed says the El Feel oil field the company operates is currently producing." We had seen reports earlier in the week that protestors were also shutting in the nearby ~60,000 b/d El Feel oilfield. Plus, we expected El Feel to be shut in as we thought it had power sourced from Sharara and its oil linked in with Sharara oil for the pipeline north. But it appears that El Feel is still operating*." Note that early this morning, we saw X posts saying that Reuters reported Libya oil production was just under 1 mmb/d but we could not find the original Reuters reporting. Regardless, that would be the same as was reported a week ago.

Prior to protests, Libya oil production was stable at 1.2 mmb/d
Prior to last week's protests, Libya oil production had been stable for the last several months at ~1.2 mmb/d. The last Libya NOC update was on Dec 28, when they tweeted [LINK] "*Crude oil production reached 1,214,000 barrels per day, and condensate production reached 54,000 barrels per day during the past 24 hours.*" Note that in its tweets and Facebook posts, the NOC ha been consistent in providing separate production estimates for crude oil vs condensates.

Oil: China scheduled domestic flights show 1st sign of a potential break-out

China scheduled domestic flights

On Monday, we tweeted [LINK] "*Only 1 wk, but 1st sign of a break out in China scheduled domestic flights as +3.3% WoW to 93,455 after being stuck ~90,000 since Nov 11-17. Next 4-wk is set to grow by 10% to 103,100 in the run up to Lunar New Year Feb 10. Thx @BloombergNEF Claudio Lubis #OOTT.*" On Monday, BloombergNEF posted its Aviation Indicators Weekly Jan 8, 2024 report, which covers scheduled domestic flights for the Jan 2-8 period. (i) Neutral as one week does not make a trend but potentially the start of a break out as scheduled domestic flights had been stuck ~90,000 flights since the Nov 7-13 week. And the actuals for China scheduled domestic flights were +3.3% WoW to 93,455 flights for the Jan 2-8 week. This is the first week that has broken out of being stuck around 90,000 for the past several weeks from Nov 7-13 week thru Dec 26-Jan 1 week. At ~90,000 flights, it was stuck back at Mar 21-27 levels. This is back to the flight levels in the Oct 17-23 week, which was the post super Golden Week flights. But 93,455 flights is still less than expected a month ago when the then 4-week lookahead was to get to 97,847 flights. The caveat to the lookahead is that flights get cancelled, but the new 4-week lookahead is to grow 10% to 103,100 flights. If so, that is just a little below of summer holiday travel season so a positive. But this may include the start of travel for Lunar New Year which is on Feb 10. (ii) The look ahead to the next four weeks is up vs last week. BNEF's Jan 8 report says "*The number of scheduled domestic flights is set to grow 10% over the next four weeks to 103,10*0." This is up vs last week's (Jan 2) report that said "*The number of scheduled domestic flights is set to grow 12.2% over the next four weeks to 101,563*." Again, there is likely some Lunar New Year travel as Lunar New Year is Feb 10. (iii) Basically, unchanged outlook in the ramp up of international flights. But the increasing international flights is a big driver for increasing domestic flights as more domestic feeder flights are needed to get people to major international airports. BNEF's Jan 8 report for the seven major China airlines flighting internationally says the combined number of international flights by these seven major airlines "*will rise by more than 245 a week to around 3,685 by the first week of February*." Last week's Jan 2 report said "*will rise by more than 210 a week to around 3,675 by the last week of January 2024*."

Figure 50: China scheduled domestic flights from BNEF Aviation Indicators Weekly reports

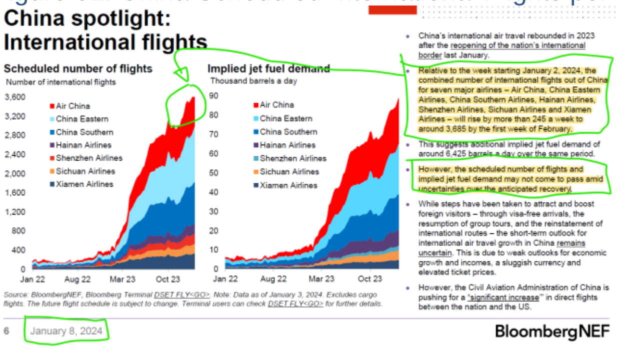
Jan 2-8: +3.3% WoW to 93,455 flights
Dec 26-Jan 1: +1.3% WoW to 90,490
Dec 19-25: 89,330
Dec 12-18: n/a
Dec 5-11: +0.2% WoW to 90,012 flights
Nov 28-Dec 4: -0.1% WoW to 89,810
Nov 21-27: +0.4% WoW to 89,916
Nov 14-20: -0-.2% WoW to 89,562
Nov 7-13: -2.6% WoW to 89,776
Oct 31-Nov 6: -0.2% WoW to 92,146
Oct 24-30: -0.3% WoW to 92,361
Oct 17-23: -6.9% WoW to 92,638
Oct 10-16: -1.6% WoW to 99,490
Oct 3-9: +4.2% WoW to 101,120
Sept 26-Oct 2: +1.3% WoW to 97,009
Sept 19-25: essentially flat WoW to 95,742
Sept 12-18: -2.7% WoW to 95,853
Sept 5-11: -5.0% WoW to 98,469
Aug 29-Sep 4: -1.2% WoW to 103,637
Aug 22-28: +0.2% WoW to 104,932
Aug 15-21: -0.1% WoW to 104,716
Aug 8-14: +0.8% WoW to 104,823
Aug 1-7: -0.4% WoW to 104,000
July 25-31: +0.4% WoW to 104,436
July 18-24: +1.3% WoW to 104,011
July 11-17: +2.8% WoW to 102,709
Jul 4-10: +2.4% WoW to 99,904
Jun 27-Jul 3: +1.9% WoW to 97,572
Jun 20-26: +3.4% WoW to 95,724
Jun 13-19: -0.9% WoW to 92,568
June 6-12: -1.2% WoW to 93,328
May 30-Jun 5: +0.2% WoW to 94,486
May 23-29: -0.1% WoW to 94,321
May 16-22: -2.8% WoW to 94,417
May 9-15: basically flat at 97,049
May 2-8: +2.8% WoW to 97,087
Apr 25-May 1: +0.04% to 94,471
Apr 18-24: +2.1% WoW to 94,138
Apr 11-17: +0.7% WoW to 92,231
Apr 3-10: -4.2% WoW to 91,567
Mar 28-apr 3: +6.8% WoW to 95,624
Mar 21-27: +1.5% WoW to 89,513
Mar 14-20: -0.6% WoW to 88,166
Mar 7-13 week: -0.8% WoW to 88,675
Feb 27-Mar 3 week: -2.6% WoW to 89,430
Feb 21-27 week: +0.0% WoW to 91,828
Feb 14-20 week -0.5% WoW to 91,561
Feb 7-13 week -0.7% WoW to 92,007
Jan 31- Feb 6 week +10.9% WoW
Jan 24-30 week -9.2% WoW to 83,500
Jan 17-23 week +7% WoW to 91,959
Jan 10-16 week +20% WoW to 85,910
Jan 3-9 week: -5.3% WoW to 71,642
Dec 27-Jan 2 week: -5.6% WoW to 75,652

Source: BloombergNEF

Figure 51: China Scheduled Domestic flights per Jan 8 report

Source: BloombergNEF

Figure 52: China Scheduled International Flights per Jan 8 report



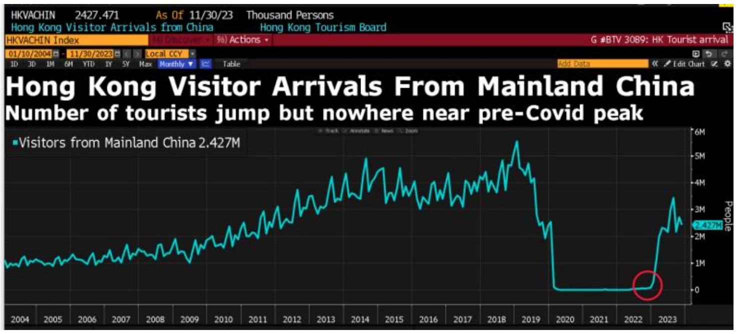
Source: BloombergNEF

Oil: China visitors to Hong Kong still nowhere near pore-Covid peak

Chinese visitors to Hong Kong

Last Sunday night, Bloomberg TV posted the below graph "Hong Kong Visitor Arrivals from Mainland China: Number of tourists jump but nowhere near pre-Covid peak. Bloombeg's graph is the data on Hong Kong Visitor Arrivals from the Hong Kong Tourism Board. There were 2.47 million visitors from mainland China in Nov, down from 2.70 million in Oct, The pre-Covid peak was 5.54 million in Jan 2019. And Nov 2018 was 4.63 million .

Figure 53: Hong Kong visitors from mainland China



Source: Bloomberg

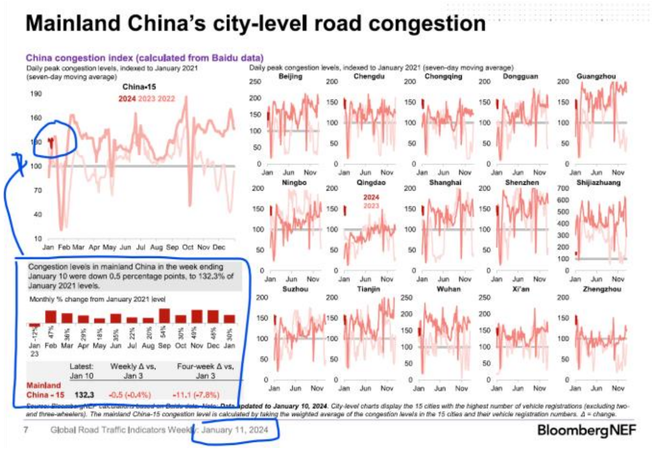
Oil: Baidu China city-level road congestion down small WoW

China city-level traffic congestion

On Thursday, BloombergNEF posted its Global Road Traffic Indicators Weekly report, which was their second report since their holiday break in publishing. (i) BloombergNEF posted its Global Road Traffic Indicators Weekly Jan 11, 2024, which includes the Baidu city-level road congestion for the week ended Jan 10. (ii) BloombergNEF's report was titled "*World rebounds from holiday slump*" and all regions of the world were up WoW other than China. City-level road congestion levels in China for the week ended Jan 10 were down small, down 0.4% WoW to 132.3% of Jan 2021 levels. There is no explanation give but we suspect there are likely WoW weather issues as it is winter. (iii) For the top 15 cities MTD to Jan 10, Jan 2024 is 138% of Jan 2021 levels, which is up significantly YoY vs Jan 2023 that was 90% of Jan 2021 levels. Don't forget, China has only removed the Covid restrictions at the end of 2022 so Jan 2022 still had some uncertainty or hesitancy. 14 of the top 15 cities were up vs

Jan 2021 other than Qingdao that was 76% of Jan 2021. (iv) Jan 2024 is 138% of Jan 2021 and is better than Dec 2023 that was 116% of Dec 2021 levels.

Figure 54: China city-level road congestion for the week ended Jan 10



Source: BloombergNEF

Figure 55: China city-level road congestion for the week ended Jan 10

Mainland China's city-level road congestion

- Table to the left shows monthly congestion levels indexed to the average daily peak congestion levels **in January 2021** for each respective city.
- Table to the right shows monthly congestion levels indexed to the average daily peak congestion levels **in the same month last year** for each respective city.
- Three-color scale conditional formatting is set to red = 0, **white** = 100 and green = 200. It is possible for congestion levels to hit zero.
- Data below are downloadable by hitting {97 <GO>} on the Terminal, or via the attached Excel on the BNEF website.

Indexed to January 2021 = 100

	Nov 22	Dec	Jan 23	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
China-15	99	81	90	154	145	136	124	140	128	127	158	138	157	156	138
Beijing	78	59	107	172	164	150	138	151	138	137	179	163	177	167	148
Chengdu	94	93	83	134	126	131	110	131	109	115	130	124	127	123	112
Chongqing	31	52	81	125	111	110	98	116	105	88	124	114	128	121	104
Dongguan	135	92	47	128	130	109	114	127	117	101	143	134	141	146	120
Guangzhou	56	59	81	169	172	154	137	158	151	149	181	164	184	186	146
Ningbo	144	112	63	134	125	104	99	117	114	115	124	120	145	143	126
Qingdao	80	53	45	82	75	80	73	86	96	105	102	93	95	96	76
Shanghai	166	87	74	147	149	129	124	131	121	123	161	130	153	143	119
Shenzhen	175	109	79	167	166	138	130	165	143	146	180	155	169	169	150
Shijiazhuang	107	179	317	507	430	459	383	427	375	440	468	349	491	463	490
Suzhou	145	87	69	132	121	105	97	114	107	109	130	110	127	136	119
Tianjin	124	78	97	141	141	136	122	130	110	114	170	153	171	180	163
Wuhan	83	85	110	191	185	170	150	169	148	136	183	146	171	169	156
Xi'an	112	101	115	147	128	131	122	136	122	111	144	137	156	153	144
Zhengzhou	33	66	93	113	96	95	89	94	88	92	100	82	100	111	105

Indexed to same month in 2021 = 100

	Oct 22	Nov	Dec	Jan 23	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
China-15	90	81	60	90	240	100	93	97	117	109	116	97	116	129	116
Beijing	83	67	36	107	263	105	91	96	101	104	118	89	128	151	104
Chengdu	102	96	75	83	239	89	90	92	109	101	107	94	121	130	98
Chongqing	83	29	43	81	200	103	94	88	104	96	95	85	110	122	101
Dongguan	97	96	82	47	283	104	75	81	127	98	80	95	108	100	130
Guangzhou	85	48	45	81	357	130	106	107	186	128	111	111	127	155	142
Ningbo	97	102	82	63	245	88	79	84	105	95	84	83	94	102	105
Qingdao	104	79	55	45	163	64	59	63	75	84	108	76	101	93	100
Shanghai	97	125	67	74	241	102	95	104	111	113	110	101	115	115	109
Shenzhen	103	113	70	79	287	117	94	100	133	109	99	101	114	109	109
Shijiazhuang	96	44	44	317	210	104	129	133	153	146	190	117	118	204	115
Suzhou	108	127	65	69	224	93	87	86	102	111	117	103	99	112	102
Tianjin	112	88	57	97	202	99	102	98	104	105	106	98	124	121	132
Wuhan	63	72	63	110	333	114	116	120	131	134	159	107	127	149	125
Xi'an	83	92	109	115	196	76	75	90	107	113	115	97	126	128	164
Zhengzhou	51	40	60	93	181	85	88	105	108	76	171	83	88	122	101

Source: BloombergNEF calculations based on Baidu data. Note: Data updated to ***January 10, 2024. Values for the latest month are month-to-date.*** *Mainland China-15 is the 15 cities with the highest number of vehicle registrations (excluding two- and three-wheelers). The mainland China-15 congestion level is calculated by taking the weighted average of the congestion levels in the 15 cities and their vehicle registration numbers.*

8 Global Road Traffic Indicators Weekly: January 11, 2024 BloombergNEF

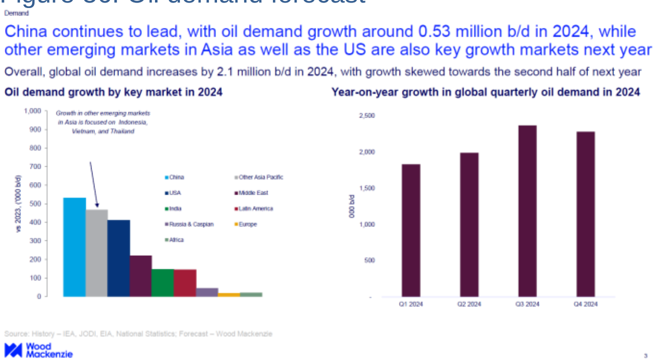
Source: BloombergNEF

Oil: Wood Mackenzie forecasts oil demand +2.1 mmb/d in 2024

Wood Mackenzie forecast oil demand +2.1 mmb/d YoY in 2024

We have to wonder how analysts and markets would be pricing oil if they believed OPEC is right in its oil demand forecast for 2024. Rather, most have tended to be in the camp that believes OPEC, in its Monthly Oil Market Report Dec 2023, is overly forecasting oil demand to be +2.2 mmb/d YoY in 2024 whereas the IEA, in its Oil Market Report Dec 2023, only calls for oil demand to be +1.1 mmb/d YoY in 2024. So most have been discounting OPEC's view. But on Thursday, Wood Mackenzie posted their 2024 view for oil demand to be +2.1 mmb/d so basically right in line with OPEC. We don't think anyone would accuse Wood Mackenzie of being politically aligned with OPEC. On Thursday, we tweeted [LINK] "*OPEC will love it. @WoodMackenzie forecasts #Oil demand around +2.0 mmb/d YoY in 2024. OPEC fcast +2.2 mmb/d YoY in 2024 vs @IEA forecast +1.1 mmb/d YoY. Thx #WoodMac Alan Gelder #OOTT.*" Note our tweet used the Wood Mackenzie written demand increase in 2024 of "around" 2 mmb/d. Wood Mackenzie posted [LINK] "*Oil demand will continue to break records, with annual demand growth of around 2 million b/d projected, skewed towards the second half of next year. China continues to lead, with growth around 0.53 million b/d in 2024.*" When we subsequently requested the Wood Mackenzie detail (see below), the actual oil demand forecasts growth was +2.1 mmb/d YoY or essentially the same as OPEC's forecast.

Figure 56: Oil demand forecast



Source: Wood Mackenzie

Oil: Vitol Asia Head sees a relatively balanced oil market and 2024 much like 2023 2024

Vitol's Mike Muller on oil markets in 2024

On Wednesday, we tweeted [LINK] "*#Oil 2024 outlook. 'fundamental view remains one of a relatively balanced market' & 'fundamentals for 2024 look similar to 2023.... big focus is on the spare capacity that Christof been talking about how OPEC+ & RUS keep their various partners or factions in-line' @michaelwmuller@CrystolEnergy @sean_evers #OOTT*". Mike Muller is Head Vitol Asia and was on the Gulf Intelligence's "The 14th Global Energy Outlook Forum 2024: Europe Fireside Chat" on Jan 10. Mullers sees a relatively balanced oil market in 2024, and one that is much like 2023. He still sees global oil demand growth in 2024 in excess of non-OPEC supply growth and demand continues to be driven by China and India. Muller said "So the fundamentals for 2024 look similar to 2023. And of course, the big focus is on the spare capacity that Christof been talking about and how OPEC + and Russia keep their various partners or factions in line." If demand delivers, then there should be some room for OPEC+ to add back some barrels but 2024 is shaping up much like 2023 with oil prices in likely around current levels and the continued need for OPEC+ to be diligent. Below is an excerpt of the transcript we created of Muller's comments.

Vitol's Mike Muller on 2024 oil markets

SAF Group created transcript of comments by Mike Muller (Head, Vitol Asia) and Christof Ruhl (Senior Research Scholar Center on Global Energy Policy, Columbia University) with host Sean Evers (Founder, Managing Partner Gulf Intelligence) on the Gulf Intelligence podcast on Jan 10, 2024. [LINK]. Items in "*italics*" are SAF

Group created transcript. When asked about the outlook for oil, Muller pointed out the imbalance in demand growth depending on region, with consumption slowing in Western countries but still climbing in Asia. Muller points out geopolitical events, such as conflicts in the Red Sea and Middle East, have had relatively dampened impacts on oil prices during 2023. Muller said "*Indeed we started the year in the $75 to $79 per barrel type range for Brent. And the fundamental view remains one of a relatively balanced market. Whilst inventories are historically at the low end of the range, very much a product of OPEC+ price policy. There is also a very balanced view in terms of how demand is ebbing. We still have year-on-year demand growth. So whilst in the western hemisphere, there is very much a mind set of peak oil demand being behind us, Asia is still racing ahead in terms of consumption and strata of population joining the consuming middle classes and all that. But the reason you are not seeing prices reflect black swan events and all is these are not black swan events. They are very much newsworthy. Some of them carry great dangers. But things like the joint military action to prevent missiles from Yemen hitting merchant fleet ships coming their the Bab el Mandeb have not served to materially disrupt shipping routes and have not served to materially disrupt oil prices.*"

Oil: Vitol CEO calls for peak oil demand about 2030

Vitol CEO on peak oil demand

Vitol CEO Russell Hardy participated on a panel at this week's Energy Asia conference. We couldn't find any video clips of his comments. But CNBC reported [LINK] on his key comments calling for peak oil demand "*about 2030*". CNBC wrote "*Commodities trading firm Vitol is less bullish, predicting that demand for crude will peak in 2030 — two years later than the IEA's forecast. "We got it peaking in about 2030 and a gradual decline out to 2040 … And then [a] rapid decline thereafter as the EV fleet and energy transition takes over," Vitol CEO, Russell Hardy, said during a panel discussion."*

Oil: Former IEA oil market head Neil Atkinson sees peak oil demand a long way away

Former IEA Oil market head Neil Atkinson

We still think an overlooked oil demand basic is that the developing countries still use a small fraction of oil per capita vs western countries and that they are likely to be a surprise oil demand factor for the coming decades. On Wednesday, we tweeted [LINK] "*#OilDemand 101. "I think it [demand] will grow more for longer than some of the peak oil enthusiasts would like to think." "[demand] growth in developing counties is, I believe, going to surpass the savings that we make in developed countries for some time to come." @NeilAtkinson58 former head of oil markets division IEA. @gulf_intel #OOTT."* Atkinson is the former head of the IEA's Oil Markets Division. Atkinson says demand will surprise for longer and the key reason being developing countries use only a small fraction of oil per capita vs the US and Europe. Ie. India uses 1.4 barrels per capita and Africa uses 1.1 barrels per capita vs 21 in the US and 8 or 9 in Europe. Below is the transcript we created of Atkinson's comments. Items in "*italics*" are SAF Group created transcript. "t 24:05 min mark, Atkinson "…*Demand, although it's going to continue to grow. And I think it will grow more for longer than some of the peak oil enthusiasts would like to think. There is still going to be enough supply to meet that demand for the next few years. And just quickly because I am conscious of the time here. I am not in the camp that believes peak oil demand will come quickly. One of the reasons for that is if you look at the per capita coinsumption of energy as a whole. But let's look at oil in countries like India, the African continent and other developing countries. You've got India using 1.4 barrels per capita per year. I think it's 21 in the United States and* *something like 8 or 9 in European countries. Only 1.1 barrels per capita in Africa. Now I am not saying for a minute, they are suddenly going to go overnight from current levels of consumption per capita to the levels we enjoy in Europe and in the United States. Of course not. Their growth, their energy growth will come with a lot of renewables contributing to it. Of course it will. But they are still going to be using, over the next decade or so and beyond, an awful lot more oil. And that is a reality. And we can take measures in western Europe and the United States, which we are doing and we are seeing growth in sales of EVs, there is no question about that. But the growth in developing counties, is I believe, going to surpass the savings that we make in developed countries for some time to come*."

Oil – Former IEA Neil Atkinson says the IEA is "talking their political book"

IEA "talking their political book"

Everyone assumes OPEC's forecasts are politiically driven, in particularly driven by SDaudi Arabia. But most still don't automatically assume that for the IEA. One of the biggest negatives for oil markets is how the IEA has shifted over the past decade to being viewed as having their analysis and views being shaped by what their bosses (western developed countries) want the answer to be to fit their political priorities. The IEA was THE oil analysis shop but, unfortunately, that is no longer the case. Our big concern on the IEA's forecast and analysis answers being driven to give the answer their bosses want to see is that their bosses, the western government leaders, then turn around to use theis analysis to confirm their policies are correct. This view of the IEA's increasing political approach is not just from people outside but from some of the former senior people like Neil Atkinson, the former head of the IEA's Oil Markets Division. Atkinson is a well-respected oil commentator. On Thursday, we tweeted [LINK] ""*neither agency I think is really helping us understand markets properly because I think they are talking their political book" re IEA and OPEC oil demand forecasts says @NeilAtkinson58, former Head Oil Markets Division at IEA. 2024 #Oil demand fcasts: @IEA +1.1 mmbd YoY. OPEC +2.2 mmb/d YoY. #OOTT."* Atkinson spoke on the Gulf Intelligence Global Energy Outlook Forum 2024 on Jan 10, 2024. Atkinson was speaking on the big variance in the IEA vs OPEC forecast for oil demand growth in 2024 and that both group's forecasts were speaking to the political book. He didn't leave the IEA on bad terms and still speaks to former colleagues. It's a reminder from a former IEA senior player that the IEA's forecast are politically driven. Our tweet included the transcript we made of Atkinson's comments. At 10:55 min mark, Atkinson "…*On [oil] demand, I find, for example, OPEC's outlook, not just for 2024 but for further into the medium term, to be almost incredible. And I think that they are talking their book. And I think that also applies to my former colleagues at the International Energy Agency. And neither agency I think is really helping us understand markets properly because I think they are talking their political book. My own instincts as far as oil demand in 24 is concerned is that we are likely to see round about a million barrels a day but, if it is to be different than that, it is more likely to the upside than the downside because demand has tended to surprise. Perhaps I was affected by my years at the IEA but demand has tended to surprise to the upside rather than the downside in recent years. So I think we have underlying solid demand growth in 2024 and indeed will be the same in 25*."

05/21/23: Should we discount the IEA's H2 bullish oil demand call?

Here is what we wrote in our May 21, 2023 Energy Tidbits memo. "*Above, we recap the IEA's bullish view of oil demand and supply for H2/23, but we have to wonder if there is indirect political pressure being put on the IEA for their numbers to support any western, especially the US, hopes to try to influence OPEC+ June 4 decision. (i)*

We had not thought about this potential until listening to Neil Atkinson (Former head of IEA Oil Markets Division) speak on the Gulf Intelligence daily podcast on Wednesday. We have heard him speak many times on this podcast and he always seems very careful and precise in his words. His response here is very much in line with how he always speaks. So when you take into account the speaker, it just jumped at us that what he seems to messaging is that it is different now at IEA and the implication is indirect political pressure. Again, that is assuming that Atkinson was careful in his wording and not just sloppy. It's worth a listen to et your own view. Atkinson said that when did it, "never on any one occasion was I, as the editor of the Oil Market Report, was put under any pressure to skew the numbers one way or the other". And then he gives his statement about today "I do not believe that the numbers that the oil team are putting out at the IEA are influenced by direct political pressure from above. I just don't believe that." A careful speaker made sure he inserted the word "direct" political pressure. That is raises our antenna. (ii) The issue is around the IEA OMR Tuesday (noted above) that surprised most by its bullish call on oil demand in H2 and warning of a tight supply market. We have been noting how the IEA seems to have shifted from its original role to one of being the big cheerleader for the pro energy transition side with many caveated views that Net Zero can be accomplished. But after thinking about Atkinson's apparent messaging, we have to wonder if the IEA came out with this very bullish oil demand view and warning ahead of the OPEC+ June 4 meeting to try to influence OPEC+ that they can't make any more cuts and that the IEA numbers suggest OPEC+ needs tokin add more barrels back now. (iii) Recall the implication a few weeks ago when the OPEC+ June 4 meeting became an in-person meeting, no one, including us, believed Saudi Energy Minister Abdulaziz would call an in-person meeting to say no change. Rather, we assumed that Abdulaziz is having an in-person meeting to make some sort of statement. And since the OPEC+ voluntary cuts, the risk to the world economy and China's pace of recovery is worse ie. no reason to add more oil. (iv) Below is the transcript we made but it doesn't do just justice to Atkinson's clear emphasis on words like "direct". It's worth a listen because if anyone is going to know the difference on political pressure, direct or indirect, it should be Atkinson."

SAF transcript of Neil Atkinson's (former IEA) comments on political pressure

Here is another item from our May 21, 2023 Energy Tidbits memo. "It's worth a listen to Atkinson's comments. Here is the SAF Group created transcript of comments by Neil Atkinson (Former Head of Oil Markets Division, International Energy Agency) with host Sean Evers (Managing Director, Gulf Intelligence) on Gulf Intelligence Daily Energy Markets May 17th Podcast. [LINK] Items in "italics" are SAF Group created transcript. Evers "….. they [IEA] do seem to be sliding. I remember all the years, one would say you can always rely on the IEA numbers and not so much on the OPEC numbers because they were biased in their own political ways. Everyone reporting their own numbers though. Now it seems things have slipped, flipped the other way around. If you want to respond to that or not, your thoughts". Atkinson "Yeah, sure, I have no connection to the IEA. Can say exactly what I like. My experience in producing 62 Oil Market Reports for the IEA was that never on any one occasion was I, as the editor of the Oil Market Report, was put under any pressure to skew the numbers one way or the other. Now, when writing the commentary on the market, which was my little piece of authorship every month, Yes, you knew there were limits. You can't overtly attack say OPEC and say a decision based taken is going to destroy the global economy or anything like that. You can make a suggestion that higher prices are damaging and put it in a diplomatic way. There are limits. So I understood that. …….. the IEA remains on the high side [for Oil demand]. I do not believe that the numbers that the oil team are putting out at the IEA are influenced by direct political pressure from above. I just don't believe that."

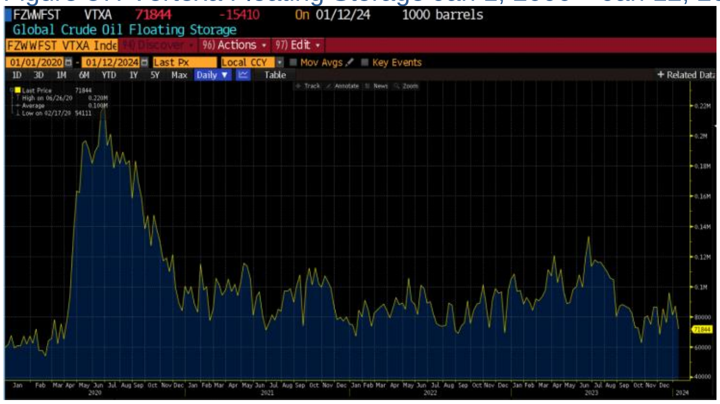
End of an era – the IEA used to be the most important view on energy
Here is another item from our May 31, 2023 Energy Tidbits memo. "*After hearing Neil Atkinson's above comments, it feels like the final confirmation of what we have been noting – it's the end of an era where the IEA's view on oil markets was considered the go-to view on oil. And readers weren't wondering if there was indirect political pressure to message a certain way, including in their forecasts. I was an E&P executive in the 80s/90s but the IEA wasn't part of everyday E&P thoughts. But when I joined he sellside in the late 90s for energy research and later energy investment banking, I very quickly realized the critical role the IEA played for the analysis and interpretation of oil markets as their focus wasn't on selling a message or theme, but giving data and analysis focused on what was important to the world - energy security. Don't forget the IEA was formed after the 1973/74 Arab Oil Embargo to provide critical analysis for the US and other oil consuming countries. The IEA was the bible and Robert Priddle (IEA Executive Director 1994-2002) was the Charles Schwab of oil markets – when he talked, people listened. Partly it was the world, where we didn't have twitter and media and he didn't have to, or chose not to, weigh in publicly on everything, everyday to put a pro this or pro that spin. So markets listened because they didn't have to look at Priddle and the IEA's message because their focus and mandate was clear. Atkinson's comments make me feel it is the end of an era."*

Oil: Vortexa crude oil floating storage est 71.84 mmb at Jan 12, -15.41 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 Jan 6 at 9am MT. (i) Yesterday, we tweeted [LINK] "*Floating #Oil storage 01/12 71.84 mmb, -15.41 WoW vs revised up 01/05 of 87.25 mmb. 01/05 revised +9.86 & 12/29 revised +3.02 mmb. Expect to see ongoing revisions given Red Sea and Panama Canal issues. Thx @Vortexa @business. #OOTT."* (ii) As of 9am MT yesterday, Bloomberg posted Vortexa crude oil floating storage estimate for Jan 12 at 71.84 mmb, which is -15.41 mmb WoW vs revised up Jan 5 of 87.25 mmb. Note Jan 5 was revised +9.86 mmb vs 77.39 mmb originally posted at 9am on Jan 6. (iii) Revisions. We have to believe there will be more revisions than usual given the Red Sea interruptions and continued Panama Canal lower throughput. Jan 5 revision was big at +9.86 mmb, most of the other revisions were also up but smaller amounts for the prior seven weeks from the estimates originally posted on Bloomberg at 9am MT on Jan 6. Jan 5 revised +9.86 mmmb. Dec 29 revised +3.02 mmb. Dec 22 revised -3.28 mmb. Dec 15 revised -0.60 mmb. Dec 8 revised +3.69 mmb. Dec 1 revised +2.07 mmb. Nov 24 revised +0.16 mmb. (iv) There is a wide range of floating storage estimates for the past seven weeks, but a simple average for the past seven weeks is 80.89 mmb vs last week's then seven-week average of 80.88 mmb. The upward revisions were offset by dropping a higher 11/17/23 week of 86.67 and adding a lower 01/12/24 week of 71.84. (v) 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. (vi) Note the below graph now goes back to Jan 1, 2020 and not just three years as floating storage in Apr 2020 had started to reflect the Covid impact. (vii) Jan 12 estimate of 71.84 mmb 77.39 mmb is -24.71 mmb YoY vs Jan 13, 2023 of 96.71 mmb. (viii) Jan 12 estimate of 71.84 mmb is -148.47 mmb vs the Covid peak of 220.31 mmb on June 26, 2020. (ix) Jan 12 estimate of 71.84 mmb is +6.23 mmb vs pre-Covid Feb 28, 2020 of 65.61 mmb. (x) Below are the last several weeks of estimates posted on Bloomberg as of 9am MT Jan 13, 9am MT Jan 6, and 9am MT Dec 30.

Figure 57: Vortexa Floating Storage Jan 1, 2000 – Jan 12, 2024, posted Jan 13 at 9am MT



Source: Bloomberg, Vortexa

Figure 58: Vortexa Estimates Posted 9am MT on Jan 13, Jan 6, and Dec 30

Posted Jan 13, 9am MT Date	Last Px	Jan 6, 9am MT Date	Last Px	Dec 30, 9am MT Date	Last Px
Fr 01/12/2024	71844	Fr 01/05/2024	77393	Fr 12/29/2023	72975
Fr 01/05/2024	87254	Fr 12/29/2023	78274	Fr 12/22/2023	90109
Fr 12/29/2023	81292	Fr 12/22/2023	99054	Fr 12/15/2023	74522
Fr 12/22/2023	95772	Fr 12/15/2023	76910	Fr 12/08/2023	81841
Fr 12/15/2023	76307	Fr 12/08/2023	81661	Fr 12/01/2023	69433
Fr 12/08/2023	85351	Fr 12/01/2023	66349	Fr 11/24/2023	85790
Fr 12/01/2023	68416	Fr 11/24/2023	86501	Fr 11/17/2023	87539
Fr 11/24/2023	86661	Fr 11/17/2023	87064	Fr 11/10/2023	72057
Fr 11/17/2023	86611	Fr 11/10/2023	70935	Fr 11/03/2023	79349
Fr 11/10/2023	74885	Fr 11/03/2023	78975	Fr 10/27/2023	79913
Fr 11/03/2023	80652	Fr 10/27/2023	79556	Fr 10/20/2023	64323

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, Jan 5, in total, was revised +9.86 mmb. The main revisions in a region vs the originally posted (as of 9am Jan 6) floating oil storage for Jan 5 were Other revised +4.70 mmb, Middle East +3.54 mmb. Asia revised +2.96 mmb. (iii) Note the revisions to Middle East make sense given what is happening in the Red Sea. (iv) The major WoW changes by region were Asia -12.27 mmb, and Middle East -2.75 mmb. (v) Jan 12 of 71.84 mmb is down a huge 61.50 mmb vs the summer June 23, 2023 peak of 133.34 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 -47.21 mmb and Other -17.51 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 Jan 5 that was posted on Bloomberg at 9am MT on Jan 6.

Vortexa floating storage by region

Figure 59: Vortexa crude oil floating by region

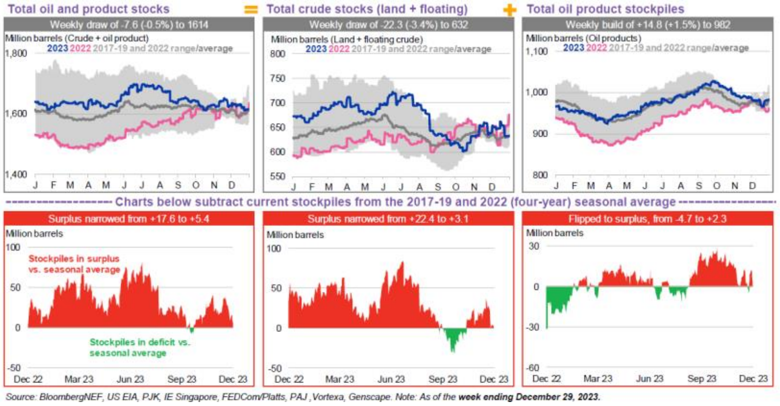
Vortexa Crude Oil Floating Storage by Region (mmb)				Original Posted	Recent Peak	
Region	Jan 12/24	Jan 5/24	WoW	Jan 5/24	Jun 23/23	Jan 12 vs Jun 23
Asia	26.39	38.66	-12.27	35.70	73.60	-47.21
Europe	9.84	8.38	1.46	8.93	6.44	3.40
Middle East	10.37	13.12	-2.75	9.58	7.17	3.20
West Africa	4.52	2.78	1.74	2.97	7.62	-3.10
US Gulf Coast	0.69	3.01	-2.32	3.61	0.97	-0.28
Other	20.03	21.30	-1.27	16.60	37.54	-17.51
Global Total	71.84	87.25	-15.41	77.39	133.34	-61.50
Vortexa crude oil floating storage posted on Bloomberg 9am MT on Jan 13						
Source: Vortexa, Bloomberg						

Source: Bloomberg, Vortexa

Oil: BNEF – global oil and product stocks surplus narrows WoW to 5.4 mmb

Please note that the BloombergNEF global oil and products stocks estimate are for the week ending Dec 29, which is a week earlier than the normal EIA US oil inventory data that is for the week ending Jan 5 which was a build of +1.34 mmb/d. 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, and other times using a five-year average 2016-2019 + 2022. In both cases they do not include 2020 and 2021 in the averages. (ii) The global stockpile for crude oil and products surplus narrowed from +17.6 mmb to +5.4 mmb for the week ending Dec 29. (iii) Total crude inventories (incl. floating) decreased by -3.4% WoW to 632.0 mmb, while the stockpile surplus narrowed from +22.4 mmb to +3.1 mmb. (iv) Land crude oil inventories decreased by -1.0% WoW to 549.4 mmb, widening the deficit to -23.3 mmb against the five-year average (2016-2019 + 2022). (v) The gas, oil, and middle distillate stocks increased by +5.7% WoW to 156.4 mmb, with the deficit against the four-year average narrowing from -17.8 mmb to -16.4 mmb. Jet fuel consumption by international departures for the week of January 9 is set to increase by +8,500 b/d WoW, while consumption by domestic passenger departures is forecast to decrease by -27,600 b/d WoW. Below is a snapshot of aggregate global stockpiles.

Figure 60: Aggregate Global Oil and Product Stockpiles



Source: BloombergNEF

Oil: Bloomberg Oil Demand Monitor "Growth Persists; Non-OPEC+ Supply Rises"

Bloomberg oil demand monitor

We recommend reading the Bloomberg Terminal Oil Demand Monitor for a good recap of key oil demand indicators around the world. The major message in this month's report focuses on the 2024 outlook for oil demand and supply, with the article noting some diverging opinions by analysts on forecasts. It seems everyone agrees that non-OPEC+ supply is set to rise again this year, with increased production in the US (the latest STEO has it at 13.21 mmb/d), Canada, Guyana (developing their offshore reserves), and Brazil (developing their pre-salt reserves). Where forecasters are disagreeing is on demand growth – some say high interest rates are slowing economies and consumption, and this seems to be the consensus among big banks like Morgan Stanley, Goldman Sachs, and BoA where they have cut Brent price predictions. But some firms, like Wood Mackenzie, see higher demand growth. Wood Mackenzie is betting on rate cuts in the latter half of the year and corresponding economic growth, paired with sustained OPEC+ cuts and oil supply shocks as a result of the Russo-Ukrainian war as well as Red Sea red dangers, propping up prices. Based on the risks posed by these armed conflicts, Standard Chartered Bank went as far as to say Brent is underpriced by >$10/bbl. Overall, there's a lot of variables, but no one is really predicting negative demand. 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 Jan 8, but fell -5.3% on a MoM basis. As of Jan 1, road congestion was below pre-pandemic levels in all 11 countries tracked by TomTom mobility data. Refinery utilization in the US as of Dec 8 was up +2.7% MoM and +8.8% YoY to 92.9%. Our Supplemental Documents package includes the Bloomberg Oil Demand Monitor.

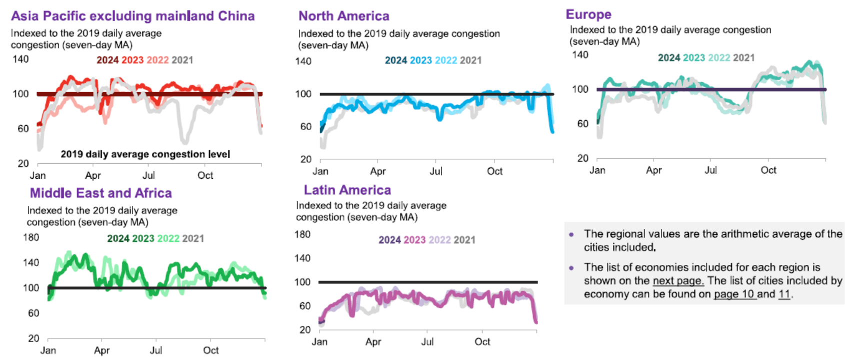
Oil: TomTom mobility: Asia-Pacific, NA, Europe, MEA and LA all up WoW

Global road traffic indicators

On Thursday, BloombergNEF posted its Global Road Traffic Indicators Weekly report, which recaps traffic indicators in all the major economic regions of the world i.e. mobility indicators like TomTom. This year, it looks like they are now including information from Middle East and Africa (MEA) and Latin America (LA). For the week ending Jan 7, Asia Pacific (ex-China) was up +1.9% WoW, Europe +15.9% WoW, NA +19.3% WoW, LA +7.6% WoW, and MEA +8.6%

WoW. This was expected as the holidays wrapped up the week prior and people are going back to work. All regions were below the 2019 average for the Jan 7 week, with NA at 63.9% but the MEA close at 99.9%. Compared to the same week last year, Asia Pacific (ex-China) was down -3.8% YoY, Europe -7.6% YoY, NA -5.8% YoY, LA -19.3% YoY, and MEA +3.5% YoY.

Figure 61: Mobility Indicators



	Week-on-week (2019 average = 100)				Year-on-year (same week last year = 100)			
	Latest week: Jan 7	Δ vs. Dec 31	4-week MA	Δ vs. Dec 31	Latest week: Jan 7	Δ vs. Dec 31	4-week MA	Δ vs. Dec 31
Asia Pacific ex-China	64.6	+1.2 (1.9%)	84.6	-11.7 (-12.1%)	96.2	-1.7 (-1.7%)	102.0	-1.9 (-1.9%)
Europe	71.3	+9.8 (15.9%)	95.6	-13.8 (-12.7%)	92.4	+0.8 (0.9%)	98.7	-4.1 (-4.0%)
North America	63.9	+10.3 (19.3%)	78.5	-9.2 (-10.5%)	94.2	+11.9 (14.4%)	91.1	-1.7 (-1.9%)
Latin America	34.9	+2.5 (7.6%)	53.7	-11.9 (-18.1%)	80.7	-3.5 (-4.2%)	94.2	-7.3 (-7.4%)
Middle East and Africa	99.9	+7.9 (8.6%)	105.6	-5.7 (-5.1%)	103.5	-9.0 (-8.0%)	104.5	-0.9 (-0.8%)

Source: BloombergNEF calculations based on TomTom data. Note: ***Data updated to January 7, 2024****. Δ = change. MA = moving average.*

Source: BloombergNEF

Oil: Delta Airlines CEO strongest growth will continue to be international, excl China

Delta Airlines CEO

On Friday, Delta Airlines reported Q4 results and, prior to the earning call, CEO Ed Bastian was on CNBC and gave some good insights into the 2024 air travel outlook. We tweeted [LINK] "*Delta CEO 24 outlook - looks good excl China. "strongest growth will continue to be international" "we will continue to see what's happening in China, it's a bit limited" "corporate travel is up ... now probably back almost 90% of where we were pre-pandemic & continuing to build" #OOTT #JetFuel."* Our tweet included a clip from Bastian's CNBC comments. Bastian continues to see strong international growth and he doesn't see one summer of travel for Americans to Europe being enough. The one area he is hesitant on is China. He was also positive on corporate travel coming back as more people return to office including the tech sector.

Oil: IATA, air passenger data, travel now 99% of pre-Covid levels in November

Air travel up in November

On Tuesday, the International Air Transport Association (IATA) released air passenger data for November 2023 [LINK] and the November data showed the continued recovery from Covid-19 in air passenger trends. Domestic air travel around the world was above pre-Covid levels for the 8th consecutive month, 6.7% above November 2019 levels. International air travel keeps recovering but is still below pre-Covid levels at 99.1% of November 2019 levels. (i) Total traffic in November, measured in revenue passenger kilometers (RPK), rose +29.7% YoY. Please note the IATA splits out total market air travel into International travel vs Domestic travel. (ii) For November 2023, total global RPKs were -0.9% vs November 2019 levels, but that was split between International RPKs -5.5% vs November 2019 and Domestic RPKs +6.7% vs October 2019 levels. (iii) Willie Walsh, IATA's Director General, commented "*We are moving ever closer to surpassing the 2019 peak year for air travel. Economic headwinds are not deterring people from taking to the skies. International travel remains 5.5% below pre-pandemic levels but that gap is rapidly closing. And domestic markets have been above their pre-pandemic levels continuously since April".* Our Supplemental Documents package includes the IATA release.

Figure 62: November 2023 Air Cargo Market

NOVEMBER 2023 (% YEAR-ON-YEAR)	WORLD SHARE[1]	RPK	ASK	PLF(%-PT)[2]	PLF(LEVEL)[3]
Total Market	**100%**	**29.7%**	**28.6%**	**0.7%**	**81.8%**
Africa	2.1%	20.3%	27.1%	-4.0%	70.4%
Asia Pacific	22.1%	80.1%	71.7%	3.8%	81.4%
Europe	30.8%	13.6%	13.5%	0.1%	83.7%
Latin America	6.4%	12.0%	9.1%	2.2%	84.4%
Middle East	9.8%	18.7%	18.4%	0.2%	77.7%
North America	28.8%	10.2%	11.3%	-0.8%	82.7%

1) % of industry RPKs in 2022 2) Year-on-year change in load factor 3) Load Factor Level

Source: IATA

Oil: IATA, global air cargo Nov "*strongest year-on-year growth in almost two years*"

Air cargo up YoY in November

We look at international air cargo as the data that affirms the level of export orders and trade. On Tuesday, the International Air Transport Association (IATA) announced cargo data for the month of November [LINK]. The IATA's Director General, Willie Walsh, noted that "*November air cargo demand was up 8.3% on 2022—the strongest year-on-year growth in almost two years. That is a doubling of October's 3.8% increase and a fourth month of positive market development. It is shaping up to be an encouraging year-end for air cargo despite the significant economic concerns that were present throughout 2023 and continue on the horizon".* Overall, mostly positive news, with cargo-tonne kilometres (CTKs) up big everywhere YoY while cargo load factors (CLFs) are slightly down YoY. A drop in CLF just means the planes are going less full, but if flights are increasing in frequency it makes sense that CLFs would also fall, all else being equal. Our Supplemental Documents package includes the IATA release.

Figure 63: November 2023 Air Cargo Market

NOVEMBER 2023 (%YEAR-ON-YEAR)	WORLD SHARE *1	CTK	ACTK	CLF (%-PT) *2	CLF (LEVEL) *3
Total Market	**100%**	**8.3%**	**13.7%**	**-2.3%**	**46.7%**
Africa	2.0%	3.9%	14.0%	-4.1%	42.1%
Asia Pacific	32.4%	13.8%	29.6%	-6.6%	47.9%
Europe	21.8%	6.7%	6.5%	0.1%	57.0%
Latin America	2.7%	4.2%	7.7%	-1.2%	36.3%
Middle East	13.0%	13.5%	15.4%	-0.8%	46.9%
North America	28.1%	1.8%	4.0%	-0.9%	40.8%

(*1) % of industry CTKs in 2022 (*2) Year-on-year change in load factor (*3) Load factor level

Source: IATA

Oil & Natural Gas: Brutal cold in Alberta should help extend Cdn winter drilling

Finally good cold weather

There was good news this week for the oil and gas industry – it's been bitterly cold. But as noted later, the brutal cold is not good news for the Alberta power grid and travelers. And even in Calgary temperatures have hit -40C. On Friday, we tweeted [LINK] *"Be careful what you wish for. i said we need good cold weather to get a deep freeze in the ground for oil and gas winter drilling season. We got it. it looks cold looking over the Bow River in Canmore in CA Rockies and it is. our outside thermometer says -40C! Just need snow!"* Every bit of frigid temperatures helps to get a deep freeze in the ground. We have been warning that we are seeing the set up for an early and abrupt end to the Cdn winter drilling season as it's been way warmer than normal and accumulated snowfall has been much less than normal. So we have been we won't be surprised to see road bans and an early end to conventional winter drilling in late Feb/early March. Why? The ideal conditions for a long winter drilling season is good sustained cold weather in Nov/early Dec before the snow hits. Good sustained cold will then make sure there is a deep freeze in the ground. The ideal world is to get a good deep freeze first and then lots of snow over the winter. If you get lots of snow, it will act as an insulating blanket to keep the deep freeze in the ground for longer once it gets to end of Feb/early March and frozen ground allows a longer winter drilling season. Conversely, the negative is that you don't have good sustained cold and so you don't get a good deep freeze in the ground. And then you get the snow and that acts as an insulating blanked from any cold in Jan from getting deep int eh ground for a deep freeze. Recall the concept of how you see documentaries on survival in Alaska and how they keep themselves warm by digging out a snow cave. So the problem is that there isn't a deep freeze so when it starts to get warm in late Feb/early March, the snow melts and there isn't a deep freeze and there is an abrupt end to winter drilling season. And the problem is if there isn't much snow, it melts quickly and the ground gets exposed quickly. But at least it is frigid cold so hopefully it hels extend winter drilling season.

Oil & Natural Gas: There were 19 >7.0 magnitude earthquakes in 2023

19 >7.0M earthquakes in 2023

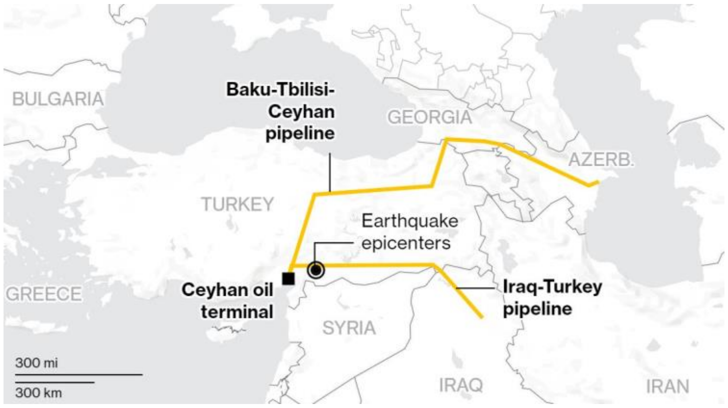
With 19 earthquakes over 7.0 in magnitude, 2023 was a relatively big year for big earthquakes. While there were no earthquakes over 8.0 magnitude, 2023's earthquakes were particularly deadly, where Turkey and Syria reported a combined death toll of over 50,000 people [LINK] from the February 6th 7.8 magnitude quake. To put in perspective, the casualties of the 2011 Japanese earthquake and tsunami was roughly 20,000 people (9.1 magnitude). There was also the Morocco earthquake in September which, while only 6.8 magnitude, claimed over 2,800 lives [LINK]. Earthquakes >7.0 magnitude are not common. Since Jan 1, 2017, there have been 92 earthquakes >7.0 or about 15 per year. The biggest impact of the earthquakes this year on the energy markets was during the Turkey quake, where the Ceyhan export hub that normally exported over 700,000 b/d of Iraqi and Azerbaijan oil was temporarily shut down following a leak in the pipe [LINK]. Below is our table of earthquakes >7.0 since Jan 1, 2017, and a map showing the Ceyhan oil port and its feeder pipelines.

Figure 64: Earthquakes above 7.0M since Jan 1, 2017

Earthquakes With 7.0+ Magnitude									
Country	2017	2018	2019	2020	2021	2022	2023	2024	Total
Indonesia	-	1	3	-	3	-	6	-	13
Japan	-	-	-	-	2	1	-	1	3
Papua New Guinea	1	2	1	1	-	1	1	-	7
US	-	2	1	2	1	-	1	-	7
Mexico	2	1	-	1	1	-	-	-	5
Peru	-	2	3	-	1	1	-	-	7
Russia	1	1	-	2	-	-	-	-	4
New Zealand	-	-	1	1	2	-	2	-	6
Vanuatu	-	-	-	-	1	1	2	-	4
New Caledonia	1	2	-	-	1	-	2	-	6
Fiji	-	2	-	-	-	2	-	-	4
Philippines	1	1	-	-	1	1	1	-	5
China	-	-	-	-	1	-	-	-	1
Cuba	-	-	-	1	-	-	-	-	1
Ecuador	-	-	1	-	-	-	-	-	1
Greece	-	-	-	1	-	-	-	-	1
Guatemala	-	-	-	-	-	1	-	-	1
Haiti	-	-	-	-	1	-	-	-	1
Honduras	-	1	-	-	-	-	-	-	1
Iran	1	-	-	-	-	-	-	-	1
Pakistan	-	-	-	-	1	-	-	-	1
Philippines	-	-	-	-	-	1	-	-	1
Solomon Islands	-	-	-	-	2	1	-	-	3
South Georgia Islands	-	1	-	-	-	-	-	-	1
Turkey	-	-	-	-	1	-	2	-	3
Tonga	-	-	-	-	-	1	2	-	3
Venezuela	-	1	-	-	-	-	-	-	1
Total	**7**	**17**	**10**	**9**	**19**	**11**	**19**	**1**	**92**

Source: USGC, Wikipedia, SAF

Figure 65: Ceyhan oil terminal and feeder pipelines



Source: Bloomberg

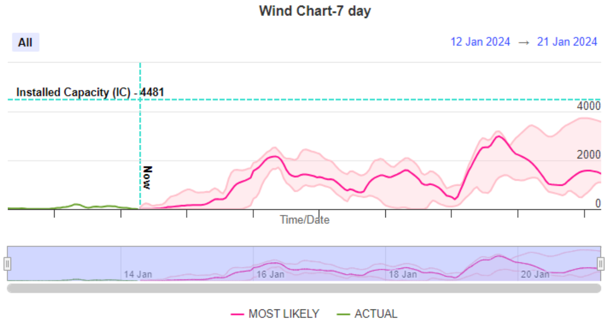
Energy Transition: Alberta power grid is being hit hard but still no rolling blackouts

Brutal cold in Alberta

The brutal cold is putting the Alberta power grid under stress but, at least so far, it has delivered. On Friday, AESO (Alberta Electric System Operator) tweeted "*Demand for electricity in Alberta hit a new hourly peak of 12,384 megawatts on Thursday, January 11, 2024, as extreme cold weather blanketed the province*." And then last night, we received those Emergency Alert blasts over our phones and TV warning on the grid alert and asking to "immediately limit their electricity use to essential needs only". These loud alerts work as it makes you walk around your house and make sure everything is turned off. So big pressure on the grid but it's been holding in there despite the brutal cold.

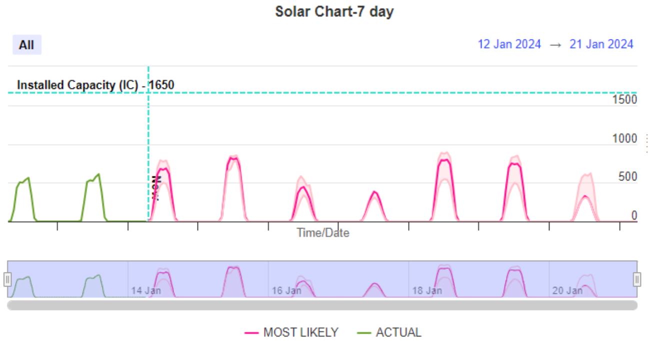
Alberta wind and solar generation intermittency reminder
There is an important reminder that intermittency concerns on wind and solar generation means that they can vary during a day as well as day to day. It's not just that there is no solar when the sun doesn't shine. AESO has highlighted [LINK] that it has improved its wind and solar power forecasting. And its current (as of 7am MT today) show Wind Chart 7-day and Solar Chart 7-day show this variance.

Figure 66: Wind Chart 7-day



Source: AESO

Figure 67: Solar Chart 7-day



Source: AESO

AESO's electricity savings tips incl using your laptop instead of desktop?
Seeing the AESO (Alberta Electric System Operator) warnings to cut power, we also looked at their Electricity Conservation Tips. [LINK] Most are the same you will see everywhere like turn off unnecessary lights and electric appliances, minimize use of air conditioning/space heaters, delay use of major power consuming appliances like washers, dryers, dishwashers, use cold water for washing cloths, etc. No surprise, the list also includes delay charging EVs, but we were surprised that they linked in "*and/or plugging in block heaters*" as it seems to infer block heaters have a significant electricity demand. But the one that we hadn't heard before and should be updated was "*work on a laptop instead of a desktop computer (laptops are more energy*

efficient than desktop units)". Does have anyone still have a desktop especially in addition to a laptop? Most desktops at home have been gone for at least a decade.

Energy Transition: Sask sends power from coal/natural gas to help Alberta crunch

Sask Premier Scott Moe

As noted earlier, Albertans all got the Emergency Alert warning on our phones and TVs last night to conserve power. Last night, Saskatchewan stepped in to send power to Alberta to help AESO meet the record electricity demand from the brutal cold. And Saskatchewan Premier Scott Moe reminded Trudeau that this was only possible because Saskatchewan has power generation from coal and natural gas. Moe tweeted [LINK] "*SaskPower is providing 153 MW of electricity to AB this evening to assist them through this shortage. That power will be coming from natural gas and coal-fired plants, the ones the Trudeau government is telling us to shut down (which we won't).*" It will be interesting to see if Environment Minister Guilbeault or Natural Resources minister Wilkinson say anything about the frigid cold and their clean energy plan or, as more likely, just be quiet and stay away from microphones.

Energy Transition: Hertz selling 20,000 EVs from its US fleet, buying more ICE

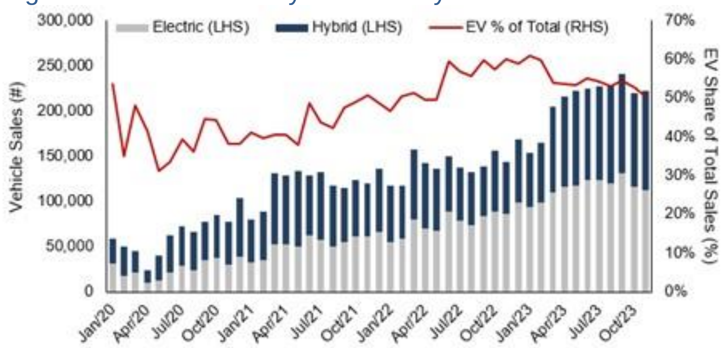
Hertz selling 20,000 EVs

It's hard for anyone to deny that EVs are displacing miles driven by ICE vehicles, but it's also clear EVs aren't displacing ICE mileage as much as assumed in western government and their agency, the IEA, forecasts. But the other big change to western and IEA forecasts is that the rate of EV sales/adoption is slowing down and major car manufacturers in the US and Europe and pulling back their EV growth rates. So EV sales growth but less than assumed. And this week, we saw Hertz say they are selling 20,000 EVs because lack of demand and will replace with ICE to meet demand. It is a reminder of a key bad assumption that an EV can be used to replace an ICE in just about every situation. On Thursday, we tweeted [LINK] "*US rental car customers speak - less EVs, more ICE. @Hertz selling 20,000 EVs from US fleet "to better balance supply against demand of EVs". To use portion of proceeds for "purchase of ICE vehicles to meet customer demand". EV growth is happening, just a lot slower! #OOTT*." Hertz was the leader to jump in on EVs, and has found out the realities of rental car customers – they don't want to rent an EV. Surely this will be a common perspective of car rental customers at the other car rental companies. Hertz did not issue a press release but filed an 8K on Thursday morning. Our tweet included an excerpt from the 8K wherein Hertz said "*has made the strategic decision to sell approximately 20,000 electric vehicles ("EVs") from its U.S.fleet, or about one-third of the global EV fleet." "The Company expects to reinvest a portion of the proceeds from the sale of EVs into the purchase of internal combustion engine("ICE") vehicles to meet customer demand." "will result in the recognition, during the fourth quarter of 2023, of approximately $245 million of incremental net depreciation expense related to the sale." "The Company expects this action to better balance supply against expected demand of EVs. This will position the Company to eliminate a disproportionate number of lower margin rentals and reduce damage expense associated with EVs." "Going forward, the Company will continue to actively manage the total size of its EV fleet, as well as the allocation of EVs among customer segments, including leisure, corporate, government and rideshare." "The Company further anticipates that incremental free cash flow generation related to this action will approximate $250 million to $300 million in the aggregate over 2024 and 2025."* Our Supplemental Documents package includes the Hertz 8K.

Hybrids taking US EV share of total down MoM

Hertz didn't mention possibly adding hybrids. Rather they only spoke of using some of the proceeds from the EV sales to buy ICE vehicles to meet demand. In the US, hybrids are taking an increasing market share from EVs. Here is what we wrote in our Dec 24, 2023 Energy Tidbits memo. "*It's hard for even the climate change side to deny EVs are not being adopted anywhere near as fast as assumed in the Energy Transition plans and aspirations. But one other item that looks like a trend that isn't getting as much attention is that hybrids look to be taking market share from EVs at least in certain key markets like the US. We look at the Argonne National Laboratory monthly light duty electric drive vehicles monthly data [LINK]. The headlines on the monthly data have been on how EV sales have leveled off over the past few months. We agree, but we thought the more interesting trend is how hybrids looks to be taking market share from EVs. Below is a graph we made of the ANL data. EVs as a % of EVs + Hybrids sales reached its peak of 60.8% in Jan 2023, and since we first created the graph in October, we saw this month's data bring the EV share of total down -230bps from 52.8% in October to 50.5% in November.*"

Figure 68: US EV and Hybrid monthly sales



Source: Argonne National Library

Energy Transition: Will Zuckerberg's cows emit more methane by drinking beer?

Mark Zuckerberg's cows

We probably wouldn't have included this item except for reading how Mark Zuckerberg is feeding his cows Macadamia meal and they will be drinking beer. After seeing Mark Zuckerberg's Instagram post on his goal o create great beef, we couldn't help tweeting [LINK] "*Add #ClimateChange/#MethaneEmissions to anti-red meat push. "my goal is to create some of the highest quality beef in the world. The cattle are wagyu and angus, and they'll grow up eating macadamia meal and drinking beer that we grow and produce here on the ranch" Zuckerberg.*" We have to believe Zuckerberg doesn't care that the climate change side will be against him given their push against agriculture emissions in places like Europe. We have been highlighting for several years how methane emissions from livestock, in particular cows, is a major global methane emissions group. We don't know how macadamia meal will impact a typical cow's methane emissions, but surely drinking beer has to increase his cow's methane emissions. Surely Zuckerberg and his people have to be aware of the big methane emissions from cows burps and farts. We had thought methane emissions from livestock would have raised. Below is the Zuckerberg post.

Figure 69: Zuckerberg to raise some of the highest quality beef

Source: Mark Zuckerberg

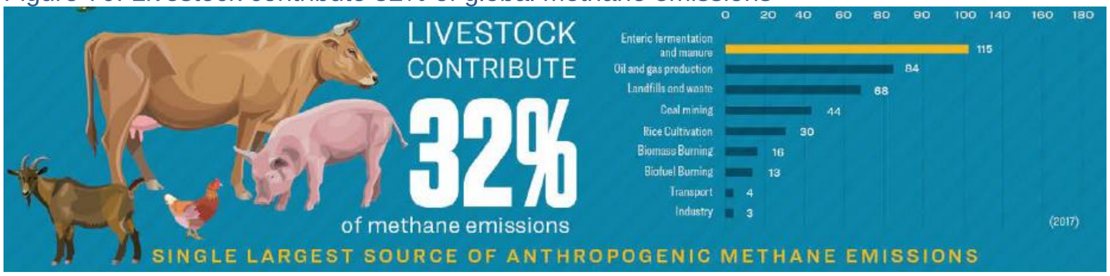
Livestock, led by cows, is the biggest methane emissions group

For probably a decade, we have highlighted methane emissions from cows as a major methane emissions group. On Thursday, we tweeted [LINK] "*Here's why Zuckerberg's beer to his Wagyu cows should get climate change attention. LIvestock burps/farts generate 32% of world's #Methane emissions Graphic from my 11/14/22 tweet [LINK] #OOTT #EnergyTransition #ClimateChange.*" Here is more on this from our Nov 26, 2023 Energy Tidbits memo. "*Earlier this morning, we tweeted [LINK] "Did you know? Methane emissions from livestock is more than from #Oil #NatGas. See 👇11/14/22 tweet. #COP28 chatter in last couple days on west cutting back meat consumption will bring cow methane emissions back in headlines. #OOTT." It's been interesting to see the reports emerge in the last few days of how the west will be looking at reducing meat consumption at COP28. The chatter tends to emerge on items that will be gaining western approval at COP28 and reducing meat consumption is one of these issues. And if reducing meat consumption is on the agenda, it means that methane emissions from cows will be in the headlines. We suspect many will be surprised to note that livestock, including cows, methane emissions are more than oil and gas."*

11/15/22: IATP reminds livestock is the biggest methane emissions source

Here is what we wrote in our Nov 20, 2022 Energy Tidbits. "*As of our 7am MT news cut off, we haven't seen the final COP27 communique, but one of the big themes that seems to be in agreement is the focus to cut methane emissions from the oil and gas industry. We have yet to see the COP27 delegates focus on the largest methane emissions group in the world - livestock. Livestock emissions are more than oil and gas. On Tuesday, the Institute for Agriculture & Trade Policy posted its report "Emissions Impossible: How emissions from big meat and dairy are heating up the planet". [LINK]. We tweeted [LINK] "#Methane emissions are much more than #Oil #NatGas. @IATP report "How emissions from big meat and dairy are heating up the planet", livestock contribute 32% of #Methane emissions, single largest source of anthropogenic methane emissions. #OOTT." The IATP first chapter is "the urgency* *of addressing livestock methane" and writes "Animal agriculture contributes 32% of the world's methane emissions, making it the single largest source of human-made methane emissions.Although animal agriculture has started to get more attention for its contribution to climate change, the emissions of big meat and dairy companies remain below the radar for urgent climate action. Animal agriculture is responsible for 57% of emissions linked to agricultural production, which accounts for an estimated 37% of all global emissions. Even if the world immediately stopped using all fossil fuels, scientists say that current emissions from the global food system would make it impossible to limit warming to 1.5°C and difficult even to realise the 2°C target."*

Figure 70: Livestock contribute 32% of global methane emissions



Source: Institute for Agriculture & Trade Policy

UN warned Ruminants (cows, etc) almost 2x methane emissions vs oil & gas

Here is another item from our Nov 20, 2022 Energy Tidbits memo. "*No one should be surprised by the IATP report highlighting livestock as the single largest source of global human caused methane emissions. Just like no one should be surprised that the sector continues to fly under the radar for western governments. Rather it is easy for western leaders to keep oil and gas as the #1 methane enemy. Our May 9, 2021 Energy Tidbits wrote "This week, the UN Environment Programme published their major report – "Global Methane Assessment: Benefits and Costs of Mitigating Methane Emissons" [LINK] . The US starts right at the start and reminds that methane is way worse the CO2 "Methane, a short-lived climate pollutant (SLCP) with an atmospheric lifetime of roughly a decade, is a potent greenhouse gas tens of times more powerful than carbon dioxide at warming the atmosphere". We have been highlighting for years how the Cdn oil and gas sector has been reducing methane emissions going back to when one of our friends was in the Encana group doing so. The reality is that fossil fuels are the easy target for governments even if they were already reducing methane emissions. And the first set of measures recommended by the UN are against fossil fuels "Oil, gas and coal: the fossil fuel sector has the greatest potential for targeted mitigation by 2030. Readily available targeted measures could reduce emissions from the oil and gas sector by 29–57 Mt/yr and from the coal sector by 12–25 Mt/yr. Up to 80 per cent of oil and gas measures and up to 98 per cent of coal measures could be implemented at negative or low cost. (Section 4.2)". We understand why fossil fuels are the easiest to go after, but the UN report also reminds of the leading cause of methane emissions. For example, ruminants (ie. cattle, etc) cause 73% more methane emissions than oil and* *gas. Its why we tweeted [LINK] "Interesting data from @UNEP global #Methane emissions report. worst are Freshwaters 159 mt/yr, Wetlands 145, Ruminants (cattle etc) 115, #Oil & #NatGas 84. Termites 9 are ~= to all offshore oil & gas. Fortunately, oil & gas will keep doing more. #OOTT". Below is the table we created to rank the US methane sources table.*

Figure 71: Sources of Methane 2017

Sources of Methane Ranked (2017)	
Source	**Magnitude (MT/yr)**
Freshwaters	159
Wetlands	145
Ruminants (Cattle, goats, etc.)	115
Oil and gas industry	84
Landfill and waste	68
Geological	45
Coal mining	44
Rice cultivation	30
Biomass burning	16
Biofuels	13
Termites	9
Oceans	6
Transport	4
Industry	3
Wild animals	2
Permafrost soils	1

NATURAL SOURCES	MAGNITUDE (MT/YR)	ANTHROPOGENIC SOURCES	MAGNITUDE (MT/YR)	SINKS	MAGNITUDE (MT/YR)
Wetlands	145 [100–183]	Coal mining	44 [31–63]	Soils	40 [37–47]
Termites	9 [3–15]	Oil and gas industry	84 [72–97]	Total chemical loss	531 [502–540]
Oceans	6 [4–10]	Landfill and waste	68 [64–71]	Total loss	571 [540–585]
Geological	45 [18–65]	Ruminants	115 [110–121]		
Wild animals	2 [1–3]	Rice cultivation	30 [24–40]		
Freshwaters	159 [117–212]	Biomass burning	16 [11–24]		
Permafrost soils	1 [0–1]	Industry	3 [0–8]		
		Biofuels	13 [10–14]		
		Transport	4 [1–13]		
Total natural	367 [243-489]	Total anthropogenic	380 [359–407]		
Total natural (top-down)	232 [194-267]	Total anthropogenic (top-down)	364 [340-381]		

Source: UN Environment Programme

Cows are not just big methane emitters, also big water consumers

It is important to remember that cows are also big water consumers, although it looks like Zuckerberg will reduce some water consumption by drinking beer. Here is what we wrote in our July 3, 2022 Energy Tidbits memo. "*We have to wonder when the far left will be more aggressively going after the meat industry, not for their profits but for their environmental impact. We normally only mention cows with respect to their methane emissions, but they are also huge water consumers and lead to deforestation. It was Canada Day holiday on Friday so BNN Bloomberg wasn't playing its normal Canadian based programs, but was picking up Bloomberg. On Friday morning, Bloomberg Markets interviewed Eric Jenkusky (Matrix Food Technologies CEO) who was highlighting the huge use of water and impact on deforestation by cows. Jenkusky said "a single cow, for instance, that is of calf bearing age, uses 8,760 gallons of water a year". We know that cows need huge amounts of water relatives to people ie. 8 cups a day is ½ gallon a day or 182.5 gallons a year. But it seemed like a huge number so wanted to see what data was out there. It turns out that number looks high, relative to Canadian cows. The Beef Cattle Research Council (Canada) [LINK] estimates bred Heifers & dry cows use 32.9 liters/day or 3,170 US gallons a year. But the BCRC estimates a lactating cow uses 64.0 liters/day or 6,167 US gallons a year. Regardless, it's a big use of water. One interesting tidbit from the BCRC estimates is the huge range of water intake per cow depending on the temperature. For the lactating cows, the daily intake in liters is*

43.1 at 4.4C, 47.7 at 10C, 54.9 at 14.4C, 64.0 at 21.1C, 67.8 at 26.6C and, surprisingly, down to 61.3 at 32.2C."

Figure 72: Approximate Total Daily Water Intake of Beef Cattle

	Intakes in litres for temperatures in Celsius (C)					
Animal Description	4.4°C	10°C	14.4°C	21.1°C	26.6°C	32.2°C
Feeders & Replacements 2 - 6 Months	20.1	22.0	25.0	29.5	33.7	48.1
Feeders & Replacements 7 - 11 Months	23.0	25.7	29.9	34.8	40.1	56.8
Feeders & Replacements 12 Months & Older	32.9	35.6	40.9	47.7	54.9	78.0
Bred Heifers & Dry Cows	22.7	24.6	28.0	32.9	-	-
Lactating Cows	43.1	47.7	54.9	64.0	67.8	61.3
Herd Bulls	32.9	35.6	40.9	47.7	54.9	78.0

Source: Beef Cattle Research Council

Capital Markets: Some comments from big US banks reporting Q4 on Friday

Big US banks reported Q4

Early Friday morning saw Q4 reporting by Bank of America, Citigroup, JPMorgan and Wells Fargo among the big banks. Our review of the banks reporting isn't on earnings and estimates but rather its to look for the CEO insights on capital markets, interest rates, economies, etc. Below are some of the comments we noted from the Q4 reporting.

Bank of America CEO: Funds out of deposits into the market for better returns

On Friday, we tweeted [LINK] "*BofA CEO Moynihan. Expected move of excess funds by higher income as rates drop out of deposits. ""deposit outflows you've seen in consumer have largely been driven by the higher-balance accounts who've moved their excess balances into the markets to seek higher yields." #OOTT."* This is the expected move to see higher income take any excess funds out of bank deposits as interest rates fall and move those funds into markets looking for better yields. Moynihan also highlighted consumer balances stay strong and "*our consumer deposit balances at Bank of America remained 30% higher than pre-pandemic. We saw the deposit balance of consumer accounts move lower this quarter, but are now seeing more differentiation in behavior. In the lower average balance size accounts, the balances in there still remain at multiples of pre-epidemic levels, nearly three years past last stimulus. They are modestly declining. The deposit outflows you've seen in consumer have largely been driven by the higher-balance accounts who've moved their excess balances into the markets to seek higher yields."* Moynihan also noted that consumers are spending but spending more in services and experiences and less on goods. Moynihan said "*But we see the consumer activity indicating that they're still in the game, they're still spending money. Where they spend, it's a little different, more in services and going out in restaurants and experiences and less on goods at retail. They're employed. If you look at the estimates by any of you -- any of your economists, the unemployment rate projected is really a modest deterioration from here, most of them in the core base case, our reserves actually set at almost a*

5% unemployment rate by the end of this year, to give you a sense. So that's good news."

Citigroup CEO Fraser: not much on macro, focus was on disappointing Q4
There wasn't' much on macro items from Citigroup CEO Jane Fraser who was focused on dealing with what she said "*the fourth quarter was clearly very disappointing."* And her opening comments were filled with negatives such as "*Earlier this week, we disclosed additional external headwinds, some of which materialized in the second half of December, including a $1.3 billion reserve build related to transfer risk, stemming from exposures in Argentina and Russia. We also saw a nearly $900 million negative revenue impact as a result of the larger-than expected evaluation of the Argentine currency."* And the questions were focused on why are things going to get better. A good example was the first question "*I think the question is on many people's minds, I count [ph] 12 restructurings of Citigroup, and I count 12 restructurings that have failed at Citigroup, you might disagree with the number 12, it could be five, it could be eight, it can be 12, it would be more, but I'm not spoken to one person of any investor, who would say that Citi has succeeded on its prior restructuring. So the question is, why is this time different, number one, who is this new and improved Citigroup?"*

JP Morgan CEO Dimon: inflation stickers and rates to be higher than expected
CEO Jamie Dimon has kept to his same concerns that inflation would be stickier and interest rates would be higher than expected. On Friday, we tweeted [LINK] ""*this may lead inflation to be stickier and rates to be higher than the markets expect" "ongoing wars in Ukraine and the Middle East have the potential to disrupt energy & food markets, migration and military and economic relationships..." JPMorgan CEO Dimon Q4 message #OOTT*." The full Dimon commentary was "*The U.S. economy continues to be resilient, with consumers still spending, and markets currently expect a soft landing. It is important to note that the economy is being fueled by large amounts of government deficit spending and past stimulus. There is also an ongoing need for increased spending due to the green economy, the restructuring of global supply chains, higher military spending and rising healthcare costs. This may lead inflation to be stickier and rates to be higher than markets expect. On top of this, there are a number of downside risks to watch. Quantitative tightening is draining over $900 billion of liquidity from the system annually, and we have never seen a full cycle of tightening. And the ongoing wars in Ukraine and the Middle East have the potential to disrupt energy and food markets, migration, and military and economic relationships, in addition to their dreadful human cost. These significant and somewhat unprecedented forces cause us to remain cautious. While we hope for the best, the past year demonstrated why we must be prepared for any environment."*

Wells Fargo CEO: "seen some modest deterioration" in credit to lower income
One warning from Wells Fargo CEO Scharf message was "*We are closely monitoring credit, and while we've seen modest deterioration, it remains consistent with our expectations."* He was asked on this in the Q4 call. And mgmt clarified that the credit stress was to the lower income and that the credit losses are in line with pre-Covid. Mgmt replied "*But when you go below that, and we've tried to highlight this a few*

times over the last year or so, when you go below that, there are certainly cohorts of clients or people that are stressed, and the further you go down in income levels or the further you go down in wealth levels, the cumulative impact of inflation has really taken a toll." "And the only thing I would add is that, that is -- that's something that has always, let me say, always existed pre-COVID, right? There were always people that were doing better, and there were people that were doing worse. And I think what's important -- I speak for ourselves, when we look at our card losses, what we actually are looking at is, how they're performing on a vintage basis versus pre-COVID levels. And the curves are right on top of what that is. And so, it's -- when we talk about getting back to normal in terms of what we're seeing, that's what we're actually seeing in card losses. We're not seeing, at this point, anything that goes beyond that".

Bloomberg's Billionaire index

Capital Markets: Bloomberg Top 500 billionaires index

For those with a Bloomberg terminal, typing <RICH> Go will pull up Bloomberg's Billionaire Index that is updated daily based on market close for the top 500 billionaires in the world. Below is the table of the top 10 as of the Friday close. There shouldn't be any surprises by who is in the top ten but the ranking will move around as there is a very tight grouping from 8 at $122.4 billion to Warren Buffett at 10 with $121.8 billion. No surprise Elon Musk is #1 at $206.1 billion followed by Jeff Bezos at $179.4 billion. Our Supplemental Documents package includes the top 500 billionaires as of Jan 12.

Figure 73: Bloomberg's Top 10 billionaires as of Jan 12, 2024 close

	Name	Rank	Worth	Chg 1D	Chg YTD	3M Range
1)	Elon Musk	1	206.1B	-6.0B	-23.0B	
2)	Jeff Bezos	2	179.4B	-553.4M	2.5B	
3)	Bernard Arnault	3	161.6B	-2.0B	-17.5B	
4)	Bill Gates	4	140.4B	375.9M	-290.9M	
5)	Mark Zuckerberg	5	135.2B	1.7B	7.2B	
6)	Steve Ballmer	6	134.7B	1.2B	3.9B	
7)	Larry Page	7	128.8B	419.2M	2.3B	
8)	Larry Ellison	8	122.4B	1.1B	-495.1M	
9)	Sergey Brin	9	122.2B	392.7M	2.2B	
10)	Warren Buffett	10	121.8B	70.8M	2.0B	

Source: UN Food and Agricultural Organization

Shout out to our favorite Cdn billionaire – Chip Wilson

The Bloomberg Billionaires Index allows you to sort so we asked for the list of top Canadian billionaires that are in the Bloomberg top 500 billionaires. We have to give a shout out to our favorite Canadian billionaire – Chip Wison who started his work career as a Landman at Dome Petroleum. There are still a lot of Dome Petroleum alumni from the early 80s so I would be remiss if I didn't give a shout out to Chip Wilson for being #287 at US $8.3 billion and one of 15 Canadians that made the Bloomberg Billionaires Index top 500. Probably 99% of the people know Chip from his retail fame in particular his creation of Lululemon. But there are still a number of us who were young people in 1981 at then high flyer Dome Petroleum and that is where we met and worked with Chip when he was a Dome Petroleum landman. Chip's office was a couple doors down from mine in the Dome Tower and anyone who worked with him would tell you he was a good guy and also an entrepreneur back then who was going to be successful. He was a landman by day and started his first retail success, Westbeach, at night first with a summer cart on the Calgary 8th avenue mall and then his retail store thereon. His big success at Westbeach was the precursor to his huge success at Lululemon. Congratulations to Chip!

Figure 74: Blomberg's Top Canadian billionaires as of Jan 12, 2024 close

Name	Worth
Changpeng Zhao	26.2B
Sherry Brydson	17.4B
Taylor Thomson	10.8B
Peter Thomson	10.8B
David Thomson	10.8B
Arthur Irving	8.8B
Linda Campbell	8.5B
Gaye Farncombe	8.5B
Chip Wilson	8.3B
David Cheriton	7.6B
Alain Bouchard	7.5B
Tobi Lutke	7.1B
J K Irving	6.9B
James Pattison	6.8B
Joe Tsai	5.5B

Source: Bloomberg

Capital Markets: Does Trudeau have to go big on tax and spend in 2024

Big year for Trudeau's Liberals

We were watching CTV News on Saturday morning when Nick Nanos came on to update his latest poll numbers on Canadians view of the federal government. The numbers are so bad for the Liberals that our first thought was Trudeau and the Liberals will have to take some big swings in 2024 to have any chance of turning the tide. We tweeted [LINK] "*Brutal poll #s with <21 mths to Canada election. Does Trudeau have any choice but to go big on tax and spend if he wants to try to avoid what he did to Harper in 2015? Logical targets: high income, corporates, wealth tax, 2nd homes, fossil fuels, etc? Thx @niknanos #OOTT.*" Nanos was speaking on the results of their just released poll "*Feelings of satisfaction toward the federal government hit all time low since tracking started in 2018*". But what caught our attention was the graphics Nanos used on to note how Trudeaus was down to somewhat poor or very poor at 54% in Dec 2023 compared to 23% when he took over in 2015. Nanos also showed how former Conservative PM Harper had what was then considered a brutal somewhat poor or very poor of 45% before Trudeau's Liberals thumped the Conservatives in the 2015 election. The current polling shows strong negative views in all regions among all age groups and both genders. So when we see the brutal pool numbers, it makes us believe the Liberals will have no choice but to go big on tax and spend. And if so, the logical targets will be the usual suspects like high income, wealthy, corporations, fossil fuels and likely items like 2nd homes. Our Supplemental Documents package includes excerpts from the Nanos poll and the graphics he used on CTV News, and the results of the 2015 election that saw the Trudeau Liberals thump the Harper Conservatives.

Figure 75: Feelings towards the federal government by region

Feelings towards the federal government by region

Q Which of the following feelings best describes your views of the federal government in Ottawa? [RANDOMIZE]

	Canada			Atlantic			Quebec			Ontario			Prairies			British Columbia		
	2023-12 (n=1006)	2023-09 (n=1058)	2023-06 (n=1055)	2023-12 (n=106)	2023-09 (n=100)	2023-06 (n=72)	2023-12 (n=255)	2023-09 (n=226)	2023-06 (n=239)	2023-12 (n=339)	2023-09 (n=362)	2023-06 (n=354)	2023-12 (n=195)	2023-09 (n=212)	2023-06 (n=222)	2023-12 (n=111)	2023-09 (n=158)	2023-06 (n=168)
Pessimism	30.1%	33.8%	30.6 %	34.0%	36.8%	33.4%	29.9%	36.4%	25.4%	27.7%	32.6%	31.2%	31.6%	32.4%	32.8%	33.5%	33.5%	33.4%
Anger	25.1%	24.9%	24.7 %	20.7%	24.8%	21.2%	11.7%	14.4%	16.1%	27.1%	27.7%	25.0%	38.1%	32.1%	36.7%	27.2%	25.6%	24.4%
Disinterest	12.8%	7.9%	10.9 %	5.1%	7.0%	8.6%	25.3%	8.0%	10.6%	11.0%	6.7%	13.2%	6.7%	8.6%	8.5%	8.5%	10.6%	8.8%
Satisfaction	11.9%	15.3%	16.1 %	19.1%	15.8%	19.7%	11.0%	14.0%	18.6%	13.0%	16.8%	14.5%	6.1%	12.6%	12.5%	14.3%	16.8%	18.9%
Optimism	11.9%	12.0%	10.9 %	13.8%	10.4%	10.1%	13.1%	19.4%	20.7%	11.8%	11.1%	8.3%	10.6%	9.7%	5.5%	10.6%	6.3%	9.3%
Unsure	8.2%	6.0%	6.9 %	7.3%	5.2%	7.0%	8.9%	7.9%	8.5%	9.3%	5.2%	7.8%	6.9%	4.6%	4.0%	5.9%	7.3%	5.2%

Source: Nanos Research, RDD dual frame hybrid telephone and online random survey, December 27th to 29th, 2023, n=1006, accurate 3.1 percentage points plus or minus, 19 times out of 20.

NANOS

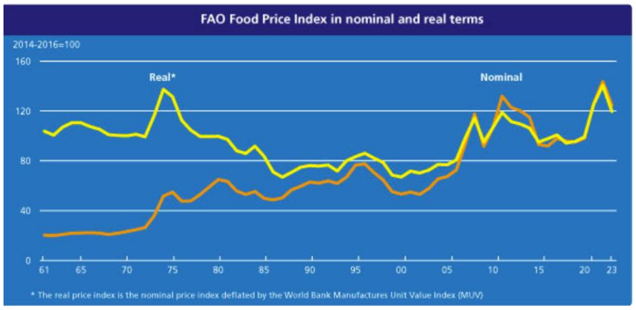
Source: Nanos Research

Capital Markets: UN FAO Food Price Index -1.5% MoM in December, -10.1% YoY

UN food price index down MoM

Other than two small blips in April and August 2023, the UN Food Price Index had declined for the past 15 months. But a decline in commodity food prices really hasn't translated into a proportional decline in grocery food prices, or anywhere near that as the UN FAO Food Price index is a commodities measure and not a grocery store price measure. But it's good news that food commodity prices continue to ease and hopefully these will ultimately work their way thru the added costs in the supply chain before they get to grocery stores prices. The UN global food price index was down MoM in December 2023. Last Friday, the UN posted its monthly update of its FAO Food Price Index [LINK] titled "*FAO Food Price Index overall unchanged in November".* Note that the index is calculated on a Real Price basis. The FFPI averaged 118.5 points in December, down -1.5% MoM from 120.4 points in November, and down -10.1% YoY. The FFPI reported mixed movements for most of its sub-indices in December. The Vegetable Oil Index was down -1.4% MoM after an increase last month. The Dairy Price Index was up +1.6% MoM, its third consecutive MoM increase, but is down -16.1% YoY. The Cereal Price Index was up +1.5% MoM which is -16.6% YoY. The Meat Price Index was down -1.0% MoM and -1.8% YoY. Overall, the average index value for the entire 2023 year was 13.7% lower than the 2022 average.

Figure 76: UN FAO Food Price Index



Source: UN Food and Agricultural Organization

Q3/23 call, Loblaw says "*grocers are not the reason for high food prices*"
On Nov 15, Loblaw held its Q3 call and made sure they reminded investors that grocers aren't the reason for high food prices, it's the suppliers and other aspects of the supply chain. Loblaw's Galen Weston said *"Overall affordability remains a pressing issue on Canadians' minds, and lower food prices remain a top priority for us throughout the business, from our stores to our supply chain, to our suppliers. And it's important to reiterate that grocers are not the reason for high food prices, and so we are unable to resolve inflationary pressures on our own. Over the last two months, we have participated actively in discussions with government, shared ideas and have provided them with the details of the specific actions we have taken."* Loblaw CFO Dufresne emphasized they were reducing margins to help keep pricing down and that it was the suppliers who were still increasing price. Dufrene said "*Our internal food inflation number was lower than food CPI. In fact, our actual inflation on food items as measured at our checkouts was significantly lower than food CPI, clearly demonstrating the role we are playing to help stabilize food prices for our customers. Since January, food inflation in Canada has been falling rapidly and consistently. While Canada continues to see lower food inflation than most of the world, we know that rising food prices have a real impact on Canadians and their families. Loblaw continues to invest to keep prices lower in our stores. The decrease in our food margin is evidence that our costs continue to grow faster than our prices. As we continue to do our part to fight inflation, we remain concerned about the level of commitment to this cause from some of our suppliers. Without the support of suppliers, it will be difficult for the industry to sustain the current momentum of falling food inflation With lower supplier costs, we can lower prices on the shelf for customers. Unfortunately, several large global suppliers are still coming with higher-than-expected cost increases for next year."*

Carrefour's latest will no longer sell Pepsi due to unacceptable price increase
Last week, Carrefour launched its latest against Pepsi products by removing them from shelves and posting a sign where the Pepsi products would have been on the shelf. "*We no longer sell this brand for good reason. Unacceptable price increase. We apologize for the inconvenience".* Our Sept 17, 2023 Energy Tidbits memo noted their prior warning on Pepsi products. We then wrote "*Will Cdn grocers also highlight supplier shrinkflation examples like Carrefour? After seeing how Trudeau called out the grocers and not the supply chain for increased grocery prices, we couldn't help tweet [LINK]""Shrinkflation, This product has seen its liter decrease and the price charged by our supplier increase" Will Carrefour's (France) shrinkflation signs be coming to Canada with @JustinTrudeau calling out grocers. Grocers won't want to take all the blame." Carrefour, the major France grocer, started putting the below signs on products this week that identified some products where the supplier reduced the product sized but still increased the price ie. shrinkflation + higher price*." On Monday, the WSJ reported [LINK] "*PepsiCo, Grocery Giant Bicker Over Who Dumped Whom*" "*"Regrettably, Carrefour has mischaracterized the chain of events," a PepsiCo spokesman said Monday. "Given the lack of agreement on a new contract, we stopped supplying to Carrefour at the end of the year, something they were aware could happen. We hope we can agree on terms soon so our products can be back on their shelves for consumers to enjoy. In response, Carrefour said*

Monday: "We, at the Carrefour Group, have taken this decision."

Figure 77: Carrefour signs on Pepsi in early Jan

Source: MSN

Figure 78: Carrefour sticks price warnings on food to shame shippers in Sept

Source: Reuters

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

It may not last as followers can drop off but, last Sunday, we 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.

Too cold to de-ice airplanes so air travel in Alberta is in chaos

One of the news stories this morning is on the increasing cancellations of flights out of Alberta. CTV News reported this morning that WestJet had to cancel 122 flights out of Alberta yesterday and 75 of these were out of Calgary. Calgary is the key WestJet hub. And perhaps the key reason is the reports that the de-icers can't work in this brutal cold. And if you can't de-ice an airplane, the airplane can't fly. The cancellations are continuing this morning with WestJet sending out cancellation texts/emails. And these are cancellation notices with no indication of when they might be rescheduled.

Tim Hortons brings back 4 retro donuts as part of its 60th anniversary

On Wednesday, Tim Hortons announced [LINK] "*Tim Hortons is turning 60! Get ready to join Tims for a year of festivities starting with the return of four retro donuts - the Dutchie, Blueberry Fritter, Cinnamon Sugar Twist and Walnut Crunch - starting TODAY for a limited time.*" Tim Hortons is celebrating the 60th anniversary of opening the first Tim Hortons on May 17, 1964 in Hamilton. For those wo know Hamilton a bit, the first locations was at 64 Ottawa Street North, near Dunsmure Rd. For those who like churros, you might want to try what is kind of a Canadian version – the Cinamon Sugar Twist.

Figure 79: Tim Hortons limited time retro donuts

Source: Tim Hortons

Tim Horton would have turned 94 on Friday

NHL great Tim Horton passed away on Feb 21, 1974. He would turned 94 on Friday as his birthdate was Jan 12, 1930. Horton was most famous for his 19 years with the Toronto Maple Leafs and he was a key part of the four Stanley Cup winning teams in the 1960s – 1961/62, 1962/63, 1963/64 and 1966/67. He played right defense alongside of Allen Stanley at left defense. In the 60s, the Leafs used to practice at Tam O'Shanter rink at Kennedy Road and Sheppard Avenue in Toronto when the Maple Leaf Gardens were being used by something like Ice Capades. Practice time was late morning so my mom would get us from public school at noon to take us up to watch the Leafs and try to get broken hockey sticks and autographs. All of the Leafs were so good and signed autograph. Here is Tim Horton's autograph from the fall of 1963 that he signed on the back of my mom's Lynnwood Heights Public School Parents Association card with its $1.00 membership fee noted.

Figure 80: Tim Horton autograph in 1963

Source: SAF Group

Chiefs QB Patrick Mahomes helmet cracks in the cold temperatures last night

The Kansas City Chiefs beat the Miami Dolphins last night 26-7 in what was the 4th coldest game in NFL history. At kickoff, the temperature was -4F for the 4th coldest temperature in NFL history but with a wind chill taking it to -27F that was the 3rd coldest wind chill in NFL history. It was so cold that a tackle ended up cracking Chiefs QB Patrick Mahomes helmet with 9:25 left in the 3rd quarter. Mahomes left the pocket and was met by Dolphins Safety DeShon Elliott on the Dolphins 3 yard line and the contact ended up knocking a piece of his helmet out. It was cold.

Figure 81: Chiefs QB Patrick Mahomes

Source: Larry Brown Sports