SAF GROUP

Energy Tidbits

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Last 48 Hours Sees Big Escalation of US Airstrikes Against Houthis in Yemen and Targets in Iraq, and Syria

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

This week's memo highlights:

1. Big escalation of US air strikes against the Houthis in Yemen and at targets in Iraq and Syria. [click here]
2. Saudi Aramco surprises and says it won't proceed on plans to expand MSC from 12 to 13 mmb/d. [click here]
3. Start up of 1.8 bcf/d LNG Canada is the most significant event to Cdn natural gas and it seems more are expecting an earlier than expected start. [click here]
4. NOAA forecasts a warmer than normal Feb, which is sets the risk for a repeat of 2023 when a warm winter kept a lid on HH prices thru the spring. [click here]
5. A week of EV news that casts more doubt on EV growth forecasts and how quickly EVs will displace oil and gasoline consumption of ICE vehicles. [click here]
6. Please follow us on Twitter at [LINK] for breaking news that ultimately ends up in the weekly Energy Tidbits memo that doesn't get posted until Sunday noon MT.
7. For new readers to our Energy Tidbits and our blogs, you will need to sign up at our blog sign up to receive future Energy Tidbits memos. The sign up is available at [LINK].

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Natural Gas: 197 bcf draw from US gas storage; now +54 bcf YoY surplus

197 draw in US gas storage

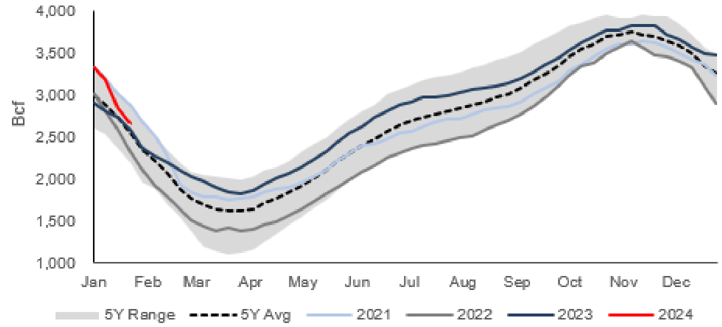
There was a slightly smaller, but still big overall draw from natural gas storage in the US this week with -197 bcf leaving stockpiles. For the week of Jan 26, the EIA reported a -197 bcf draw, bigger than the -151 bcf/d draw reported for the week of Jan 27, 2023. Total storage is now 2.659 tcf, representing a surplus of +54 bcf YoY compared to a surplus of +110 bcf last week. Last month was the highest storage has been in 5 years, with the previous high being 3,460 bcf from 2020. Total storage is +130 bcf above the 5-year average, down from the +140 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 (01/26/23)		5-year average (2019-23)	
Region	01/26/24	01/19/24	net change	implied flow	Bcf	% change	Bcf	% change
East	605	657	-52	-52	584	3.6	579	4.5
Midwest	727	788	-61	-61	715	1.7	689	5.5
Mountain	185	194	-9	-9	133	39.1	137	35.0
Pacific	223	228	-5	-5	141	58.2	199	12.1
South Central	919	990	-71	-71	1,031	-10.9	925	-0.6
Salt	248	269	-21	-21	299	-17.1	279	-11.1
Nonsalt	672	721	-49	-49	732	-8.2	646	4.0
Total	**2,659**	**2,856**	**-197**	**-197**	**2,605**	**2.1**	**2,529**	**5.1**

Source: EIA

Figure 2: US Natural Gas Storage – Historical vs Current



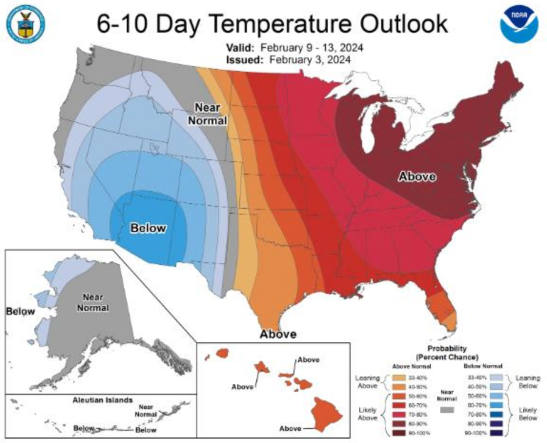
Source: EIA, SAF

Natural Gas: NOAA forecasts warmer than normal in eastern US thru mid Feb

NOAA 6-10 & 8-14 day temp outlook

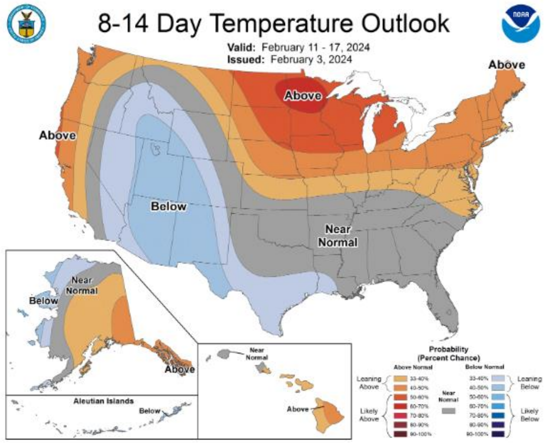
Yesterday, we tweeted [LINK] *"Updated @NOAA 6-10 & 8-14 day temperature outlook covering Feb 9-17. Warmer than normal in Feb is never a plus a HH #NatGas prices. #OOTT".* Every day, NOAA updates its 6-10 and 8-14 day temperature outlooks and yesterday's calls for mostly normal or warmer than normal temperatures for the Feb 9-17 period. And Feb is normally the last big weather related natural gas demand month in the winter so a warmer than normal Feb is never a positive for HH prices.

Figure 3: NOAA 6-10 day temperature outlook as of Feb 3



Source: NOAA

Figure 4: NOAA 8-14 day temperature outlook as of Feb 3



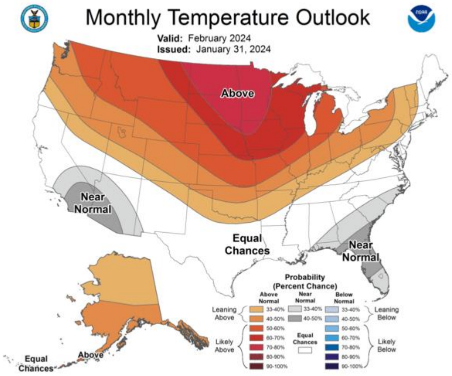
Source: NOAA

Natural Gas: NOAA forecasts warmer than normal Feb in northern half of US

NOAA Feb temp outlook

On Friday, we tweeted [LINK] "*Henry Hub #NatGas $2.06, should stay weak with @NOAA forecast calling for above normal temperatures for northern half of US. Doesn't help that #LNG and EU #NatGas prices continue to be soft. Set up for 2023 repeat with stalled #NatGas #LNG prices thru shoulder season. #OOTT."* Our concern in the early winter was the warning that it would be tough to catch up for HH prices with the warm start in Nov and Dec unless there was sustained cold weather in Jan and Feb. Other than a relatively short cold period in Jan, that hasn't happened. And now, NOAA's Jan 31 updated temperature outlook for Feb calls for warmer than normal temperatures across the northern half of the US. NOAA wrote "*The February temperature outlook has enhanced odds for well above average temperatures across the northern half of the country from the Pacific Northwest through the central and northern Great Plains into parts of the Northeast*.*"* The issue is that it's too late to save winter or even rally HH prices for any big price increase, which is why we remain concerned that natural gas prices will see a repeat of 2023 where prices stay soft thru shoulder season. Below is the NOAA Feb temperature outlook. [LINK]

Figure 5: Monthly Temperature Outlook for Feb, Posted Jan 31



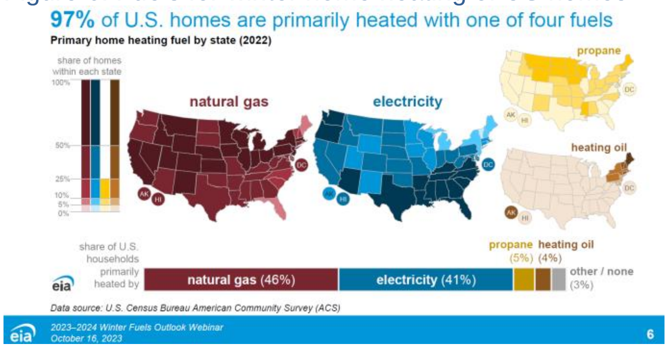
Source: NOAA

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

Natural gas home heating

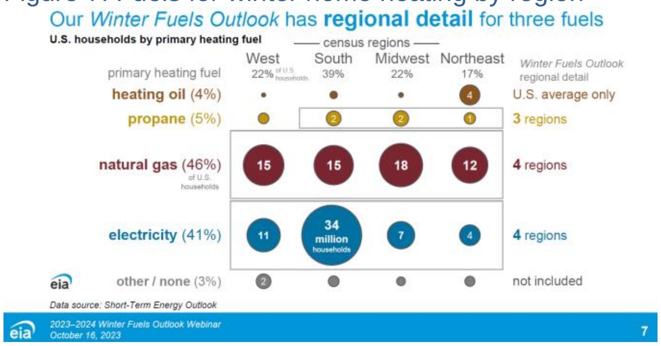
We focus our winter temperature looks on the Great Lakes and NE US, which are the major home heating natural gas regions for the winter. We are keeping this item in our memos for Jan and Feb as one of the common questions we get is on where is it important to be cold in the US for natural gas. Here is 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 6: Fuels for winter home heating of US homes



Source: EIA

Figure 7: Fuels for winter home heating by region



Source: EIA

Natural Gas: US Nov gas production was 105.9 bcf/d, +1.5 bcf/d MoM, +3.7 bcf/d YoY

US gas production now 105.9 bcf/d

The warm winter 2022/23 around the world was the big reason for the holdback to HH and AECO natural gas prices in 2023, but the other major factor was the continued big YoY growth in US natural gas production. US natural gas production increased to over 103 bcf/d in May, then over 104 bcf/d in Aug and not over 105 bcf/d in Nov. On Wednesday, the EIA released its Natural Gas Monthly [LINK], which includes its estimated "actuals" for November's dry gas production. Key items to note are as follows: (i) There were no material revisions to prior monthly production estimates. (ii) November's production of 105.9 bcf/d was +3.7 bcf/d YoY from November 2022 of 102.2 bcf/d, and up +1.5 bcf/d MoM vs October 2023 of 104.4 bcf/d. Our Supplemental Documents package includes excerpts from the EIA Natural Gas Monthly.

Figure 8: US Dry Natural Gas Production

bcf/d	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Jan	56.0	60.0	66.0	65.3	66.8	73.4	73.6	70.6	78.7	89.3	97.4	92.6	96.2	101.9
Feb	57.2	58.8	67.0	65.4	68.4	73.8	77.3	71.5	80.4	89.9	98.9	85.8	96.0	102.0
March	57.3	61.5	65.0	65.3	68.9	74.1	73.8	73.2	81.3	90.3	96.3	93.6	97.6	102.9
Apr	57.6	62.3	64.8	66.1	70.5	75.2	73.7	73.3	81.2	90.7	96.0	94.3	98.3	102.6
May	58.0	62.4	65.0	65.9	70.2	74.1	72.9	73.3	82.1	91.4	87.9	94.2	99.1	103.6
June	57.2	62.1	64.6	65.8	70.5	74.0	72.2	74.0	82.5	91.7	90.4	93.9	99.3	103.3
July	58.2	62.5	66.3	67.1	72.0	74.2	72.8	74.7	84.2	92.2	90.3	94.8	100.4	103.4
Aug	58.9	63.2	66.0	66.9	72.4	74.3	72.2	74.7	85.9	94.4	90.4	95.0	100.9	104.5
Sept	59.1	63.1	66.4	66.8	72.4	74.7	71.7	76.0	87.3	94.8	91.3	95.7	102.4	104.5
Oct	60.1	65.1	66.5	67.0	73.1	74.2	71.4	77.3	88.4	96.6	89.7	97.2	102.2	104.4
Nov	60.1	65.9	66.6	67.7	72.6	73.9	72.0	79.8	89.9	97.2	92.5	98.3	102.2	105.9
Dec	61.0	65.6	66.0	66.5	73.2	73.9	71.2	80.4	89.5	97.1	93.1	99.1	100.2	
Average	58.4	62.7	65.9	66.3	70.9	74.2	72.9	74.9	84.3	92.9	92.7	94.5	99.6	103.5

Source: EIA, SAF

Natural Gas: US pipeline exports to Mexico at 6.0 bcf/d in November, up YoY

US pipeline exports to Mexico down MoM, up YoY

As a reminder, the new monthly DOE Natural Gas Imports and Exports provides the US natural gas pipeline export data to Mexico about 1 week before the monthly EIA Natural gas Monthly report. The EIA is part of the DOE so the data is the same source. The only difference is that the EIA Natural Gas Imports and Exports data is for both US pipeline natural gas exports to Mexico and LNG exports to Mexico. But because there are no LNG exports to Mexico, the data is the same as this week's data. On Wednesday, the EIA released its Natural Gas Monthly, which also provides its "actuals" for gas pipeline exports to Mexico [LINK], which were 6.0 bcf/d in November, down -0.4 bcf/d MoM from 6.4 bcf/d in October but is up +0.6 bcf/d YoY from 5.4 bcf/d in November 2022. The EIA doesn't provide explanations for the numbers including the WoW decrease. Mexico's relatively unchanged domestic production over the past seven years has created the need for increased US pipeline exports as Mexico builds out its domestic natural gas infrastructure. Below is our table of the EIA's monthly gas exports to Mexico.

Figure 9: US Pipeline Exports to Mexico

bcf/d	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Jan	1.7	2.2	3.2	3.9	4.4	4.9	5.2	5.6	5.7	5.4
Feb	1.8	2.3	3.5	4.0	4.5	4.8	5.4	4.9	5.5	5.5
March	1.9	2.4	3.3	4.2	4.3	4.8	5.4	5.9	5.5	5.7
Apr	1.9	2.6	3.5	3.7	4.4	4.7	4.6	6.1	5.9	5.6
May	2.0	2.8	3.7	4.0	4.4	5.0	4.7	6.2	6.0	6.2
June	2.2	3.0	3.9	4.5	4.6	5.2	5.4	6.6	6.1	6.8
July	2.2	3.3	4.0	4.4	4.9	5.4	5.8	6.4	6.1	6.7
Aug	2.1	3.3	4.3	4.4	5.0	5.4	6.0	6.2	5.8	6.9
Sept	2.2	3.3	4.1	4.2	5.0	5.4	6.1	6.0	5.6	6.7
Oct	1.9	3.2	4.2	4.2	4.9	5.5	6.0	6.0	5.5	6.4
Nov	1.9	3.0	4.0	4.5	4.7	5.3	5.5	5.5	5.4	6.0
Dec	2.1	3.2	3.6	4.4	4.5	4.9	5.3	5.4	5.1	
Average	2.0	2.9	3.8	4.2	4.6	5.1	5.5	5.9	5.7	6.2

Source: EIA, SAF

Natural Gas: US LNG exports up +0.5 bcf/d MoM to 12.9 bcf/d in Nov; up +2.8 bcf/d YoY

US November LNG exports

As a reminder, the US LNG export data is available about a week earlier in the DOE's Natural Gas Import and Export report. The EIA is part of the DOE so the numbers are the same or, if anything, a rounding. On Wednesday, the EIA's Natural Gas Monthly reported the same data, US LNG exports for November were 12.9 bcf/d, up +0.5 bcf/d MoM from 12.4 bcf/d in October and up +2.8 bcf/d from 10.1 bcf/d in November 2022. Here's what we wrote in last week's (Jan 28, 2024) Energy Tidbits memo: "*Last Friday, the Department of Energy (DOE) posted its US LNG exports estimates for November 2023 [LINK]. Note, the DOE has changed the name from the LNG Monthly to the U.S. Natural Gas Imports and Exports Monthly. This is* *a reminder that the US LNG export data is available about a week prior to the more commonly referenced US LNG exports from the EIA's Natural Gas Monthly. The EIA is a group under the Department of Energy. The data for LNG exports is either identical or just a rounding issue. US LNG exports were up MoM to 12.9 bcf/d in November from 12.4 bcf/d in October. US LNG exports are now averaging 11.7 bcf/d per month YTD for 2023, which is +1.1 bcf/d compared to the same period in 2022. The DOE did not comment on the MoM or YoY increases*". Below is a table of the EIA reported US monthly LNG exports and the DOE's LNG export summary table. Our Supplemental Documents package includes excerpts from the DOE's Natural Gas Imports and Exports monthly.

Figure 10: US Monthly LNG Exports

(bcf/d)	2016	2017	2018	2019	2020	2021	2022	2023
Jan	0.0	1.7	2.3	4.1	8.1	9.8	11.4	10.9
Feb	0.1	1.9	2.6	3.7	8.1	7.4	11.3	11.7
March	0.3	1.4	3.0	4.2	7.9	10.4	11.7	11.8
Apr	0.3	1.7	2.9	4.2	7.0	10.2	11.0	12.5
May	0.3	2.0	3.1	4.7	5.9	10.2	11.3	11.8
June	0.5	1.7	2.5	4.7	3.6	9.0	10.0	10.9
July	0.5	1.7	3.2	5.1	3.1	9.7	9.7	11.3
Aug	0.9	1.5	3.0	4.5	3.6	9.6	9.7	11.4
Sept	0.6	1.8	2.7	5.3	5.0	9.5	9.8	11.7
Oct	0.1	2.6	2.9	5.7	7.2	9.6	10.0	12.4
Nov	1.1	2.7	3.6	6.4	9.4	10.2	10.1	12.9
Dec	1.3	2.7	4.0	7.1	9.8	11.1	11.0	
Average	0.5	1.9	3.0	5.0	6.6	9.7	10.6	11.8

Source: EIA, SAF

Figure 11: US LNG and Natural Gas Exports Nov 2023 vs Nov 2022 and Oct 2023 (DOE)

Volume (Bcf)	Monthly			Percentage Change	
Mode of Transport	Nov 2023	Oct 2023	Nov 2022	Nov 2023 vs. Oct 2023	Nov 2023 vs. Nov 2022
Exports					
LNG by Vessel	386.2	384.3	302.3	<1%	28%
Pipeline	268.4	267.4	252.4	<1%	6%
Truck	<0.1	<0.1	0.2	-2%	-83%
LNG by ISO Container	<0.1	<0.1	0.2	-4%	-72%
Total	**654.7**	**651.8**	**555.0**	**<1%**	**18%**

Source: DOE

Natural Gas: Shell, LNG Canada 1.8 bcf/d Phase 1 to start up later this year

Shell held its Q4 call on Thursday and we were looking for any update on what is the most significant event for Canadian natural gas – the start up of LNG Canada's 1.8 bcf/d Phase 1 LNG export project. This is a game changer for natural gas in western Canada. There shouldn't be any big surprise to see Shell say they expect LNG Canada Phase 1 to start up later in 2024. But the question is when in 2024? And we were looking to see if any indication that it was starting earlier than expected, which seems to some chatter from some of the Montney producers. Shell didn't confirm that chatter nor seem to trash that view. (i) Our 2nd tweet was [LINK] "*OOPS! must have fallen asleep in the last question on #LNGCanada 1.8 bcfd Phase 1 on Shell Q4 call. Sounds like something @JeremyMcCreaCFA mentioned, #CoastalGasLink may start to take #NatGas earlier than expected ie, earlier support to*

AECO, hopefully in late summer. #OOTT." We listened to the call live just to hear what they would say on LNG Canada but somehow didn't listen to the last question. Shell CEOSawan said "*Thank you very much. Our free. I'll take the first one and then let Sinead address the second one. LNG Canada. You will have. We also address this last year, we have seen of course the GasLink Coastal GasLink Pipeline completed mechanically last year and ready and available to ramp-up through the course of 2024. The facility itself at Kitimat is now just over 90% complete. As per the report from the joint-venture. So they're making good progress and. I would expect that we would expect that later this year, they would start-up. The commissioning of the plant. That of course takes several months well into 2025, but it's comforting to see the progress that is being made. And of course, once we start producing those commissioning cargos will be made available from day-one to our foundational customers. As you would expect. So.Pleased with the progress. But this no doubt this is a very-very complex facility that's going to be. Be ramped-up. And therefore, we are going to be to watch it and to support the team as they do that in the course of the coming 12 months to 18 months."*

An early start to Coastal GasLink would help AECO differentials

For years, we have noted how AECO gas prices are likely to be weak ahead of the start of Coastal GasLink taking natural gas as there will be the build up of natural gas supply for LNG Canada that isn't ready to receive natural gas. Plus, as one of my SAF Group partners reminded, natural gas storage will be high going into the summer. But any early start of Coastal GasLink taking natural gas will be a positive to AECO gas prices.

TC Energy's Coast GasLink update should be coming on Feb 16

We should see a good update on Coastal GasLink from TC Energy on Feb 16 and we expect analysts to ask when will Coastal GasLink start line fill and if they are starting earlier than expected as seems to be the view from some natural gas producers. Last week, TC Energy announced "*TC Energy to issue Fourth Quarter 2023 Results on Feb 16. …. will hold a teleconference and webcast on Friday, Feb. 16, 2024, to discuss its fourth quarter financial results*."

11/28/23: Coastal GasLink 100% mechanical completion

Yesterday we tweeted [LINK] "*Reminder #CoastalGasLink 100% mechanical completion in Nov 2023. #LNGCanada 1.8 bcfd Phase 1 is key Cdn #NatGas event. Should soon hear if #LNGCanada is moving to LNG cargos for Nov 2024 ie. for winter 2024/25. Shell #LNG outlook is on Feb 14. TC Energy Q4 Feb 16. #OOTT."* Our tweet included Coastal GasLink's Nov 28, 2023 Construction Update "I*n early November 2023, Coastal GasLink achieved mechanical completion ahead of its year-end target." "Coastal GasLink's team is in the field completing pipeline commissioning activities to be ready to deliver commissioning gas to the LNG Canada facility by the end of this year."* Our tweet reminded that Shell's LNG Outlook is Feb 14 and TC Energy's Q4 call is on Feb 16. We should hear some indication or hint on the potential timing for when natural gas is flowing into Coastal GasLink and if LNG Canada will be delivering first cargos for Nov 2024 ie. in time for winter 2024/25.

Figure 12: Coastal GasLink Construction Update Nov 28, 2023

Source: Coastal GasLink

LNG Canada is one of Shell's "very attractive high margin projects"
In the Q&A,, Shell CEO Sawan spoke positive about LNG Canada and called it one of their "*very attractive high margin projects*." In our first tweet on the Shell Q4 call and before we realized we somehow missed the last key question onf LNG Canada, we tweeted [LINK] "*#LNGCanada. Shell Q4 call. No specifics on timing for 1.8 bcfd Phase 1 or potential for 1.8 bcfd Phase 2. But CEO Sawan includes in his "very attractive high margin projects" , "you can imagine how much value that [LNG Canada] is going to create". See 👇SAF transcript. #OOTT."* We created the following transcript of Sawan's answer on this point. Items in "*italics*" are SAF Group created transcript. In Q&A, 7:53am MT. Sawan "*what's critical is it's high quality barrels, you are talking predominately deepwater barrels, predominately LNG barrels. And what gives me particular confidence in the coming years is you are talking about some very attractive high margin projects coming in…….and then of course you have LNG Canada that is also sort of making good progress and LNG Canada, while it does not have a lot of, if any book able reserves, you can imagine how much value that is going to create*."

Natural Gas: Shell keeps its bullish long term view for LNG

Shell CEO positive on LNG

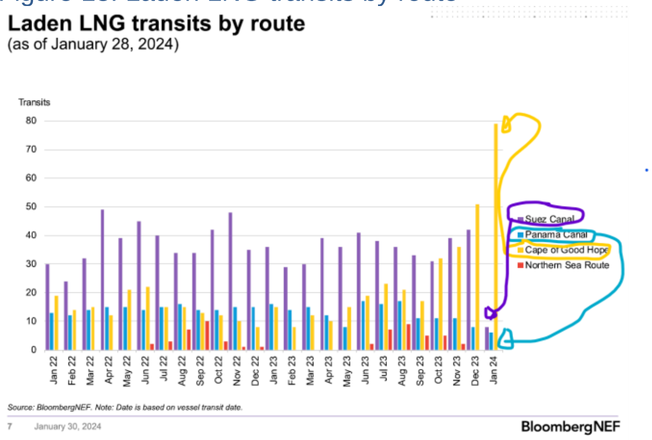
Shell CEO Sawan made bullish comments on LNG in his CNBC interview. Shell didn't provide any detail on its LNG outlook on the Q4 call but will do so in its Shell LNG Outlook 2024 on Feb 14. Before the Q4 call, CEO Sawan was interviewed on CNBC. We tweeted [LINK] "*Shell CEO bullish on LNG. @steve_sedgwick awful lot of new LNG capacity in 2nd half of 20s, "is LNG set to remain the star it has been?" CEO Sawan "I very much believe so ..... LNG has a long-term role to play & will continue to be robust". Q4 call at 7:30am MT #OOTT #NatGas."* Our tweet included the following transcript we made of Sawan's LNG outlook comments. SAF Group created transcript of comments by Shell CEO Wael Sawan with CNBC's Steve Sedgewick on Feb 1, 2024 [LINK] Items in "*italics*" are SAF Group created transcript. At 3:05 min mark, Sedgewick "*do you have concerns about the medium to longer term picture for LNG? There is an awful lot of capacity coming on line in the 2nd half of* *this decade as well. Is LNG set to remain the star it has been?"* Sawan "*I very much believe so. I mean we see LNG demand continuing to grow. There is a lot of latent demand, just 2023, we opened up a number of markets including the likes of Vietnam, Philippines and others. And at these price points right now, now that the market has reached a better equilibrium, you are beginning to see that latent demand starting to be met through a lot more buying. If you indeed look into the 2026 onwards period, there will be more LNG. We are absolutely convinced that the role of LNG plays in both achieving energy security, in particular in Europe and in Asia, as well as energy transition with coal-to-gas switching in places like China and India, will mean LNG has a long-term role to play and will continue to be robust*".

Natural Gas: LNG transits hit by both Panama and Suez Canals

Low Panama & Suez Canal LNG transits

On Friday, we tweeted [LINK] "*Reminder #LNG tankers being forced around Cape of Good Hope to avoid Red Sea because of the Houthis AND drought restrictions keeping LNG tankers via Panama Canal at lows. Also Asian buyers not worried about winter LNG supply risk. Thx @Bloomberg Han Wei, Kornelija Dauksaite #OOTT."* There was a good reminder from BloombergNEF's LNG Trade Weekly Jan 30, 2024 that LNG transits are being hit hard by both drought restrictions at Panama Canal and Houthis/US/UK attacks causing re-routing away from the Suez Canal. The restrictions for transits thru the Panama Canal have brought LNG transits to lows. This is in addition to all the re-rerouting LNG away from the Red Sea because of the Houthis missile/drone attacks. Of course, it doesn't help that Asia LNG buyers don't see any winter supply risk. Below is the BloombergNEF graph attached to our tweet.

Figure 13: Laden LNG transits by route



Source: BloombergNEF

Natural Gas: Good step-by-step video walking thru natural gas supply thru liquefaction

Good video on how LNG is made

On Wednesday, we tweeted [LINK] *"#LNG101. Good Freeport LNG 4:30 min video of step-by-step LNG process from feed gas thru removing mercury, acid gas removal, dehydration, NGL extraction, to liquefaction process, cooling to -263F so gas condenses into liquids, and loading #LNG for tankers. #OOTT #NatGas."* Our tweet included the 4:30 min video by Freeport LNG that walks thru all the stages from the feedgas thru all the processing stages to take the pipeline natural gas thru liquefaction and onto tankers for shipping around the world. We recommend it for those who haven't gone thru the various processing steps. Our tweet included the video.

Figure 14: Steps in liquefaction process

Source: Freeport LNG

Natural Gas: QatarEnergy & Excelerate Energy, ADNOC & GAIL sign LT LNG Deals

2 Long-term LNG deals

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) On Monday, QatarEnergy announced they signed a 15-year LNG Sales and Purchase Agreement (SPA) deal with Excelerate Energy (Bangladesh) [LINK], whereby Excelerate Energy will purchase 0.13 bcf/d from QatarEnergy from 2028 until 2040, beginning with 0.11 bcf/d in 2026-2027. QatarEnergy's President and CEO, Saad Sherida Al-Kaabi said "*We are pleased to sign this agreement with Excelerate for the supply of up to one million tons per annum of LNG to Bangladesh. This new agreement will further strengthen our relationship with Excelerate while also supporting the energy requirements of the People's Republic of Bangladesh and its stride towards greater economic development*". (ii) On Tuesday, ADNOC (UAE) announced the signed a 10-year LNG supply agreement with GAIL India [LINK], whereby GAIL will purchase 0.07 bcf/d between 2024 and 2034. The press release didn't say explicitly that it would start in 2024, but in the absence of any other indicated start date we assume it'll be soon this year. ADNOC's CEO Dr. Ahmed Mohamed Alebri commented "*This long-term LNG supply agreement with GAIL India marks a significant step forward in our commitment to continue providing reliable and sustainable energy solutions to our partners and customers around the world. India continues to be a key market for ADNOC Gas, and this latest supply agreement underscores our ongoing dedication to fostering long-term partnerships that promote responsible energy consumption*". Our supplemental documents package contains the QatarEnergy and ADNOC news releases.

There have been 20.24 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 20.24 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 58% 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 15: Long-Term LNG Buyer Deals Since July 1, 2021

Long-Term LNG Buyer Deals Since July 1, 2021

Date	Buyer	Seller	Country Buyer / Seller	Volume (bcf/d)	Duration Years	Start	End
Asian LNG Deals							
Jul 7, 2021	CNOOC	Petronas	China / Canada	0.30	10.0	2022	2032
Jul 9, 2021	CPC	QatarEnergy	Taiwan / Qatar	0.78	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	Total Energies	Korea / France	0.08	15.0	2024	2039
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 18, 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	2026	2043
Jan 5, 2024	GAIL	Vitol	India / Singapore	0.13	10.0	2026	2036
Jan 8, 2024	Shell	Ksi Lisims LNG	Singapore / Canada	0.26	20.0	2027	2047
Jan 16, 2024	ExxonMobil	Mexico Pacific Ltd	Singapore / Mexico	0.16	20.0	2024	2044
Jan 29, 2024	Excelerate	QatarEnergy	Bangladesh / Qatar	0.13	15.0	2026	2041
Jan 30, 2024	ADNOC	GAIL India	UAE / India	0.07	10.0	2024	2034
Total Asian LNG Buyers New Long Term Contracts Since Jul/21				12.50			

Long-Term LNG Buyer Deals Since July 1, 2021

Date	Buyer	Seller	Country Buyer / Seller	Volume (bcf/d)	Duration Years	Start	End
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	0.26	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	Harbour 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	2026	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	20.24

*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

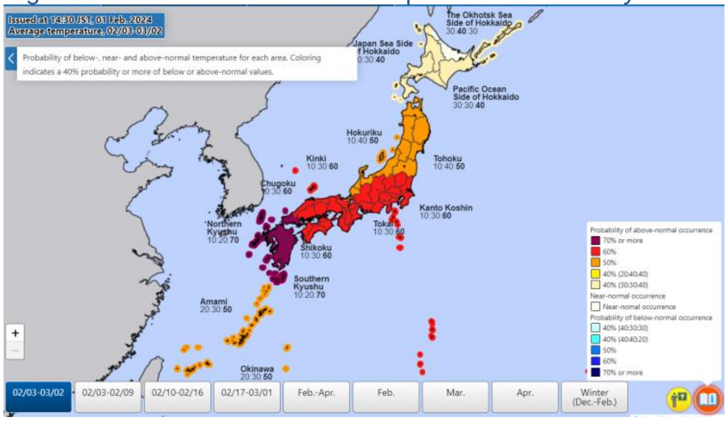
Natural Gas: Japan weather much warmer than normal next 30 days, ie February

Japan is the #2 LNG importer just behind China. It's now Feb and JKM LNG markets are past any worry about a risk to winter LNG supply and prices especially with the current forecasts for a much warmer Feb in Japan. And, in Japan, that really takes it through any winter weather driven natural gas demand period. We have been warming for weeks that it is setting up a repeat of winter 2022/23 where the warm winter led to JKM LNG prices being

Japan's 30-day temperature forecast

held back for months. This is when JKM LNG prices should be high and not showing JKM LNG futures around $9.50 to end winter. Every Thursday, the Japan Meteorological Agency updates its 30-day outlook [LINK]. The February 1 update calls for much warmer than normal temperatures for the rest of January and through most of February. The JMA forecast is for Feb 3 – Mar 2, with the hotter weather starting in the south and gradually getting less warm as you go north. Below is the JMA's 30-day temperature probability forecast for Jan 27 – Feb 26.

Figure 16: JMA Feb 3 -Mar 3 Temperature Probability Forecast



Source: Japan Meteorological Agency

Natural Gas: Japan LNG stocks down big WoW, down YoY, but above 5-yr average

Japan LNG stocks down -13.3% WoW

There was a big draw from Japanese LNG storage this week, which we expect was likely due to some nuclear downtimes post the recent earthquake. Stocks are back above 2022 levels and above the 5-year average. On Wednesdays, Japan's METI releases its weekly LNG stocks data [LINK]. LNG stocks on Jan 28 were 103.7 bcf, down –13.3% WoW from Jan 21 of 119.6 bcf, down -9.6% YoY from 114.8 bcf a year earlier, but above the 5-year average for the end of January of 91.7 bcf. This is the lowest storage has been since October. METI did not comment on the WoW decrease. Below is the Japanese LNG stocks graph from the METI weekly report.

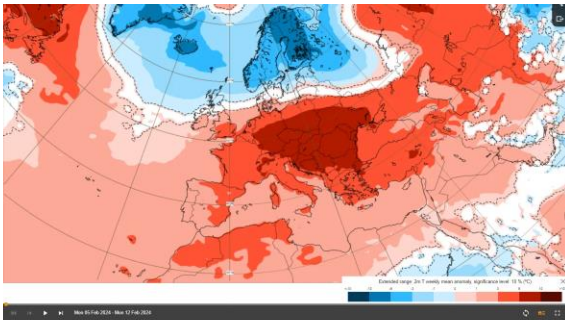
Figure 17: Japan LNG Stocks

Source: METI

Europe temperature forecast

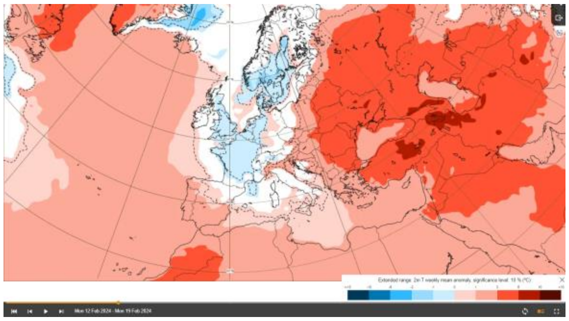
Natural Gas: Western Europe forecast for warmer than normal temp for 1st half of Feb
We have been warming that, as far as Europe natural as markets are concerned, any risk to winter natural gas is effectively over. The short-term weather forecasts for Europe have been pretty accurate so far this winter. The ECMWF (European Centre for Medium-Range Weather Forecasts) temperature probability forecasts from yesterday forecasts warmer than normal temperatures over the next two weeks for western Europe. Yesterday's ECMWF forecasts call for much warmer than normal temperatures for Feb 5-12 and for generally normal temperatures for Feb 12-19. It's Feb and Europe natural gas markets are no longer worries about a natural gas risk this winter. And it is looking like a replay of 2023 where a weak Europe natural gas market to end winter led to months of soft Europe natural gas prices thru shoulder season and into summer 2023.

Figure 18: ECMWF Feb 5-12 Temperature Probability Forecast



Source: ECMWF

Figure 19: ECMWF Feb 12-19 Temperature Probability Forecast



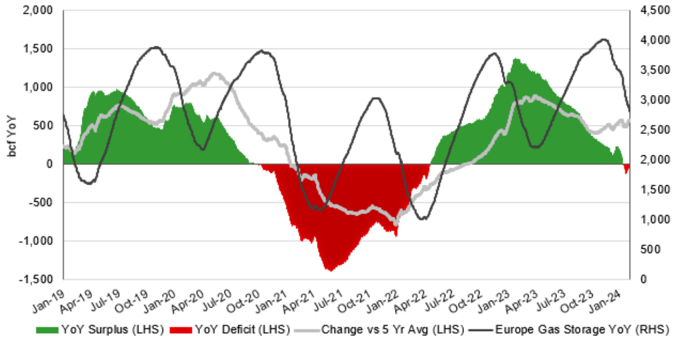
Source: ECMWF

Europe gas storage

Natural Gas: Europe storage drops again WoW to 69.72%, YoY deficit continues
Europe has been experiencing cold weather and delayed LNG shipments due to storms and rerouting of tankers around Africa that would otherwise have taken the Suez. 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 seeing some big draws on storage. This week, Europe storage decreased by -2.91% WoW to 69.72% on Feb 1 vs 72.64% on Jan 25. Storage is now -1.92% lower than last year's levels of 71.64% on Feb 1,

2023. Recall 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 20: European Gas Storage Level



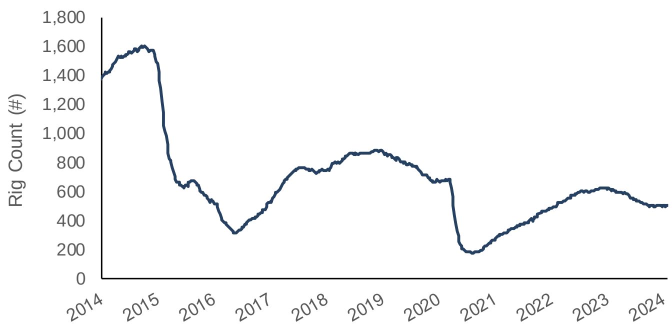
Source: Bloomberg, SAF

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

US oil rigs flat WoW

On Friday, Baker Hughes released its weekly North American drilling rig data. (i) Total US oil rigs were flat WoW at 499 oil rigs as of Feb 2. 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 +1 rig WoW to 307 oil rigs, Granite Wash -1 rig WoW to 12 oil rigs, Cana Woodford +1 rig WoW to 24 oil rigs, Eagle Ford -2 rig WoW to 48 rigs, and Others +1 rigs WoW to 66 rigs. (iii) US gas rigs were down -2 rigs WoW to 119 gas rigs.

Figure 21: Baker Hughes Total US Oil Rigs



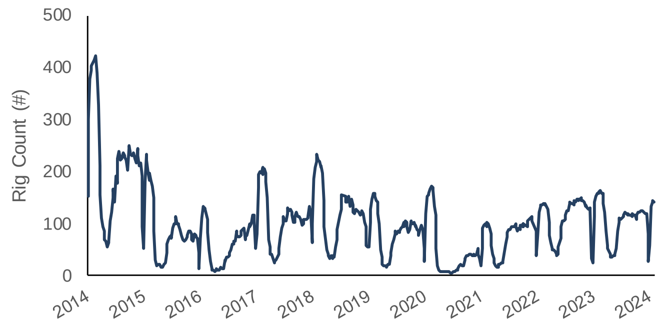
Source: Baker Hughes, SAF

Oil: Total Cdn rigs up +2 rigs to 232 total rigs, risk road bans to start anytime now

Cdn total rigs up WoW

Given the warm winter, other than a short recent cold spell, and the warm weather the last week in Alberta, we wouldn't be surprised if there is an early end to drilling season due to the start of road bans, and we could see a drop in rigs in the next week or two. For the week of Jan 26, total Cdn rigs were up +2 WoW to 232 total rigs. On a per province basis, Alberta was down -2 rigs WoW to 163 rigs, BC was up +4 rigs WoW at 25 rigs. Cdn oil rigs were down-3 rigs WoW to 141 oil rigs and are down -18 oil rigs YoY. Cdn gas rigs were up +5 rigs WoW to 91 gas rigs, which is up +1 rig YoY.

Figure 22: Baker Hughes Total Cdn Oil Rigs



Source: Baker Hughes, SAF

US oil production up WoW

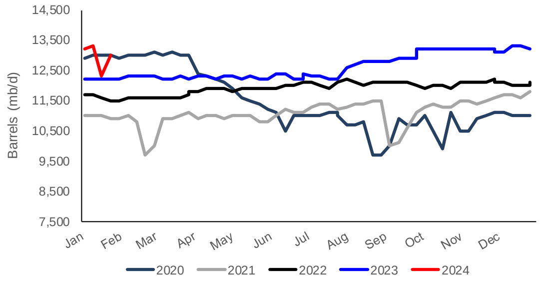
Oil: US weekly oil production estimates up +0.700 mmb/d WoW
After the EIA slashed production estimates by -1.000 mmb/d last week in response to cold temperatures and production shut-ins, this week estimates made back most of the lost ground in volume. in Last Wednesday, the EIA wrote "*This week's domestic crude oil production estimate incorporates a decrease of 1 million barrels per day, representing an estimate of the impact of winter storms and extreme cold temperatures. We will report survey-based domestic production for January in the Petroleum Supply Monthly (PSM) at the end of March*". So we will see how accurate they were when we see the actuals. The latest Form 914 (with November actuals) was +0.108 mmb/d higher than the weekly estimates of 13.200 mmb/d. This week, the EIA's production estimates were up +0.700 mmb/d WoW to 13.000 mmb/d for the week ended January 26. Alaska was up +0.006 mmb/d WoW to 0.433 mmb/d. Below is a table of the EIA's weekly oil production estimates.

Figure 23: 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	01/12	13,300	01/19	12,300	01/26	13,000		

Source: EIA

Figure 24: EIA's Estimated Weekly US Oil Production



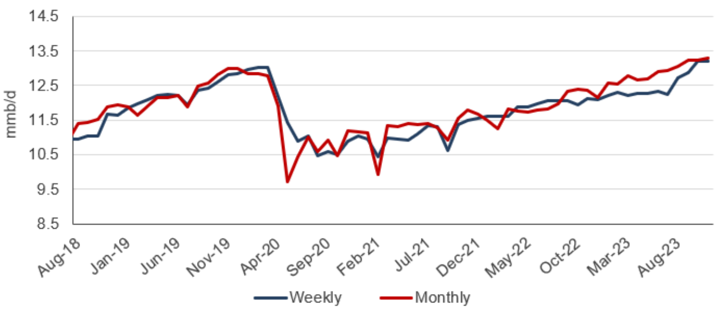
Source: EIA, SAF

Oil: EIA Form 914 – US November oil production actuals +0.932 mmb/d YoY

EIA Form 914 November

On Friday, the EIA released its Form 914 data [LINK], which is the EIA's "actuals" for November US oil and natural gas production. As noted above and previously, over the past four months the EIA has had to make big upward adjustments to their weekly oil supply estimates to bring them more in line with the Form 914 actuals. The upward adjustments to the EIA weekly oil estimates were +0.400 mmb/d in Aug, then another +0.400 mmb/d in Oct and then December's +0.200 mmb/d. On Wednesday, the EIA released its Form 914, which are its "actuals" for oil and gas production in November. (i) Revisions. There were no material revisions to the monthly data for the past few months. August was immaterially revised up 29,000 b/d to 13.041 mmb/d vs prior estimate of 13.012 mmb/d. September was immaterially revised up 11,000 b/d to 13.247 mmb/d. October was immaterially revised down -12,000 b/d to 13.224 mmb/d. (ii) The EIA actuals for November were at 13.308 mmb/d, which is up +0.084 mmb/d MoM from 13.224 mmb/d in October 2023, and up +932,000 b/d YoY vs 12.376 mmb/d in November 2022. (iii) Weekly EIA estimates for November were at 13.200 mmb/d, so the actuals are +0.108 mmb/d over the weekly estimates.

Figure 25: EIA Form 914 US Oil Production vs Weekly Estimates



Source: EIA, SAF

Oil: Core Labs & NOV latest service co's pointing to lower, if any US oil growth

Core Labs, NOV

Last week's (Jan 28, 2024) Energy Tidbits memo highlighted comments from the CEOs of big service companies, Baker Hughes, Haliburton and Liberty Energy and how their comments pointed to lower, if any, growth in 2024 for US oil production. Note these companies generally do not forecast US oil production but their comments on what they see from oil and gas companies for services point to lower, if any, US oil production growth. This week, we saw similar commentary from Core Labs and NOV (the formerly known as National Oilwell Varcoe).

Core Labs sees flat US onshore drilling & completion activity

Core Labs reported Q4/23 on Wednesday evening and we tweeted [LINK] *"$CLB pointing to lower US #Oil growth in 2024. "in the US, onshore drilling & completion activity in 2024 is anticipated to be flat compared to 2023". Flat D&C vs US exit 2023 oil up ~1 mmb/d YoY w/ accompanying higher decline to offset = growth challenge in 2024. #OOTT."* In the Q4 release, Core Labs wrote "T*urning to the U.S., onshore drilling and completion activity in 2024 is anticipated to be flat compared to 2023."* Core Labs didn't say any specific US oil production estimate for 2024. But we have to believe they are pointing to lower US oil growth, if any, in 2024 because they see the same level of D&C activity in 2024 yet US oil production exit 2023 is ~1 mmb/d higher YoY vs exit 2022.

NOV sees declining demand for its services in the US

NOV (formerly known National Oilwell Varco) reported Q4/23 on Thursday evening and we tweeted [LINK] ".*$NOV also seems to point to lower, if any, US #Oil growth in 2024 as have "declining demand" for its services. Expect continued growth for its advanced technologies in international & offshore markets should more than offset declining demand from North America during 2024" #OOTT."* We were a little surprised by the NOV comment that they expect declining demand for their services in North America. Rather, the other service companies have been talking about stable or flat demand services activity in 2024 vs 2023. US oil production exit 2023 was up ~1 mmb/d YoY. And if there was a big ramp up in US oil production, that means there is high declines to be offset in 2024 than there was in 2023. So when we see flat, or in NOV's case declining, service activity, we have to believe these service companies are pointing to lower, if any, US oil growth exit to exit in 2024.

01/24/24 Baker Hughes CEO sees E&P spend down mid single digits in US land

Here is what we wrote in last week's (Jan 28, 2024) Energy Tidbits memo on Baker Hughes Q4 call. "*On Wednesday, we tweeted [LINK] "Is $BKR CEO pointing to down YoY, or flat at best YoY, US #Oil production over 2024? CEO "In NA, activity continues to lag, and we are now anticipating no meaningful recovery in activity during the first half of the year. On our last quarterly call, we expected 2024 North American DNC spend to be flattish, but now expect spending down in low to mid single-digits, driven by mid single-digit declines in U.S. land. #OOTT." Baker Hughes CEO Simonelli didn't give an estimate for US oil production growth in 2024 but surprised most by forecasting US E&P spend on land would be down mid single digits in 2024. So Baker Hughes sees lower E&P spend onshore US in 2024. When we see, we have to assume Baker Hughes isn't calling for US oil growth in 2024. They see lower E&P spend. Plus they should know that the strong YoY growth to the 2023 exit would also increase the oil decline in 2024. So increased number of barrels lost thru decline in the face of lower E&P spend would seem to be the formula for much lower oil growth, if any, in 2024*."

01/23/24: Haliburton CEO will take the under for US oil growth to exit 2024
Here is what we wrote in last week's (Jan 28, 2024) Energy Tidbits memo on Haliburton's Q4 call. "*On Tuesday, we tweeted [LINK] "Will US #Oil production growth move from negative to oil price to at least neutral in 2024? $HAL CEO didn't give a number for YoY US production growth in 2024, but seems to imply not much YoY growth & also reminds more growth adds more decline to offset. Worth a read. #OOTT." Haliburton is the top US fracking company. In the Q&A, CEO Jeff Miller was asked on how US oil production surprised to the upside for 2023 exit and "as we think about 2024, how do you think about exit rate of US growth?" Miller didn't give a number but said he would take the under with respect to production growth to exit in 2024. One of the reasons is that they don't see a lot of smaller companies coming into the market. Miller replied "Yes. Look, if I'm thinking about production growth in '24 production is a function of service intensity, so simply put, more sand, more barrels, and we saw peak levels of service intensity throughout, really in the first half of last year, and a lot of that comes on in the latter half. And I think, some of this is efficiency in the sense that we are delivering more sand to the reservoir, and that comes in a lot of forms. The e-fleet are part of that, and some of the technology that we've brought to market. But I also think that the market that we see for next year, it's hard for me to forecast at this point exactly what operators will do, because every operator plays their own game. But at the same time, I would probably take the over on rigs because I think that, we'll run out of ducks at some point. I think I would take the under on production only because whatever you think it is, I'll take the under only because what we see are stable customers delivering to their plans, but what we don't see is a lot of the smaller companies coming into the market in an effort to really ramp up production."*

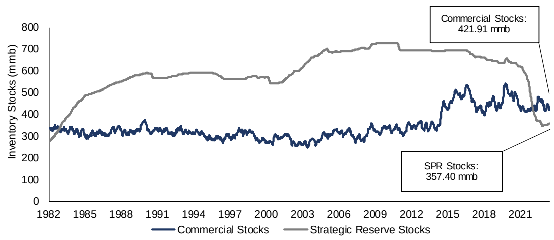
01/26/24 Liberty CEO "*probably at best flat in the sum for oil/gas production*"
Here is what we wrote in last week's (Jan 28, 2024) Energy Tidbits memo on the Liberty Energy Q4 call. "*On Friday, we tweeted [LINK] "my bet is where we are today in total activity, you won't see this till summer production data. We're probably at best flat in the sum of oil and gas production" $LBRT CEO when asked if frack activity was enough to offset production decline. #OOTT." Liberty is a big US fracking company and held its Q4 call on Thursday. In the Q&A, CEO Chris Wright was asked "do you think that we're kind of below where we need to be for both oil and gas activity to offset production decline?" Wright replied "My guess is current, certainly on a granular level, we're working for players that are at activity levels now that are definitely declining production, others that are modest growth and others that are flat. But my bet is where we are today in total activity, you won't see this till summer production data. We're probably at best flat in the sum of oil and gas production. So yeah, I don't think activity drops much from where it is here."*

Oil: US SPR reserves now -64.510 mmb lower than commercial crude oil reserves

US SPR reserves

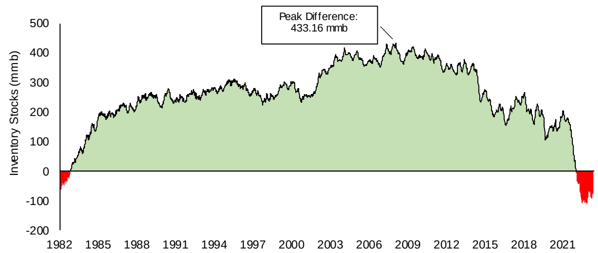
Oil in the US Strategic Petroleum Reserves (SPR) continues to be much lower than total US commercial crude oil reserves. The SPR went back below commercial for the first time since 1983 in the Sept 16, 2022 week. The deficit narrowed this week after a draw in commercial oil stocks of -9.233 mmb. The EIA's weekly oil data for January 26 [LINK] saw the SPR reserves increase +0.892 mmb WoW to 357.402 mmb, while commercial crude oil reserves increased +1.234 mmb to 421.912 mmb. There is now a -64.510 mmb difference between SPR reserves and commercial crude oil reserves. The below graphs highlight the difference between commercial and SPR stockpiles.

Figure 26: US Oil Inventories: Commercial & SPR



Source: EIA, SAF

Figure 27: US Oil Inventories: SPR Less Commercial



Source: EIA, SAF

Oil: US gasoline prices +0.05 this week to $3.15

US gasoline prices

US gasoline prices were holding around $3.10 for the past several weeks on a national average, but this week were up a bit to $3.15. Yesterday, AAA reported that US national average prices were $3.15, which is up $0.05 WoW, up $0.06 MoM and down $0.34 YoY. As of yesterday, the California average gasoline prices was $4.57, which was a $1.42 premium to the national average gasoline price of $3.15. 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.

Oil: Crack spreads narrowed $1.58 WoW to $25.07

Crack spreads basically flat this week

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 bounced around +/- $2 for the Nov and Dec and started to widen in Jan. This week, crack spreads were -$1.58 WoW to $25.07, which followed $26.65 on Jan 26, $24.47 on Jan 19, $24.10 on Jan 12, $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 $25.07 are a little above the high end of the more normal pre-Covid that was more like $15-$20, which should support the 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 $25.07 as of the Friday Feb 2, 2024 close.

Figure 28: Cushing Crude Oil 321 Crack Spread Feb 2, 2014 to Feb 2, 2024

Source: Bloomberg

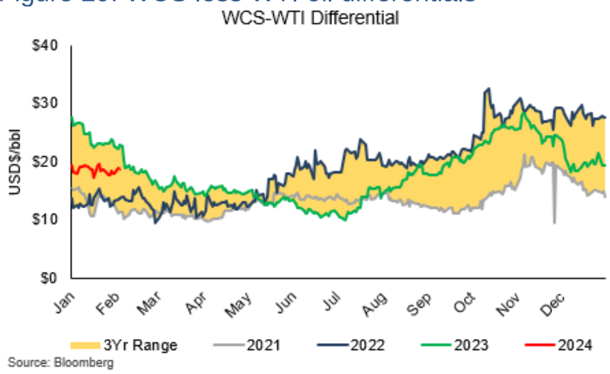
Oil – Moving into period when Cdn heavy oil differentials normally seasonally narrow

WCS differentials normally narrow in spring

On Monday night, we tweeted [LINK] "*No indication yet what impact on Trans Mountain TMX timing. But WCS less WTI differential widened $2.10 to $18.20 today. #OOTT.*" WCS less WTI differentials widened with the Trans Mountain release of delays. And this reminds of our view that when Trans Mountain TMX starts up, there should be narrowing of WCS less WTI differentials. Prior to this event on Monday, we had been seeing the normal seasonal narrowing of WCS less WTI differentials. There is no hard and fast rule because there are always unplanned events. But there are also global items that impact Cdn heavy oil differentials. Another example is Enbridge differentials. However, this is the time of the year, for the next few months, that normally sees Cdn heavy oil differentials narrow. This is the time of year, when refineries move to turnarounds so they can start 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 Feb 2 at $18.65, which widened $2.55 WoW vs $16.10 on Jan 26, $18.20 on Jan 19, and $18.80 on

Jan 12. Feb 2, 2024 at $18.65 compares to $22.90 on Feb 2, 2023, $13.45 on Feb 2, 2022, and $11.50 on Feb 2, 2021.

Figure 29: WCS less WTI oil differentials



Source: Bloomberg

Oil – Trans Mountain TMX delays as it "encountered technical issues"

More TMX delay

As of our 7am MT news cut off, we have not seen any official word from Trans Mountain on any revised timing for its 590,000 b/d TMX expansion project, although Trans Mountain suad they are working to minimize further delay. On Monday afternoon, we tweeted [LINK] ""*Trans Mountain encountered technical issues which will result in additional time to determine the safest and most prudent actions for minimizing further delay." Thx @AmandaMsteph for flagging. #OOTT."* Based on reports, it looked like the Trans Mountain news came out around late morning. Our tweet included the short Trans Mountain release [LINK], which said "*During the pipeline pullback activity for the Mountain 3 Horizontal Directional Drill (HDD) between January 25 and 27, 2024, Trans Mountain encountered technical issues which will result in additional time to determine the safest and most prudent actions for minimizing further delay. Trans Mountain is fully focused on the completion of the pipeline and will not be providing interviews at this time as it works towards the anticipated in-service date in the second quarter of 2024*."

WCS less WTI differentials widened $2.10 post the TMX delay

As a reminder, we expect to see WCS less WTI differentials narrow once Trans Mountain TMX starts up. But given the Monday announcement about a delay, it caused WCS less WTI differentials to widen. On Monday night, we tweeted [LINK] "*No indication yet what impact on Trans Mountain TMX timing. But WCS less WTI differential widened $2.10 to $18.20 today. #OOTT."* No surprise given that Trans Mountain (see below) had previously said they expected to begin line fill for the 590,000 b/d TMX expansion on Feb 1 and did not give an estimate of the new date to being line fill. Below is the WCS less WTI price graph as of the close on Monday that we attached to our tweet.

Figure 30: WCS less WTI oil differentials to Jan 29, 2024 close.

Source: Bloomberg

01/26/24: TMX line fill was to start Feb, 1st tanker loading in April

As noted above, we haven't seen any formal Trans Mountain word on how much a delay to the startup of the 590,000 b/d TMX expansion because of the new technical issues. This is disappointing as they had just come out last week saying they expected to begin line fill on Feb 1. Here is what we wrote in last week's (Jan 28, 2024) Energy Tidbits memo. "*On Friday, the National Poste reported Trans Mountain would begin line fill for its 590,000 b/d TMX expansion so it could have first tanker loadings in April. This is a month or two ahead of the latest expectations. National Post wrote [LINK] "The much-anticipated Trans Mountain pipeline will begin filling with crude in February, marking a key step toward start-up. Canadian heavy crude prices jumped on the news. Trans Mountain pipeline to start filling with oil in February. While the process to fill a part of the legacy line will begin in February, the bulk of the 890,000 barrel-a-day line will be filled in March and last about two to three weeks, Jason Balasch, senior director of business development at the Canadian government-owned company, said in Houston. Linefill is typically the first stage of startup and includes moving the first batches of oil from shippers. Heavy Western Canadian Select's discount to West Texas Intermediate narrowed to the smallest since August after Balasch's remarks. The start-up of the expansion, which is 98 per cent complete and will triple the pipeline's capacity, is expected to reshape oil flows across the Americas, spur exports to Asia and likely ramp up production of Canadian oil. Traders are closely watching progress on the pipeline, which is running years behind schedule. The first tanker to carry Trans Mountain oil is set to load in Vancouver in April, Balasch said. Shippers are expected to provide the preliminary loading dates for the new line by Friday. The final nomination process should be completed by March 15.".*

Oil – Imperial Oil reminds TMX should lead to narrowing WCS less WTI differentials

Imperial Oil on TMX

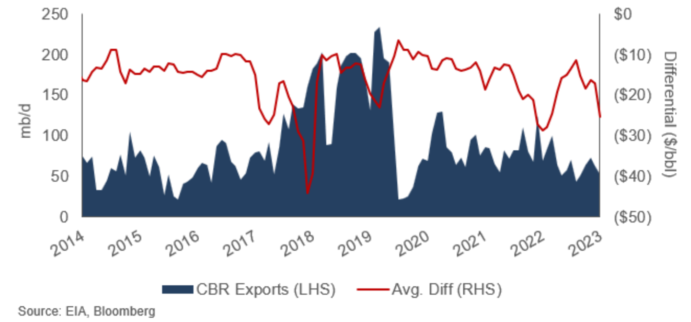
Imperial Oil held its Q4 call on Friday and we then tweeted [LINK] "*Imperial Oil CEO on Trans Mountain 590,000 b/d TMX expansion. re TMX 01/29 delay news, "still very optimistic that system will start up in the 2nd quarter" Also reminds TMX start up should lead to a narrowing of WCS less WTI differentials. #OOTT."* (i) IMO CEO is optimistic that TMX can still startup in Q2. In the Q&A, IMO CEO Brad Corson replied "*We are quite excited about the startup of TMX, which we view as imminent and targeting sometime in the second quarter. Of course,* *there was recent news, the beginning of this week, about some delays, but we're still very optimistic that system will start up in the second quarter."* (ii) CEO Corson also reminded of the industry-wide benefit from TMX startup – it should lead to a narrowing of the WCS less WTI differential. In the Q&A, Corson replied "*But more importantly is the broader impact the startup of TMX will have on the industry, providing significantly additional capacity for egress out of the basin. And that will have, we believe, as I commented, we believe that will result in a tightening of the WCS differential and will place higher value on WCS crudes, which of course, we're a major. You know, the biggest benefit for us is not the individual barrels we ship, but our view of the impact it will have on our crude value."*

Oil: EIA estimates total Cdn crude by rail imports -48,056 b/d MoM to 61,267 b/d in Nov

EIA Cdn crude by rail imports

On Wednesday, the EIA posted its "*U.S. Movements of Crude Oil by Rail*" [LINK], which includes the EIA data on US imports of Cdn crude by rail. EIA estimates total US imports of Cdn crude by rail were 61,267 b/d in November, which was -48,056 b/d MoM from 109,323 b/d in October. The EIA estimates Cdn crude by rail into PADD 3 (Gulf Coast) were 53,100 b/d in November, which was -10,416 b/d MoM from 63,516 b/d in Sept. The EIA did not comment on the MoM changes. We have been highlighting some very large discrepancies in what the EIA reports as crude-by-rail imports from Canada versus what the Canadian Energy Regulator (CER) reports as crude-by-rail exports from Canada. This month, as noted in last week's memo, the CER reported that 167,006 b/d of crude were exported by rail out of Canada during November. This is way off the total Canadian imports by rail of 61,267 b/d the EIA says they got – there are over 100,000 b/d of unexplained items. The only explanation is that the difference is Cdn crude-by-rail that goes directly to Gulf Coast for exports to international markets. Here is what we wrote in our Nov 5 memo: "*Last month, we reached out to the EIA to ask if they could shed some light on why there might be such a large difference to the CER numbers but they did not respond to our question. Last month, there was a 75,000 b/d difference in what the CER estimated as Cdn crude by rail exports to US in July vs what the EIA estimates as Cdn crude by rail imports from Canada. This month, there is 92,000 b/d difference in what the CER estimates as Cdn crude by rail exports to US in Aug vs what the EIA estimate for crude by rail imports from Canada. We have checked to see if somehow the crude by rail went into the US and was turned around and sent back to Canada via truck, rail or pipeline. But the EIA shows zero crude by rail exports Plus we checked the North Dakota Pipeline Authority monthly report as North Dakota will truck oil into Canada and the NDPA showed zero such volumes in July and small amounts in Aug. Our only explanation was that the higher amount of Cdn crude by rail exports to the US is railed to the GoM and directly put on tankers for export from the GoM. That way they wouldn't be included in the EIA's ~30,000 b/d of crude oil by rail imports into PADD 3 in July or the ~47,000 b/d into PADD 3 in Aug*". Below is our graph of Cdn CBR exports to the Gulf Coast and WCS differential over time.

Figure 31: Canada CBR Exports to US Gulf Coast vs WCS Differential



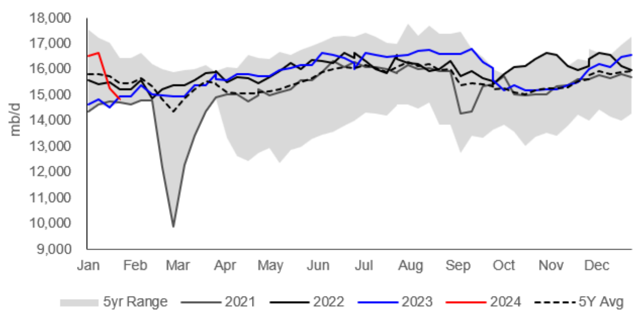
Source: EIA, Bloomberg

Oil: Refinery Inputs down -0.428 mmb/d WoW to 14.848 mmb/d

Refinery inputs -0.428 mmb/d WoW

The EIA reports on crude oil inputs into refineries for the week ended January 26, which reflects the refineries that went offline two weeks ago due the cold weather and power supply outages. It reminds that there are always unplanned issues that impact crude oil inputs into refineries, but refineries around the world follow seasonal patterns for their maintenance. US refineries have been in their normal seasonal winter ramp up until recently where storms and maintenance took capacity offline. On Wednesday, the EIA released its estimated crude oil input to refinery data for the week ended January 26 [LINK]. The EIA reported crude inputs to refineries were down -0.428 mmb/d this week to 14.848 mmb/d and are down -0.113 mmb/d YoY. Refinery utilization was down -260 bps WoW to 82.9%, which is -280 bps YoY.

Figure 32: US Refinery Crude Oil Inputs



Source: EIA, SAF

Oil: US net oil imports +0.565 mmb/d WoW as oil exports down -0.540 mmb/d WoW

US net oil imports

The EIA reported US "NET" imports were up +0.565 mmb/d to 1.711 mmb/d for the January 26 week. US imports were up +0.025 mmb/d to 5.605 mmb/d against exports which were -0.540 mmb/d WoW to 3.894 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". Top 10 was up +0.450 mmb/d. Some items to note on the country data: (i) Canada was up +0.303 mmb/d to 3.573 mmb/d. (ii) Saudi Arabia was up +0.069 mmb/d to 0.150 mmb/d. (iii) Mexico was up +0.071 mmb/d to 0.427 mmb/d. (iv) Colombia was up +0.007 mmb/d to 0.079 mmb/d. (v) Iraq was down -0.001 mmb/d to 0.205 mmb/d. (vi) Ecuador was up +0.100 mmb/d to 0.103 mmb/d. (vii) Nigeria was down -0.009 mmb/d to 0.190 mmb/d.

Figure 33: US Weekly Preliminary Imports by Major Country

(thousand b/d)	Oct 27/23	Nov3/23	Nov10/23	Nov 17/23	Nov24/23	Dec 1/23	Dec 8/23	Dec 15/23	Dec 22/23	Dec 29/23	Jan 5/24	Jan 12/24	Jan 19/24	Jan 26/24	WoW
Canada	3,485	3,873	3,835	3,846	3,243	3,972	3,572	3,686	3,428	3,796	3,557	4,188	3,270	3,573	303
Saudi Arabia	294	192	242	224	141	400	316	406	75	139	474	413	81	150	69
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	1,004	465	366	971	571	876	633	851	380	952	522	756	356	427	71
Colombia	74	364	316	217	143	289	214	215	157	129	220	212	72	79	7
Iraq	351	187	283	36	178	166	85	22	380	239	192	64	206	205	-1
Ecuador	133	61	36	126	112	252	233	49	142	83	30	150	3	103	100
Nigeria	30	39	70	79	174	226	111	162	80	95	165	147	199	190	-9
Brazil	168	234	135	257	148	274	255	197	238	305	249	264	266	213	-53
Libya	106	0	86	86	0	87	87	86	0	171	0	7	37	0	-37
Top 10	5,645	5,415	5,369	5,842	4,710	6,542	5,506	5,674	4,880	5,909	5,409	6,201	4,490	4,940	450
Others	780	979	1,004	687	1,123	966	1,011	1,076	1,396	986	832	1,219	1,090	665	-425
Total US	6,425	6,394	6,373	6,529	5,833	7,508	6,517	6,750	6,276	6,895	6,241	7,420	5,580	5,605	25

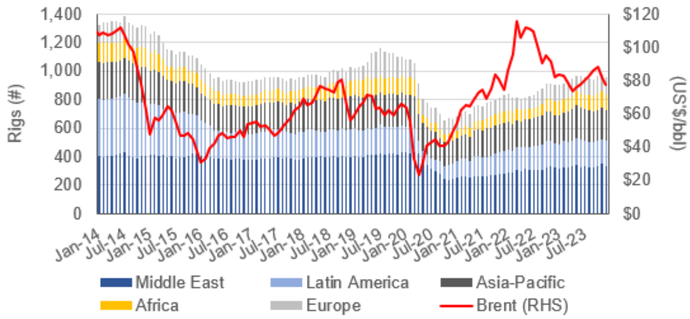
Source: EIA, SAF

Oil: Baker Hughes International rigs +10 MoM to 965 rigs in January

International rigs +10 MoM in January

On Friday, Baker Hughes posted its monthly update to international rigs, in total, that show rigs in January increased MoM. (i) Total international rigs increased by +10 rigs MoM to 965 rigs in January, and total rigs are now up +159 rigs from the recent low of 806 in April 2022. (ii) Qatar and Thailand had the largest MoM increases of +8 rigs to 88 rigs and +4 rigs to 15 rigs, respectively. In contrast, UK Offshore, Indonesia and India a had the largest MoM decreases of -4 rigs to 8 rigs, -3 rigs to 36 rigs, and -3 rigs to 74 rigs, respectively. In December, Ukraine's rigs were flat at 46 rigs and is +9 rigs YoY from 37 rigs in January 2023 post the Russia invasion. (iii) The largest YoY increases came from Algeria, Saudi, and the UAE at +9 rigs, +9 rigs, and +10 rigs, respectively. The largest YoY decreases were realized by Colombia, India and Bolivia which had declines of -10 rigs, -4 rigs and -3 rigs, respectively. (iv) January's count of 965 rigs was +7% YoY from 901 in January 2023, and down -10% vs pre-Covid January 2020 of 1,078 rigs. The YoY rig count is as follows: Africa +17 rigs, Asia-Pacific +10 rigs, Europe +5 rigs, Latin America flat YoY, and the Middle East +30 rigs. (v) Rig counts continue to be solid in the major Persian Gulf countries but remain below pre-Covid levels. Since February 2022, Saudi Arabia has added +21 rigs to 88 active rigs in January 2023, while UAE (Abu Dhabi) added +27 rigs and Iraq added +16 rigs each over the same period. Below is our graph of international rigs by region and avg monthly Brent price.

Figure 34: Baker Hughes International Rig Count and Brent Price



Source: Baker Hughes, Bloomberg, SAF

Oil: Mexico Pemex refineries continue to underperform

Pemex refineries underperform

Mexico's older refineries continue to disappoint in their performance. These are the Pemex refineries excluding the new 340,000 b/d Olmeca refinery. On Wednesday, Bloomberg reported "*Pemex Refinery Runs Still Subdued as Fire Impact Lingers. Pemex increased runs at its refineries in Mexico in December but is still struggling to bring utilization rates back to levels seen before a spate of fires at multiple plants 8 months ago, according to company data compiled by Bloomberg. Utilization rate rose to 50.6%, highest since April ** In May, half of the company's refineries were hit by fires; prior to that, they were operating at 56.2% of capacity ** Mexico's six refineries have capacity to process 1.627m b/d of crude, according to Pemex.*" Our Supplemental Documents package includes the Bloomberg report.

Figure 35: Mexico refinery runs in Dec 2023

Refinery	December (b/d)	m/m	y/y	Capacity use	NOTE
Cadereyta	155,845	5.9%	14%	56.7%	highest since June 2022
Madero	86,683	418%	-20%	45.6%	4-month high
Tula	171,677	-23%	12%	54.5%	
Salamanca	117,581	-12%	-20%	53.4%	
Minatitlan	154,938	19%	62%	54.4%	highest since Nov. 2021
Salina Cruz	136,149	20%	-29%	41.3%	
Dos Bocas	not available				
Total	822,872	7.9%	-1.1%	50.6%	highest since April

Source: Bloomberg

Oil: US threatens to stop sanctions relief on Venezuela oil

US sanctions on Venezuela oil

The US is threatening to cut the energy securities relief in April if Maduro doesn't follow thru with his commitments on free elections. At Monday's White House briefing, John Kirby (National Security Council Coordinator for Strategic Communications) said "*The - the Maduro regime, when that signed that – signed on in October down in Barbados, made some* *commitments about opposition political parties, about free and fair elections, and what all that meant. And they haven't taken those actions. Now, accordingly, they got until April to do so. So we have options available to us. I'm not going to preview any of those at - at - at this time, but we certainly have options in - with respect to sanctions and that kind of thing that - that we could take.They've - they've got until April. They need to make the right decisions here and allow opposition members to run for office and release the political prisoners that they're holding right now."* Later in the briefing, Kirby was asked "*A question on Venezuela. My colleagues are reporting that the administration will restore sanctions on the country's energy sector if opposition candidates are not allowed to run. If Venezuela were to lift that ban, would the U.S. not take the options that you were referring to earlier?"* Kirby replied "A - *a lot's going to depend here on what Maduro and his regime do. They've got until the spring to honor their commitments, the commitments they made back in October to allow opposition parties and opposition candidates to run freely as qualified for president and to release political prisoners. They've got the decision make - the - they've got decisions they have to make before we weigh what decisions we'll - we'll take*."

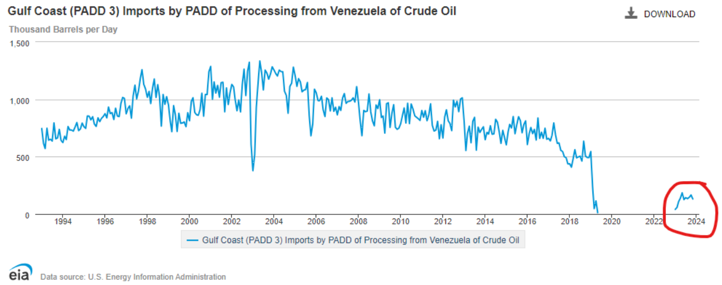
No questions on Chevron Q4 call on risk Venezuela oil relief ends
Chevron held its Q4 call on Friday morning. We were surprised that there were no questions to Chevron on the US warnings that they won't renew the oil and gas licenses for US to operate and import Venezuela oil if Maduro doesn't live up to his commitment on free elections.

Oil: Bad timing for US Gulf Coast refineries if US pulls Venezuela oil licenses

Gulf Coast exposed to Venezuela oil

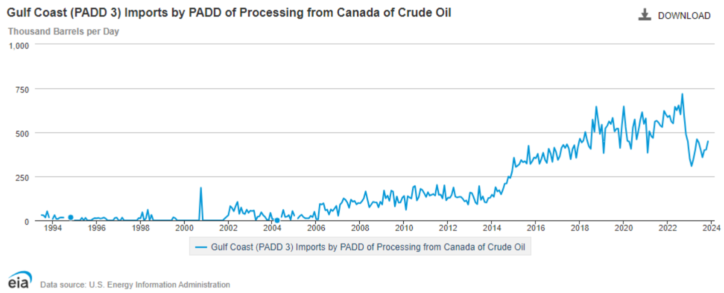
Yesterday, we tweeted [LINK] "*Bad timing for Gulf Coast refineries if Biden reimposes VEN sanctions . @EIAgov PADD 3 #Oil imports. ~150 kbd from VEN. some % of ~450 kbd imports from CAN at risk w/ Trans Mountain 590,000 b/d TMX startup. some % of ~600 kbd imports from MEX at risk / ~340 kbd Olmeca refinery ramp up. #OOTT."* We think Biden will do all he can to not reimpose sanctions on Venezuela oil. Surely the Biden Administration knows what is happening with TMX and Pemex's Olmeca new refinery. And the last thing Biden wants is negative impact on gasoline or fuel oil, especially this summer, with the election now only nine months away. Our tweet reminded that the start up of Trans Mountain's 590,000 TMX expansion will reduce Cdn medium oil to the Gulf Coast, and the startup of the new 340,000 b/d Olmeca refinery will reduced Mexico oil exports and that should include to the US. Gulf Coast PADD 3 currently imports ~150,000 b/d from Venezuela, ~450,000 b/d from Canada, and ~600,000 b/d from Mexico. So the timing of losing ~150,000 b/d of Venezuela oil into the Gulf Coast would be bad timing given TMX and Olmeca. Our tweet included the below EIA graphs for Gulf Coast oil imports from Venezuela, Canada and Mexico.

Figure 36: Gulf Coast PADD 3 crude oil imports from Venezuela



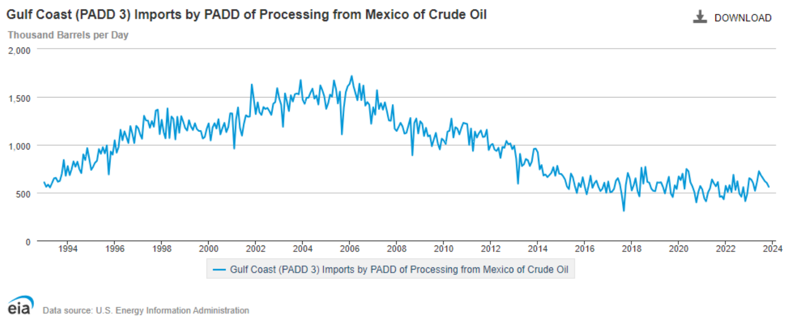
Source: EIA

Figure 37: Gulf Coast PADD 3 crude oil imports from Canada



Source: EIA

Figure 38: Gulf Coast PADD 3 crude oil imports from Mexico



Source: EIA

01/20/24: Pemex Olmeca refinery will be at max production capacity by Mar 31
We don't' know where Mexico will cut its oil exports, but the ramp up of the new 340,000 b/d Olmeca refinery means there will 340,000 b/d less Mexico crude oil for export. US is the closest and easiest export market so Pemex will likely do all they can to minimize export cuts to the Gulf Coast. Here is what we wrote in our Jan 21, 2024 Energy Tidbits memo. "*Yesterday, Pemex CEO Oropeza said its new 340,000 b/d Olmeca refinery will be running at full capacity by the end of March. Pemex posted a video on Twitter/X in Oropeza in Spanish but it had English translation running on the bottom. [LINK]. Oropeza said "we are very excited because in a*

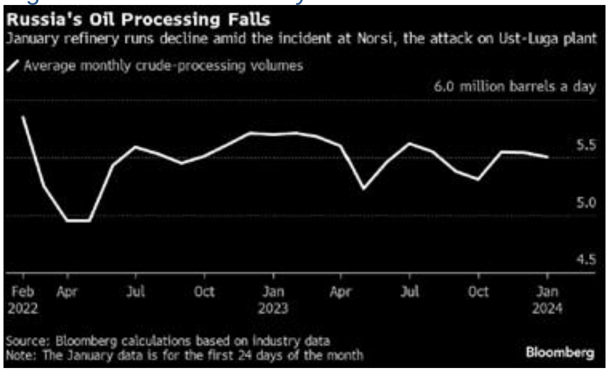
matter of weeks, this refinery, this great project, is going to enter commercial production. First we will start producing diesel, then regular gasoline and, by the end of March, all three will be at their maximum production capacity."

Oil: Russian refineries processing oil down -56,000 b/d against Dec average

Russia oil refinery runs

Ukraine drone attacks are the key reason why Russian refinery runs are down when normally they would be increasing crude run in the peak winter refining runs period. On Tuesday, Bloomberg reported that Russian refiners processed 5.490 mmb/d between Jan 17 and Jan 24. This is ~56,000 b/d lower than the December average. This is uncharacteristic of Russian refinery seasonal fluctuations which typically see strong throughput in the winter as a lot of people use fuel oil and diesel for energy and heat, but with disruptions like the Lukoil refinery's unplanned maintenance and drone strikes, a drop in throughput is expected. Note that another drone strike on a Rosneft PJSC Tuapse refinery on Jan 25 will be reflected in next week's data as they also halted operations. their processing volume was 163,000 b/d in the Jan 24 week. Also, on Wednesday, a drone crashed into the St Petersburg Nevsky Mazut oil refinery but no "significant damage" was reported by Russian authorities. Our Supplemental documents package includes the Bloomberg report.

Figure 39: Russia refinery runs thru Jan 24 week



Source: Bloomberg

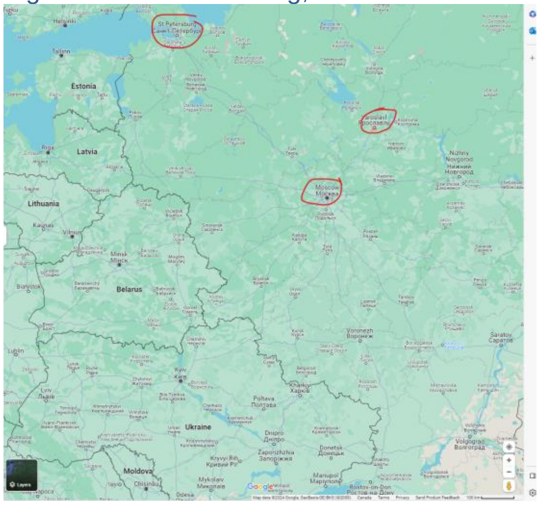
01/25/24: Ukraine hit Russian's big Tuapse refinery on Black Sea coast

Here is what we wrote in last week's (Jan 28, 2024) Energy Tidbits memo. "*This will likely only have a small impact in next week's Bloomberg reporting on Russian refinery runs as they will be for the Jan 18-25 week. On Thursday (Jan 25), Bloomberg reported "A fire damaged Rosneft PJSC's major Tuapse refinery on Russia's Black Sea coast early on Thursday, the latest in a string of incidents at the nation's downstream and energy-export facilities blamed on drone attacks by Ukraine." Bloomberg reported the refinery was processing ~180,000 b/d. We would not that Tuapse is one of Russia's major refineries and has a capacity of 240,000 b/d."*

Three Russian refineries hit this week, two by long range Ukraine drones

On Wednesday, we tweeted [LINK] "*2nd Ukraine long-range drone hit this week on a Russia refinery. Today refinery in St. Petersburg reports Moscow Times. Monday, refinery in Yaroslavl, east of Moscow.* #OOTT." One of the Russian stories this week was long range Ukraine drones hitting Russian refineries. Ukraine long-rangedrones are hitting Russian refineries around St. Petersburg and east of Moscow. (i) On Monday, Kyiv Independent reported "*Yevrayev said the attempted attack on the Slavneft-YANOS refinery in Yaroslavl caused no fire or casualties. Law enforcement and first responders are reportedly working on the scene. However, the Russian Telegram channel Shot reported a small fire extinguished by the company's employees at the site of the drone crash, and debris from the drone was scattered throughout the refinery."* Yaroslavl is east of Moscow. (ii) On Wednesday, Moscow Times reported [LINK] "*Drone Crashes Into St. Petersburg Oil Refinery An unmanned drone crashed near the center of St. Petersburg on Wednesday, causing an explosion at an oil refinery, local media reported, marking the second such incident in the city over the past month." (iii)* In addition to the above two long-range drone attacks, yesterday saw a short-range drone attack on a 315,000 b/d Lukoil refinery in the southwestern Volgograd region. Yesterday, Moscow Times reported [LINK] "*Drone Attack Sets Russian Refinery Ablaze – Governor A fire erupted at a major Russian oil refinery in the southwestern Volgograd region overnight after a drone attack blamed on Ukraine, the regional governor said Saturday."*

Figure 40: St. Petersburg, Moscow and Yaroslavl



Source: Google Maps

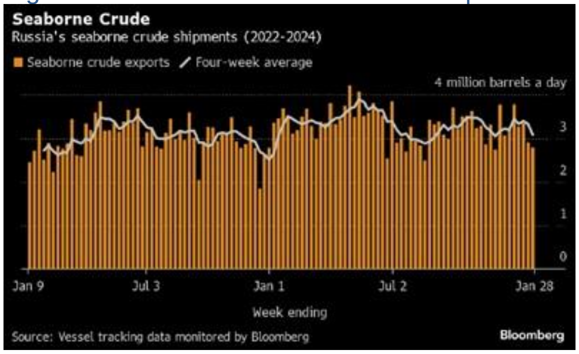
Oil: Russia crude oil shipments for Jan 28 week are within commitment

Russia oil shipments meet commitment

After breaching their OPEC+ cuts for the past couple weeks, Russia looks to be within their committed crude export levels, although it is because of winter storms and the pause at Ust-Luga export post the Ukraine drone attack were what caused the reduced Russian oil shipments. On Tuesday, we tweeted [LINK] "*Russia #Oil shipments for 01/28 week down with weather hitting loadings & pause at Ust-Luga post Ukraine drone attack. 4-wk oil shipments*

~3.09 mmb/d, so in line with commitment to cut oil exports by 0.5 mmb/d. Thx @JLeeEnergy @business #OOTT." Bloomberg had reported "*Russia's seaborne crude shipments fell further last week, with flows from a key Pacific port that supplies Chinese buyers halted for five days by high winds and freezing temperatures. About 3.09 million barrels a day of crude were shipped from Russian ports in the four weeks to Jan. 28, tanker tracking data monitored by Bloomberg show. That was down by about 250,000 barrels a day from the revised figure for the period to Jan. 21. The more volatile weekly average fell by about 120,000 barrels a day to an eight-week low of 2.8 million. Exports were hit by the storm that closed Kozmino and by four days of maintenance at the Baltic port of Ust-Luga, where loadings had been interrupted earlier by a Ukrainian drone strike on a nearby processing plant."* Our Supplemental Documents package includes the Bloomberg report.

Figure 41: Russia's seaborne crude shipments thru Jan 28 week



Source: Bloomberg

Figure 42: Tankers loading crude at Russia Terminals for Jan 28 week

Tankers Loading Crude at Russian Terminals
26 tankers loaded Russian crude in the week to January 28

Week ending	Jan. 28	Jan. 21	Jan. 14
Primorsk (Baltic)	11	7	8
Ust-Luga (Baltic)	3	6	6
Novorossiysk (Black Sea)	3	2	3
Murmansk (Arctic)	1	2	3
Kozmino (Pacific)	4	8	8
De Kastri (Pacific)	3	2	2
Prigorodnoye (Pacific)	1	0	1
Total	26	27	31

Source: Vessel tracking data monitored by Bloomberg
Note: Based on date of completion of cargo loading. Excludes ships loading cargoes identified as Kazakhstan's KEBCO grade.
Bloomberg

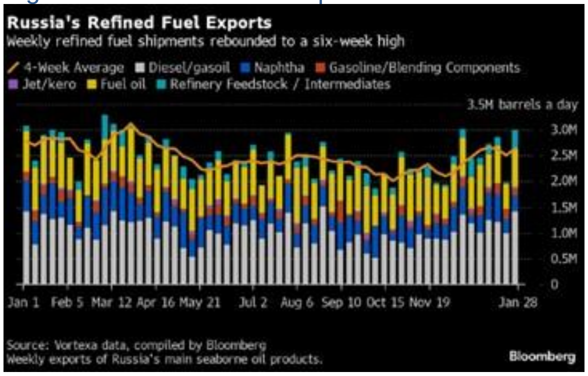
Source: Bloomberg

Oil: Russia fuel exports for Jan 28 week are above its commitment for Q1/24

Russia fuel exports exceeds commitment

The other part (aside from crude) of the 500,000 b/d cut to the May-June average Russia has committed to cutting is 200,000 b/d of refined fuel. After falling to the lowest in several weeks last week (largely due to storms and drone strikes), Russian fuel exports are back up big this week. Bloomberg reported "*Exports averaged 2.63 million barrels a day in the four weeks to Jan. 28, according to data compiled by Bloomberg from analytics firm Vortexa Ltd. That's about 134,000 barrels, or 5%, higher than the revised figure for the previous week. The more* *volatile weekly flows surged 52% from the revised figure for the previous week to 2.99 million barrels a day in the fourth week of January."* The 2.63 mmb/d four week average is 528,000 above their Q1/24 target limit of 2.05 mmb/d. Fuel exports in the past week were 884,000 b/d higher than this limit, making up for any slowdown in last week's exports. A couple more refineries were hit by drones this as mentioned above, so this may show up in next week's export data. Our Supplemental Documents package includes the Bloomberg report.

Figure 43: Russia's fuel exports thru Jan 28 week



Source: Bloomberg

Oil: US/UK escalates bombing on the Houthis

US escalates bombing in Yemen

The US is trying to get the Houthis to stop and they are escalating bombing to try to discourage their fight and destroy their military capability. At least as of yet, the Houthis aren't giving up as long as Israel's war on Hamas is continuing. If you have turned on the news channels this morning, the lead story is on the US escalation of bombings on the Houthis in Yemen. Note Sanaa time is 10 hrs ahead of MT. There was a big US attack yesterday. CENTCOM tweeted [LINK] "*As part of ongoing international efforts to respond to increased Iranian-backed Houthi destabilizing and illegal activities in the region, on Feb. 3 at approximately 11:30 p.m. (Sanaa time), U.S. Central Command forces, alongside UK Armed Forces and with the support from Australia, Bahrain, Canada, Denmark, the Netherlands, and New Zealand conducted strikes against 36 Houthi targets at 13 locations in Iranian-backed Houthi terrorist-controlled areas of Yemen."* Earlier this morning, Saba (Yemen news) reported on the Houthis statement on the attacks. Saba wrote [LINK] "*The Armed Forces confirmed that the American-British attacks will not dissuade Yemen from its moral, religious and humanitarian stance in support of the Palestinian people. The official spokesman for the armed forces, Brigadier General Yahya Saree, stressed in a statement to (Saba), that these attacks will not go without response and punishment. Saree stated that the US-British aggression aircraft launched 48 air strikes during the past hours, including 13 raids on Sana'a governorate, nine raids on Hodeida governorate, and 11 raids on Taiz governorate.*"

Oil: Will a Hamas/Israel hostage deal, if any, pause/stop Houth attacks

Hamas/Israel hostage deal?

It seemed like one of the major stories impacting oil this week was the potential for a new Hamas/Israel hostages deal. It seemed like many believe a new hostages deal I slikely to lead to a pause/stop in Houthi attacks in the Red Sea. We have a 7am MT news cut off so we are going to press before the Sunday cable news shows that will be featuring the Middle East in light of the escalating US attacks on the Houthis, Syria and Iraq.

Oil: Houthis leader "*Yemeni people are accustomed to difficulties and suffering*"

Houthis leader speech

On Friday, we tweeted [LINK] "*Houthis leader speech. US failed to get China to mediate/persuade Houthis to stop. Red Sea naval operations to continue. Reminds "Yemeni people are accustomed to difficulties and suffering" ie. not easy to get rid of them. Looks like Houthis vs US/UK attacks to continue. #OOTT.*" The Houthis leader speech on Thursday night included the expected warning that their Red Sea naval operations are continuing until Gaza is resolved. He also took a shot at the US on how they failed to get China and Iran to mediate. He said "*One of the signs of failure is America's attempt to seek China's mediation and persuasion to stop our supportive operations for the Palestinian people*." One of our concerns for the west is the assumption that the US could quickly get the Houthis to stop. No question the US and UK can bomb the Houthis more effectively than the Saudis. But our reminder has been that the Saudis weren't able to convince the Houthis to give in despite several years of bombing. The people in Yemen have lived with a state of war or fighting for five decades and the Houthis leader reminded of this point. Almasirah (Yemen news) wrote "*Sayyed Abdulmalik also addressed the Yemeni popular stance, affirming that "the Americans, the British, and the Israeli enemy should realize that they cannot break the determination of our people." He explained that "popular activities are an essential part of our battle, including military mobilization in support of the Palestinian people." He added that there is broad participation in military mobilization in support of the Palestinian people, with over 165,000 trainees in most provinces. He mentioned that there are "600,000 trainees in general and specialized training, in service of the supportive stance towards Gaza, with passion, determination, and resolve." He revealed plans to expand the mobilization activities to include all provinces in order to enhance readiness. He noted that the Yemeni people are accustomed to difficulties and suffering, living with all the meanings of dignity and honor. They are effective and influential, and they continue to hold their position. He emphasized that Yemen has an armed and trained army prepared for events, and the United States will not succeed in its exaggeration through its failed strikes.*" Our Supplemental Documents package includes the Almasirah reporting on the Houthis leader speech.

Oil: Added oil tanker days from avoiding Suez Canal and Panama Canal

Added oil tanker times

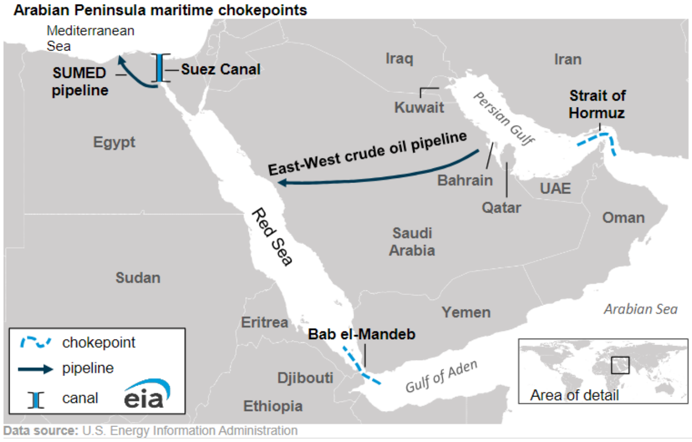
We always love a good map. On Friday, we tweeted [LINK] "*Great map courtesy of @EIAgov Josh Eiermann. Shows relative tanker travel times from US Gulf Coast to China. Via Panama Canal (27 days) Suez Canal (44 days) Cape of Good Hope (48 days) #OOTT.*" We included the below EIA map, which shows a lot more than just tanker times from US Gulf Coast to China. It also shows the comparative times Rotterdam, Gulf Coast, Arabian Sea and China. For example, it notes the time from the Arabian Sea to Rotterdam is 19 days via the Suez Canal but 34 days via the Cape of Good Hope. On Wednesday, the EIA posted its blog *"Red Sea attacks increase shipping times and freight rates*" [LINK]. Our tweet included the below EIA map. Note the EIA "*voyage time is calculated for laden Suezmax tankers traveling at 14 knows without extended chokepoint delays*". Our Supplemental Documents package includes the EIA blog.

Figure 44: Selected commercial shipping routes, as of January 2024

Source: EIA

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*."

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



Source: EIA

Figure 46: 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: US big airstrikes in Iraq and Syria

Big US airstrikes in Iraq and Syria

Combined with the big US bombing in Yemen, the US also made their biggest airstrikes in Iraq and Syria on Friday. These collectively have raised the media concerns about an escalation of US involvement and broadening in the Middle East. The reminder we note is that this is all via long range missiles or jets delivering missiles when there isn't anti aircraft defenses engaged in Iraq, Syria and Yemen. So escalation but not exposing its troops in these attacks. But it was also big attacks in Iraq and Syria. On Friday, CENTCOM tweeted [LINK] "*At 4:00 p.m. (EST) Feb. 02, U.S. Central Command (CENTCOM) forces conducted airstrikes in Iraq and Syria against Iran's Islamic Revolutionary Guards Corps (IRGC) Quds Force and affiliated militia groups. U.S. military forces struck more than 85 targets, with numerous aircraft to include long-range bombers flown from United States. The airstrikes employed more than 125 precision munitions. The facilities that were struck included command and control operations centers, intelligence centers, rockets, and missiles, and unmanned aerial vehicle storages, and logistics and munition supply chain facilities of militia groups and their IRGC sponsors who facilitated attacks against U.S. and Coalition forces*."

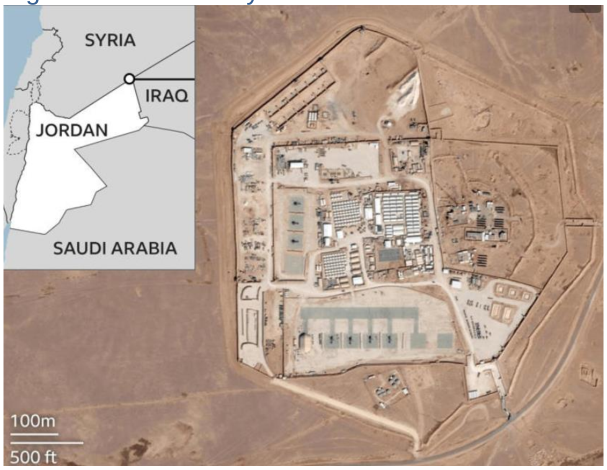
Iraq PM didn't tell the US to get out of Iraq right away
We were a little surprised by Iraq PM Nouri Al-Maliki tweets this morning that the didn't tell the US to get its troops out of Iraq much like Iraq did after the first US airstrikes in Iraq. Al-Maliki tweeted [LINK] "*The American assault on Iraq's sovereignty and the cold-blooded killing of its people has been repeated in an unprecedented manner, and without deterrence from the international community. While we denounce the targeting and assassination of a number of our members from the Iraqi forces in their fixed headquarters, we affirm that the Iraqi government has the right to move at all levels in order to stop and condemn these attacks, because this act establishes the law of the jungle approach and brings more killing and sabotage that has no justification in the laws. International law, the Charter of Human Rights, and the falsely claimed values of civilization?! The Iraqis do not accept injustice and cannot be patient with belittling the lives of their children. There must be a responsible national stance from everyone that protects the sovereignty of the country and the lives of the people. Mercy for the martyrs, healing for the wounded, and patience for their families and all Iraqis..*"

Oil: Iran says has no involvement in decisions on the way proxies attack

Iran's plausible deniability

On Monday, we tweeted [LINK] "*Does Iran say to proxies don't tell us the details, just do it? Proxies "do not take orders" from Iran "in their decisions & actions". Iran "has no involvement in the resistance groups' decisions on the way they support the Palestinian nation or defend themselves..." #OOTT.*" And [LINK] "*Plausible deniability*!". This was following the attack US military bae Tower 22 in the norther tip of Jordan that killed three and injured dozens. Our tweet included the IRNA (state media) report. When we read the report, we thought it was carefully written to infer Iran has no involvement, but all Iran was saying was they aren't involved in the specifics of any actions. It's why we said they just don't want to know the details. Here is a part of what IRNA wrote [LINK] "*Iran's Foreign Ministry Spokesman Nasser Kanaani has said that resistance groups in the West Asia region do not take orders from the Islamic Republic for their decisions and actions including those in support of the Palestinian people or defense of their countries against acts of aggression. The resistance groups in the region do not take orders from the Islamic Republic of Iran in their decisions and actions. The Islamic Republic has no involvement in the resistance groups' decisions on the way they support the Palestinian nation or defend themselves and the people of their countries in the face of any aggression and occupation," Kanaani said in a statement on Monday.*" Our Supplemental Documents package nuclides the IRNA report.

Figure 47: US military base Tower 22

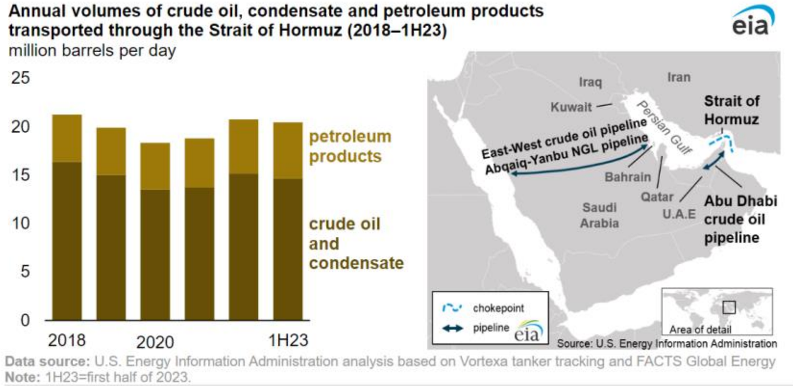


Source: Planet Labs, BBCs

The Red Sea can be worked around, not so 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 48: Crude oil, Condensate & Petroleum Products Flows Thru Strait of Hormuz



Source: EIA

Figure 49: 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

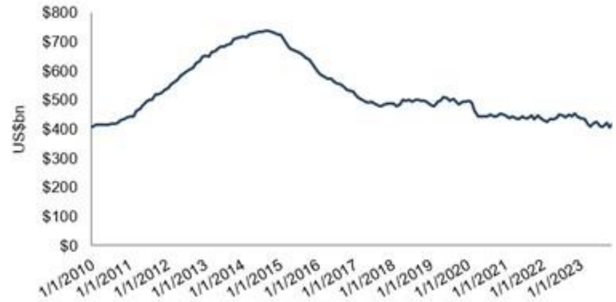
Oil: Saudi nest egg, its net foreign assets were down -$1.0b MoM in December

Saudi net foreign assets

On Wednesday, the Saudi Central Bank (SAMA) released its Monthly Statistical Bulletin for the month of December [LINK]. We continue to believe the #1 financial theme for Saudi Arabia in the 2020s will be their continued, and increasing, use of Other People's Money as they try to transition their country to MBS's Vision 2030. We believe this has been obvious with how Saudi Arabia's net foreign assets dropped by ~45% or $319.9b over the last nine years. We are surprised that markets and oil watchers didn't seem to pay attention to the Saudi net foreign assets data i.e., what we call their nest egg to help them their push to MBS's Vision 2030. There was a -$1.0b MoM increase to Saudi Arabia's net foreign assets which are now $418.1b in December vs $418.1b in November. Recall that in November, there was a +$11.7b increase after a -$13.9b MoM decrease to $406.3b in October vs $420.2b in September. We have to wonder if there were some timing issues or in and out transactions. But the picture remains, Saudi net foreign assets at December 31 of $417.1b is a decline of ~45% or $319.9b over the last 9 years from its peak of $737.0b on Aug 31, 2014. That is an average of $2.9b per month for the last 112 months since the peak. One factor over the last several years is that Saudi Arabia has been moving more capital to its PIF

(Public Investment Fund) but those would generally be into less liquid assets. Saudi Arabia is far from going broke but there has been a huge decline in the last 9 years, but it is still a big nest egg. This net foreign asset depletion is why we have been highlighting that the primary financial theme for Saudi Arabia in the 2020s is getting Other People's Money (OPM) to fund as much of their Vision 2030 as possible. And no question, accessing OPM has helped to slow down and temporarily pause the decline in net foreign assets. Our supplemental documents package includes an excerpt from the SAMA monthly bulletin. Below is our graph of Saudi Arabia net foreign assets updated for the December data.

Figure 50: Saudi Arabia Net Foreign Assets



Source: Bloomberg

Oil: Saudi Aramco share sale?

Saudi Aramco share sale?

No one should be surprised the reports that Saudi Aramco is considering another share sale. As we have been highlighting for years and also above, we believe the #1 financial theme for Saudi Arabia is an increasing use of Other People's Money to fund MBS Vision 2030. On Wednesday, Bloomberg reported "*Saudi Arabia is considering plans to revive a follow-on offering in Aramco as soon as February, in a multibillion-dollar deal that's likely to rank among the biggest share sales in recent years, according to people familiar with the matter. The kingdom is working with a group of advisers and is seeking to potentially raise at least 40 billion riyals ($10 billion) from the share sale on the Saudi stock exchange, the people said, asking not to be identified because the information is private. A successful deal would bring in funds for Crown Prince Mohammed bin Salman's ambitious push to diversify the economy."* Our Supplemental Documents package includes the Bloomberg report.

Oil: Saudi Aramco cancels plans to increase MSC from 12 to 13 mmb/d

Aramco cancels MSC expansion plans

Saudi Aramco surprised oil markets with its short Jan 29 announcement [LINK] "*Aramco receives directive to maintain MSC at 12 MMBD. Aramco announces that it has received a directive from the Ministry of Energy to maintain its Maximum Sustainable Capacity (MSC) at 12 million barrels per day (MMBD), and not to continue increasing MSC to 13 MMBD. It is to be noted that MSC is determined by the State pursuant to the Hydrocarbons Law, enacted by Royal Decree M/37, dated 12/20/2017. The Company will update its capital spending guidance when its full-year 2023 results are announced in March."* (i) It seemed like all the early comments were assuming Aramco was doing this because of a reduced outlook for oil demand and this was a negative to the outlook for oil. (ii) We agreed that it would be negative IF Aramco is doing this with a negative view on oil demand. But there are other reasons, which is why we tweeted [LINK] *"Saudi to maintain MSC at 12 mmb/d, not increase* *to 13 mmb/d. 99% view: Negative or Neutral. if peak demand sooner, or demand unchanged but non-OPEC supply stronger for longer. Or a combo thereof. 1% view is bullish if Saudi's 50+ yr old oil fields are hitting the wall. #OOTT*." (iii) It would see unlikely that Aramco would abruptly change their outlook on demand especially since all we have seen of late are reports/data showing key elements such as EVs adoption aren't happening anywhere near as quick as per Net Zero plans. And EVs is the key success factor to reducing the long term demand for oil. We saw an Eric Nuttall tweet [LINK] "*Much speculation this morning on the reason for Saudi Arabia maintaining its MSC at 12MM Bbl/d. As one of the most "energy literate" people that I've ever met, I do not believe today's announcement reflects a bearish pivot on the part of HRH ABS on long-term oil demand.*" We retweeted his tweet saying [LINK] "*Makes sense. Hard to see #OPEC abrupt pivot to its long term #Oil demand view especially in face of energy transition delays such as in EVs. 👇@ericnuttall with 2 of the most "energy literate" people in Riyadh on 09/19/23 - Saudi Energy Minister Adbulaziz & @CroftHelima #OOTT.*" Our tweet included Eric Nuttal's Sept 19, 2023 tweet when he met with Saudi Energy Minister Abdulaziz in Riyadh. His tweet included a picture with Abdulaziz and RBC's Helima Croft in the Saudi Energy Ministry offices. (iv) By the end of the week, the initial rush to blame lower oil demand had shifted to also include the concern on non-OPEC oil supply growth as being as likely a factor. (v) In our tweet, we included the chance that maybe it's because Saudi 50+ year old oil fields are fighting the inevitable decline ie. it would make it hard to overcome decline and add another 1 mmb/d to capacity. This was the concern 20+ years ago in the peak oil supply ie. the Matt Simmons concern. We put 1% only because no one was mentioning it, but older oil industry people believe this is likely a factor. (vi) No one yet knows why and we highly doubt Aramco would suggest or hint that higher than expected declines on its older oil fields is part of the reason.

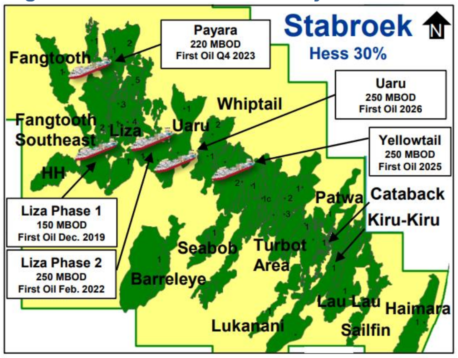
What will IOCs/NOCs do to their capex post Saudi's MSC move?

Post the Saudi decision to not move to increase its MSC from 12 to 13 mmb/d, we believe one of the key 2024 oil watch items will be what do the IOCs/NOCs do to their long term capex plans? Earlier this morning, we were listening to the Gulf Intelligence Daily Energy Markets Podcast and we tweeted [LINK] "*2024 watch item! Best indicator for mid/long term #oil? What will IOCs/NOCs do to 3-5 yr capex plans post Saudi passing on taking MSC from 12 to 13 mmbd. Negative if they also pull back on capex. Positive if no change or increase capex. Thx @sean_evers @gulf_intel #OOTT.*" Love them or hate them, the big IOCs/NOCs aren't going to spend billions on oil and gas if they look at Saudi's decision as an indicator that peak oil demand is coming a lot sooner than expected. So what they decide to do with their long term 3-5 year capex plans should give a good indicator if they see the Saudi decision as indicating an earlier than expected peak oil demand. Our tweet included the following transcript we made of Sean Evers comments this morning. SAF Group created transcript of comments by Sean Evers (Gulf Intelligence Founder & Managing Partner) on the Gulf Intelligence Daily Energy Markets Podcast on Feb 4, 2024. [LINK] Items in "*italics*" are SAF Group created transcript. On the Saudi decision to not move to expand their MSC to 13 mmb/d, at 30:15 min mark, Sean Evers "*well it certainly, I think has sentiment impact perhaps, in the sense of, does it discourage others to pull back on their capex investment, or does it do it the opposite, does it incentivize others to do more because it leaves an opportunity?*

That will be interesting. One might see the impact of that sooner rather than later. And I think that's possibly something to note."

Exxon's Guyana is a key reason why Aramco doesn't need to go to 13 mmb/d
One of the key reasons why Saudi Aramco doesn't feel like it needs to add 1 mmb/d of capacity in the next few years is Exxon's massive success at Guyana. Exxon reported its Q4 on Friday morning and, before the earnings call, one macro oil item jumped out at us – Exxon's expected continued strong oil growth at Guyana. We tweeted [LINK] "*A key reason why #Aramco doesn't need to increase its capacity by 1 mmbd. Exxon to add ~650 kbd Guyana #Oil by 2027. Current is ~560 kbd: 120 kbd Liza Ph 1. 220 kbd Liza Ph 2. 220 kbd Payara. To reach >1.2 mmbd by yr-end 2027 incl 250 kbd Yellowtail in 2025. #OOTT."* Guyana has been an amazing success. Liza was discover in May 2015, Liza Phase 1 started production in Dec 2019, and now Exxon sees Guyana reaching >1.2 mmb/d by the end of 2027. That is adding >1.2 mmb/d from first discovery in just over 12 years. Below is Hess's Guyana map as of Sept 2023. Hess has a 30% interest in the Exxon's lands and is being bought by Chevron.

Figure 51: Exxon/Hess Guyana development as of Sept 2023



Source: Hess

Oil: Kurdistan oil industry asks Congress to help get its oil flowing thru Turkey

Kurdistan oil co's ask Congress for help

Kurdistan oil exports via Turkey have been stopped since March 23. That's way longer than many expected. Our view is unchanged from before Israel/Hamas war that it seems like this could last for longer than expected. Our big concern is that it's in Baghdad's hands and our concern remains that the OPEC+ quotas are to run thru Dec 2024 so Iraq can't crank up production. Iraq's oil exports are flat and it's Kurdistan oil that is being shut-in so, under the continued OPEC+ quota, Baghdad isn't being disadvantaged. So there remains 400,000 b/d of Kurdistan oil being out of export markets since March 23. And it continues to be hard to see what changes this. On Tuesday, AKIPUR (the Association of the Petroleum Industry of Kurdistan) sent letters to the US Congress to help resolve this issue. Rudaw (Kurdistan news) reported [LINK] "*In a letter addressed to the US Congress which was seen by Rudaw English, the Association of the Petroleum Industry of Kurdistan (APIKUR) requested "immediate assistance to persuade the Federal Government of Iraq (GOI) to promptly resolve issues that have resulted in the halt of greater than 400,000 barrels a day of crude oil from* *the KRI [Kurdistan Region] to global markets." The oil association noted that the halt on oil exports has put at risk both US and international investments in the Kurdistan Region which total over $10 billion. In September, US Secretary of State Antony Blinken extended an invitation from US President Joe Biden to Iraqi Prime Minister Mohammed Shia' al-Sudani to visit the White House. APIKUR called on the US Congress to use the visit to persuade "the Iraqi PM that GoI must allow U.S. oil companies, and all APIKUR members, to freely produce and export their oil to the global markets." The Iraqi government must resolve two issues, namely "the full implementation of the Iraqi budget for the Kurdistan Region which is essential for western and American companies to resume operations, as well as payment surety for past and future oil exports in accordance with their contractual rights," according to APIKUR."* Our Supplemental Documents package includes the AKIPUR letter.

Negative net monthly FDI

Oil: More net negative net monthly foreign direct investment out of China
We continue to see a changing negative to China – negative net monthly foreign direct investment out of China. This is a negative to China and something that didn't get too much attention as up until Aug, foreign direct investment was positive. But we have now seen four of the last five months have negative net monthly foreign direct investment. Here are the Bloomberg tale of net monthly foreign direct investment that was -$0.84b n Dec, -$1.97b in Nov, $0.59b in Oct, -$2.07b in Sept and -$1.35b in Aug. Below is the Bloomberg graph, which we added the notation is in US$.

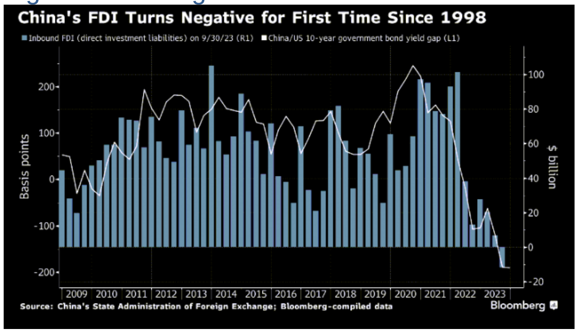
Figure 52: China net monthly foreign direct investment

Source: Bloomberg

11/08/23: 1st net outflow of net foreign direct investment in China
Here is what we wrote in our Nov 12, 2023 Energy Tidbits memo. "*There is a big negative to the China recovery that we haven't been tracking – the net inflow or outflow of foreign direct investment in China. And likely because it never got much attention because there has always been a net inflow. FDI is significant as foreign companies disproportionately contribute to trade, generated more tax revenue and urban employment. But this week, we saw the first ever net outflow of FDI since records have been kept in 1998. On Wednesday, we tweeted [LINK] "Here's why China recovery is slow. Huge exodus in foreign direct investment in China & more FDI flowing out for 1st time. Q3/23 saw $11.8b outflow, vs recent $101b in Q1/22. Foreign co's drive disproportionate trade, tax revenue & urban employment. Thx @business #OOTT." Bloomberg wrote "China is struggling in its attempt to lure*

foreigners back as data shows more direct investment flowing out of the country than coming in, suggesting companies may be diversifying their supply chains to reduce risks. Direct investment liabilities in the country's balance of payments have been slowing in the last two years. After hitting a near-peak value of more than $101 billion in the first quarter of 2022, the gauge has weakened nearly every quarter since. It fell $11.8 billion in the July-to-September period, marking the first contraction since records started in 1998." Our Supplemental Documents package includes the Bloomberg report."

Figure 53: Foreign Direct Investment in China



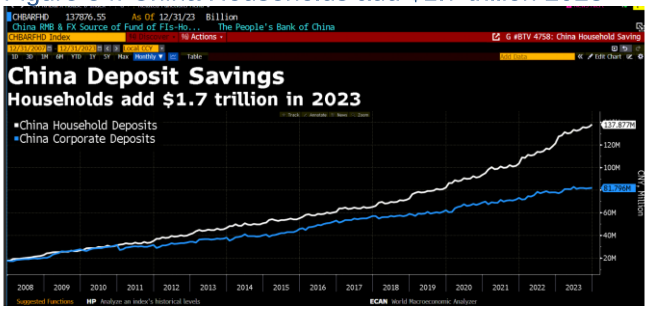
Source: Bloomberg

Oil: China declared 2024 as "*the year of promoting consumption*"

"Year of promoting consumption" in China

This is the lunar "Year of the Dragon" but, last Friday, China's commerce ministry is tring to rally Chinese to spend more in 2024. Our Energy Tidbits memos regularly highlight how Chinese households continue to increase savings as opposed to starting to accelerate spending. On Monday, we tweeted [LINK] "*Will Chinese get back to spending instead of just saving? 01/26/24, China commerce ministry "declared 2024 the "year of promoting consumption" as it stressed the need to revitalize demand .. report @JDMayger @yujingliu_ @EngleTV. If so, should add support to #Oil in 2024. #OOTT."* Bloomberg wrote "*China's Ministry of Commerce declared 2024 the "year of promoting consumption" as it stressed the need to revitalize demand and attract more investment in the world's second-largest economy.'* Our tweet included the below Bloomberg chart from Monday night on China increasing household savings.

Figure 54: China Households add $1.7 trillion 2023



Source: Bloomberg

Oil: China Covid "epidemic is at a low level"

China Covid at a low level

Earlier this morning we tweeted [LINK] "*Good news for world's largest annual human migration! See 👇01/25 tweet. Covid epidemic is at a low level but may rise during Spring Festival says China National Health Commission today. Plus no indications of any stress levels at hospitals. #OOTT.*" Our tweet included the Global Times report today [LINK] on China's National Health Commission's press conference today. Global Times wrote "*The National Health Commission (NHC) on Sunday said that at present, the COVID-19 epidemic is at a low level in China, but recent surveillance data showed positive case reports have increased slightly, suggesting that the epidemic is on the rise. Due to factors such as the inter-regional movement of people and the increase of crowd gathering around the Spring Festival, the number of COVID-19 cases is expected to rise, according to the health authority." "Data shows that the situation of acute respiratory diseases in China has declined for two consecutive weeks after reaching a peak in early December 2023. Cases picked up slightly at the end of December, continued to fluctuate at a high level and declined in the past three weeks. Mi Feng, spokesperson for the NHC, stated that the diagnosis and treatment of respiratory diseases in outpatient and emergency departments of level II medical institutions and above continued to remain stable."* We check Chinese media multiple times each week and we have not seen any reports of stresses on hospitals due to Covid or other respiratory diseases.

> **Spring Festival is "*world's largest annual human migration*"**
> Here is what we wrote in last week's (Jan 28, 2024) Energy Tidbits memo. "*On Thursday, we tweeted [LINK] "Will we see more signs Chinese consumer is back to spending? "Spring Festival travel rush for 2024 - the world's largest annual human migration - officially starts on Friday, and is expected to set a new record of 9 billion passenger trips during the 40-day travel peak" #OOTT." Our tweet included the Global Times (state media) report "China braces for Spring Festival travel rush with record 9 billion passenger trips expected." "The chunyun or Spring Festival travel rush for 2024 - the world's largest annual human migration - officially starts on Friday, and is expected to set a new record of 9 billion passenger trips during the 40-day travel peak. From jam-packed transportation hubs to the hustle and bustle seen in markets nationwide, the anticipated booming Chinese New Year holidays are poised to continue the country's steady recovery while ushering in a lively 2024. The airport will see 7.2 million passenger trips during chunyun, a growth of more than 60 percent from the same period of 2023, the airport said on Thursday, adding that overseas passenger flow will reach 1.41 million passenger trips following the implementation of visa reciprocity policies between China and many countries." Our Supplemental Documents package includes the Global Times report.*

Oil: China scheduled domestic flights -0.9% WoW

China scheduled domestic flights

We were surprised to see the BloombergNEF report on China scheduled domestic flights for the Jan 23-29 period that were in BloombergNEF's Global Aviation Indicators Jan 30 report. We had expected to see a small WoW increase given the 40-day Spring Festival had just started and then a bigger ramp up for the Jan 30-Feb 5 weeks as Lunar New Year is Feb 10. However, BloombergNEF reported scheduled domestic flights for the Jan 23-29 week were 93,000 flights, which was -0.9% WoW from 94,800 flights for the Jan 16-22 week.

BloombergNEF notes that the big jump up in the four-weeks ahead that currently sees 106,300 flights for the Feb 20-26 week.

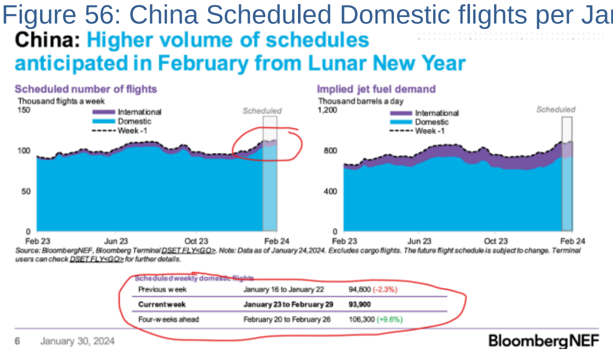
Figure 55: China scheduled domestic flights from BNEF Aviation Indicators Weekly reports

Jan 23-29: -0.9% WoW to 93,900 flights
Jan 16-22: +3.1% WoW to 94,749
Jan 9-15: -1.6% WoW to 91,926
Jan 2-8: +3.3% WoW to 93,455
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 56: China Scheduled Domestic flights per Jan 30 report



Source: BloombergNEF

Figure 57: China Scheduled International Flights per Jan 30 report

Source: BloombergNEF

Oil: Cathay Pacific pilot shortage, long haul visitors to Hong Kong still down

Cathay Pacific pilot shortage

Long haul visitors to Hong Kong are still down vs pre-Covid and we expect to see there to continue to be a lag in getting long haul international visitors back to Hong Kong due to pilot shortage with Cathay Pacific airlines. And it doesn't look like Cathay Pacific can quickly fix this pilot shortage. Long haul markets refers to Americas, Europe, Middle East, Arica, South America ie. excluding nearby SE Asian countries. In Dec 2023, there were 0.23 million such visitors from long haul markets to Hong Kong, which compares 0.03 million a year ago in Dec 2022, and 0.30 million in pre-Covid Dec 2019. We hadn't realized a key reason for that is the shortage of senior pilots at Cathay Pacific ie. those senior pilots who flew the international flights to/from Hong Kong for Cathay Pacific. One of my SAF Group partners has a relative, a Canadian with 30+ years experience, who flew international routes for Cathay Pacific. When Covid hit and international flights went to zero, Cathay Pacific made major layoffs in their workforce including such senior pilots. In addition, some senior pilots who weren't laid off got fed up and resigned as a result of some of the world's most stringent Covid quarantine rules that resulted in many weeks locked in hotel rooms, even after returning home from a flight (some as many as 200 days in a year). Cathay Pacific also "renegotiated" contracts that included massive up to 40% cuts in pay and benefits for pilots who weren't laid off. Now with the restrictions of Covid lifted Cathay Pacific is struggling to attract experienced pilots due to the low pay package and ruined reputation among aircrew. Even Cathay Pacific, on Jan 9 [LINK], had to admit it underestimated the pilot shortage issue. Cathay Pacific needs to find more senior pilots to fly these international routes. Like anything, it is always easier to find something when you know what to look for. We saw these themes highlighted in a Jan 30 The Edge Malaysia reported [LINK] on a Bloomberg report "*Cathay Pacific Airways Ltd is offering bonuses to pilots to fly during next month's Lunar New Year period as the airline seeks to avoid cancelling even more flights over the peak travel season. Hong Kong's largest airline, which has already cut an average of 12 flights a day through the end of February in order to ensure enough pilots are available, will offer a special flying allowance between Feb 7 and 18, according to people familiar with the matter. Aircrew will be eligible for bonuses of 30%, 25% or 15% of their usual hourly flying rates, they said, asking not to be identified because they're not authorised to speak publicly. The offer is just the latest in a growing list of incentives Cathay has rolled out to tackle a chronic shortage of aircrew after Covid-related job losses gutted its ranks and pay cuts of more than 45% for some of those that remained sparked an exodus. The carrier is already facing intense criticism for cancelling hundreds of flights over Christmas and New Year as a surge in illness and limits on annual flying hours compounded its pilot deficit.*" Our Supplemental Documents package includes The Edge report.

Oil: China visitors to Hong Kong still nowhere near pre-Covid peak, but up MoM

Chinese visitors to Hong Kong

On Wednesday, Bloomberg released a report showing visitors to Hong Kong and their origin based on data from the Hong Kong Tourism Board. We are looking specifically at visitors from mainland China to gauge how much appetite there is to travel and spend money from the Chinese consumer (and businessman). In December, there were 2.944 million mainland Chinese visitors to Hong Kong, which is up +21.3% MoM. There were 2.47 million visitors from mainland China in Nov, and 2.70 million in Oct. This is still nowhere near pre-Covid figures. The pre-Covid peak was 5.54 million in Jan 2019.

Figure 58: Hong Kong visitors from mainland China

	Dec. 2023	Nov. 2023	Oct. 2023	Sept. 2023	Aug. 2023
	Thousand Visitors				
Total	3,930.0	3,288.9	3,458.8	2,771.8	4,077.7
Mainland China	2,944.6	2,427.5	2,703.1	2,163.4	3,435.3
Macau SAR/Others	138.7	92.6	94.4	78.5	137.3
Philippines	115.4	102.2	71.6	57.5	64.0
Taiwan	88.8	79.1	77.9	72.5	78.1
South Korea	74.1	62.3	48.3	42.2	34.4
Singapore	73.7	56.2	38.6	32.3	25.9
USA	71.6	77.9	67.5	50.3	56.0
Thailand	70.4	49.3	50.6	27.3	29.5
Malaysia	50.6	38.0	25.6	19.0	20.2
Japan	44.0	52.2	36.5	41.4	39.9
Indonesia	42.5	26.9	25.1	24.4	17.4
Australia	39.4	29.7	27.8	26.9	16.1

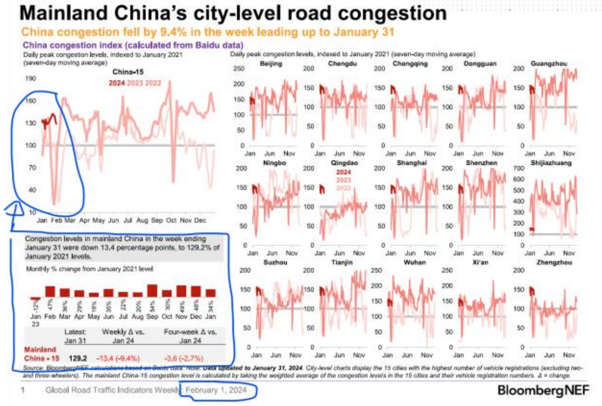
Source: Bloomberg, Hong Kong Tourism Board

Oil: Baidu China city-level road congestion about to plunge this week

China city-level traffic congestion

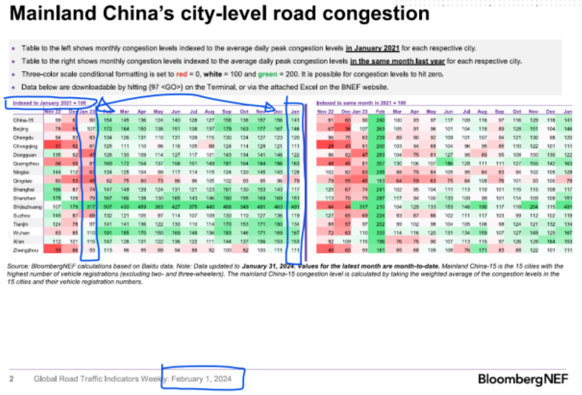
On Thursday, BloombergNEF posted its Global Road Traffic Indicators Weekly Feb 1 report, which includes the Baidu city-level road congestion for the week ended Jan 31. (i) On Thursday, we tweeted [LINK] "*China Baidu city-level road congestion -9.4% WoW for Jan 31 week but about to crash. Spring Festival travel rush just started last week incl Lunar New Year on Feb 10. Rush to leave cities is just starting. Thx @BloombergNEF #OOTT.*" (ii) The BloombergNEF report was titled "*China's traffic falls as holidays draw near*". (iii)The city-level road congestion was -9.4% WoW to 129.2 of Jan 2021 levels. The WoW decline was only the start of the 40-day Spring Festival travel rush. Please note the below graph that reminds that the Baidu city-level road congestion is about to abruptly drop with the start of traffic for Spring Festival. (iv) The top 15 cities in Jan 2024 were 141 of Jan 2021 levels, which is also up huge vs Jan 2023 that was only 90 of Jan 2021 levels. But recall China only removed Covid restrictions at the end of 2022. Compared to Jan 2021, 14 of the 15 cities are up and only one, Qingdao, is down. All of the top 15 cities are up YoY vs Jan 2023.

Figure 59: China city-level road congestion for the week ended Jan 31



Source: BloombergNEF

Figure 60: China city-level road congestion for the week ended Jan 31



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	8	90	154	145	136	124	140	128	127	158	138	157	156	141
Beijing	78	59	107	172	164	150	138	151	138	137	179	163	177	167	146
Chengdu	94	93	83	134	126	131	110	131	109	115	130	124	127	123	120
Chongqing	31	52	81	125	111	110	98	116	105	88	124	114	128	121	111
Dongguan	135	92	47	128	130	109	114	127	117	101	143	134	141	146	122
Guangzhou	56	59	81	169	172	154	137	158	151	149	181	164	184	186	163
Ningbo	144	112	63	134	125	104	99	117	114	115	124	120	145	143	128
Qingdao	80	53	45	82	75	80	73	86	96	105	102	93	95	96	79
Shanghai	166	87	74	147	149	129	124	131	121	123	161	130	153	143	117
Shenzhen	175	109	79	167	166	138	130	165	143	146	180	155	169	169	151
Shijiazhuang	107	179	317	507	430	459	383	427	375	440	468	349	491	463	491
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	134
Wuhan	83	85	110	191	185	170	160	169	148	136	183	146	171	169	167
Xi'an	112	101	115	147	128	131	122	136	122	111	144	137	156	153	153
Zhengzhou	33	66	93	113	96	95	89	94	88	92	100	82	100	111	111

Indexed to same month in 2021 = 100

	Nov 22	Dec	Jan 23	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
China-15	81	60	90	240	100	93	97	117	109	116	97	116	129	116	141
Beijing	67	36	107	263	105	91	96	101	104	118	89	128	151	104	146
Chengdu	96	75	83	239	89	90	92	109	101	107	94	121	130	98	120
Chongqing	29	43	81	200	103	94	88	104	96	95	85	110	122	101	111
Dongguan	96	82	47	283	104	75	81	127	98	80	95	108	100	130	122
Guangzhou	48	45	81	357	130	106	107	186	128	111	111	127	155	142	163
Ningbo	102	82	63	245	88	79	84	105	95	84	83	94	102	105	128
Qingdao	79	55	45	163	64	59	63	75	84	108	78	101	93	100	79
Shanghai	125	67	74	241	102	95	104	111	113	110	101	115	115	108	117
Shenzhen	113	70	79	287	117	94	100	133	109	99	101	114	109	108	151
Shijiazhuang	44	44	317	210	104	129	133	153	146	190	117	118	204	115	491
Suzhou	127	65	69	224	93	87	86	102	111	117	103	99	112	102	119
Tianjin	88	57	97	202	99	102	98	104	105	106	98	124	121	132	134
Wuhan	72	63	110	333	114	116	120	131	134	159	107	127	149	125	167
Xi'an	92	109	115	196	76	75	90	107	113	115	97	126	128	164	153
Zhengzhou	40	60	93	181	85	88	105	108	76	171	83	88	122	101	111

*Source: BloombergNEF calculations based on Baidu data. Note: Data updated to **January 31, 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.*

2 Global Road Traffic Indicators Weekly: February 1, 2024 BloombergNEF

Source: BloombergNEF

Oil: Tesla's Cybertruck being called an Urban Traveling Vehicle in China

Tesla's Urban Traveling Vehicle

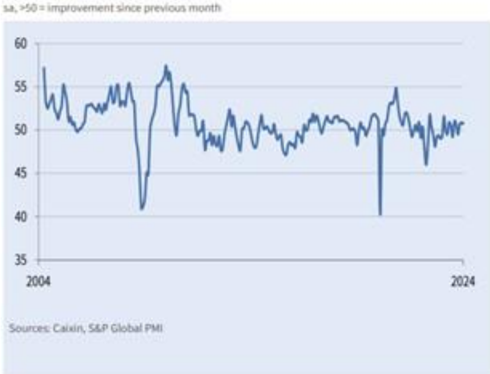
On Monday morning, we were watching CNBC when they had CNBC's Eunice Yoon reporting from Beijing on Tesla's showcasing the Cybertruck in eight cities in China. We hadn't realize the a big challenge for a broad penetration for Tesla's Cybertruck was because some cities don't allow pick up trucks in more populated areas. On Monday, we tweeted [LINK] "*If it walks like a duck,... Regs don't allow pickups into more packed parts of the city "so the fact that it [Tesla Cybertruck] was called a Urban Traveling Wagon, maybe not so catchy, but maybe could you get around some of the regulations" reports @onlyyoontv in Beijing. #OOTT.*" Yoon said it with a sense of humor that they have taken to calling the Cybertruck an "Urban Traveling Vehicle" as if they think it will help them get around some of the restrictions that prevent pickup trucks from being used in more populated areas of cities.

Oil: Caixin Manufacturing PMI at 50.8 in January, flat MoM

Caixin Manufacturing Jan PMI 50.8

As a reminder, there are two China manufacturing PMI data from S&P Global that come out each month. The Official Manufacturing PMI that normally comes out the day before the Caixin Manufacturing PMI data that we track. We have focused on the Caixin Manufacturing PMI as it is viewed as more of a leading indicator for how the China recovery is doing as it is a more of a smaller Chinese company who are export-oriented PMI and exports have been the big driver of China for the past 20 years. The Caixin Manufacturing PMI for January was released at 6:45pm MT Tuesday night [LINK] and we tweeted [LINK] "*#OOTT Positive view from China smaller & export oriented firms. China Caixin Manufacturing PMI Jan 50.8 (est 50.8) vs Dec 50.8, Nov 50.7, Oct 49.5. 'Chinese manufacturing companies signaled an expansion of output for the 3rd month running in Jan'… Thx @SPGlobalPMI #OOTT.*" IHS wrote "*Commenting on the China General Manufacturing PMI® data, Dr. Wang Zhe, Senior Economist at Caixin Insight Group said: 'The Caixin China General Manufacturing PMI was 50.8 in January, unchanged from December. This marks the first time since May 2021 that the index has remained in the expansion zone for three straight months. "Both supply and demand expanded, with supply outpacing demand. Market sentiment continued to improve with manufacturing output growing for the fifth time in the past six months. The subindex for total new orders remained in expansionary territory for six consecutive months. "Overseas* *demand picked up slightly with new export orders expanding for the first time in seven months. Surveyed companies reported that the largest output increase was in investment goods, while the improvement in external demand was mainly seen in intermediate goods.'"* Our Supplemental Documents package includes Caixin Manufacturing PMI report.

Figure 61: China Caixin General Manufacturing PMI



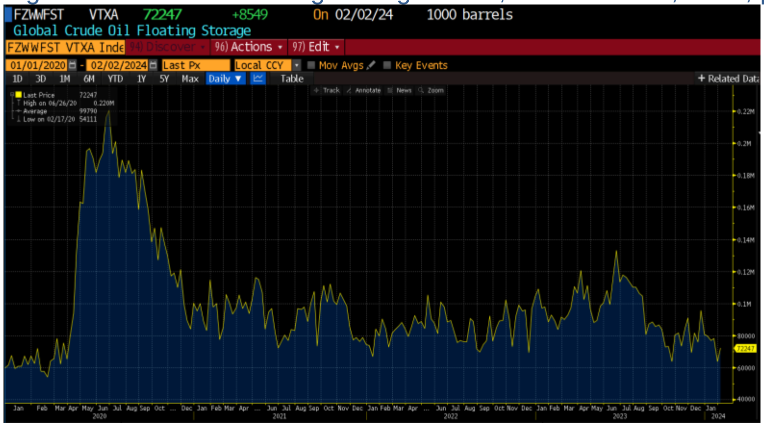
Source: Caixin, S&P Global

Oil: Vortexa crude oil floating storage est 72.25 mmb at Feb 2, +8.55 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 27 at 9am MT. (i) Yesterday, we tweeted [LINK] " *Houthis Red Sea impact? #Oil floating storage at Feb 2 +8.55 mmb WoW to 72.25. But only been 6 wks in 60s since Covid & Jan 27 of 63.70 mmb is lowest. Are some floating storage barrels filling any delivery gaps from tankers having to go via Cape of Good Hope? Thx @Vortexa @business #OOTT."* (ii) As of 9am MT yesterday, Bloomberg posted Vortexa crude oil floating storage estimate for Feb 2 at 72.25 mmb, which is +8.55 mmb WoW vs revised up Jan 26 at 63.70 mmb. Note Jan 26 was revised +2.64 mmb vs 61.06 mmb originally posted at 9am on Jan 27. (iii) Even with the +2.64 mmb revision, Jan 26 is the lowest floating storage since Covid. There have only been six weeks since Covid in the 60s: 3 or which was above 69 mmb, Jan 14/22 was 66.76 mmb, Oct 10/23 was 63.75, and now Jan 26 is revised up to 63.70 mmb. We have to wonder if this is linked to the Red Sea causing much longer voyages for oil and products, and some previously floating storage barrels have to move to fill any delivery gaps. (iv) evisions. We have been expecting to see more revisions re revisions than usual, most likely between regions, given the Red Sea interruptions and continued Panama Canal lower throughput. However, we aren't seeing big revisions that are out of the ordinary. Here are the revisions compared to the estimates originally posted on Bloomberg at 9am MT on Jan 27. Jan 26 revised +2.64 mmb. Jan 19 revised +0.48 mmb. Jan 12 revised +3.15 mmb. Jan 5 revised -2.20 mmmb. Dec 29 revised -1.20 mmb. Dec 22 revised -1.72 mmb. Dec 15 revised -1.32 mmb. (v) There is a wide range of floating storage estimates for the past seven weeks, but a simple average for the past seven weeks is 78.10mmb vs last week's then seven-week average of 76.84 mmb. (vi) Also remember Vortexa revises these weekly storage estimates on a regular basis. For example, when most report on the Vortexa data on Monday morning, they will be reporting on different estimates. We do not track the revisions through the week. Rather we try to compare the first posted storage estimates on a consistent week over week timing comparison. Normally we download the Vortexa data as of Saturday mornings around 9am MT. (vii) Note the below graph 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. (viii) Feb 2 estimate of 72.25 mmb is -20.58 mmb YoY vs Feb 3, 2023 of 92.83 mmb. (ix) Feb 2 estimate of 72.25 mmb is s -148.06 mmb vs the Covid peak of 220.31 mmb on June 26, 2020. (x) Feb 2 estimate of 72.25 mmb is +6.64 mmb vs pre-Covid Feb 28, 2020 of 65.61 mmb. (xi) Below are the last several weeks of estimates posted on Bloomberg as of 9am MT Feb 3, 9am MT Jan 27, and 9am MT Jan 20.

Figure 62: Vortexa Floating Storage Jan 1, 2000 – Feb 2, 2024, posted Feb 3 at 9am MT



Source: Bloomberg, Vortexa

Figure 63: Vortexa Estimates Posted 9am MT on Feb 3, Jan 27, and Jan 20

Posted Feb 3, 9am MT Date	Last Px	Jan 27, 9amMT Date	Last Px	Jan 20, 9am MT Date	Last Px
Fr 02/02/2024	72247	Fr 01/26/2024	61064	Fr 01/19/2024	73708
Fr 01/26/2024	63698	Fr 01/19/2024	77542	Fr 01/12/2024	72559
Fr 01/19/2024	78024	Fr 01/12/2024	73796	Fr 01/05/2024	82708
Fr 01/12/2024	76953	Fr 01/05/2024	81873	Fr 12/29/2023	81956
Fr 01/05/2024	79667	Fr 12/29/2023	81657	Fr 12/22/2023	96907
Fr 12/29/2023	80464	Fr 12/22/2023	97378	Fr 12/15/2023	77733
Fr 12/22/2023	95667	Fr 12/15/2023	77156	Fr 12/08/2023	85271
Fr 12/15/2023	75840	Fr 12/08/2023	84601	Fr 12/01/2023	70512
Fr 12/08/2023	81473	Fr 12/01/2023	69306	Fr 11/24/2023	89399
Fr 12/01/2023	69303	Fr 11/24/2023	90436	Fr 11/17/2023	88115
Fr 11/24/2023	90926	Fr 11/17/2023	86704	Fr 11/10/2023	77492

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 26, in total, was

Vortexa floating storage by region

revised +2.64 mmb. The main revisions in a region vs the originally posted (as of 9am Jan 27) floating oil storage for Jan 26 were Other revised +4.22 mmb and Asia revised -2.28 mmb. (ii) The major WoW changes by region were Asia +8.37 mmb WoW (note last week, Asia was -11.13 mmb WoW), Other -7.62 mmb WoW, and Middle East +4.07 mmb WoW. (iii) Feb 2 at 72.25 mmb is -60.89 mmb vs the summer June 23, 2023 peak of 133.14 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 -39.96 mmb and Other -24.89 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 26 that was posted on Bloomberg at 9am MT on Jan 27.

Figure 64: Vortexa crude oil floating by region

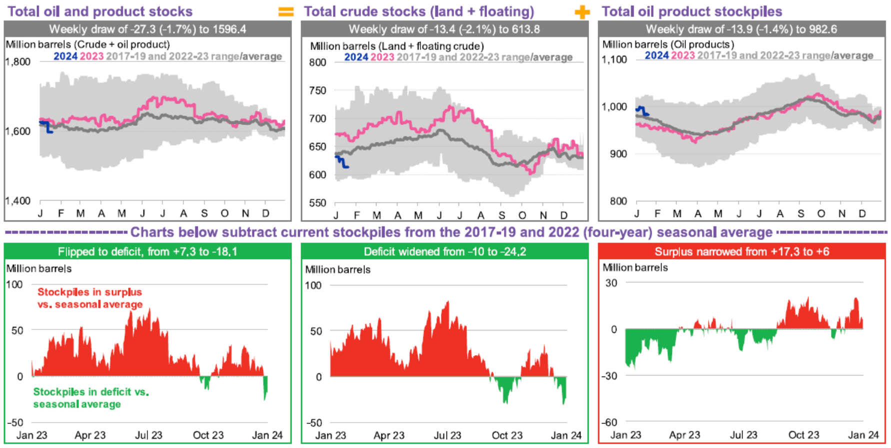
Vortexa Crude Oil Floating Storage by Region (mmb)				Original Posted	Recent Peak	
Region	Feb 2/24	Jan 26/24	WoW	Jan 26/24	Jun 23/23	Feb 2 vs Jun 23
Asia	33.87	25.50	8.37	27.78	73.83	-39.96
Europe	4.51	2.87	1.64	2.84	6.44	-1.93
Middle East	10.10	6.03	4.07	6.12	6.76	3.34
West Africa	7.43	6.62	0.81	5.85	7.62	-0.19
US Gulf Coast	3.79	2.51	1.28	2.52	1.05	2.74
Other	12.55	20.17	-7.62	15.95	37.44	-24.89
Global Total	72.25	63.70	8.55	61.06	133.14	-60.89
Vortexa crude oil floating storage posted on Bloomberg 9am MT on Feb 3						
Source: Vortexa, Bloomberg						

Source: Bloomberg, Vortexa

Oil: BNEF – global oil and product stocks surplus flips to 18.1 mmb deficit

Please note that the BloombergNEF global oil and products stocks estimate are for the week ending Jan 19, which is a week earlier than the normal EIA US oil inventory data that is for the week ending Jan 26 which was a build of +1.2 mmb. On Monday, BloombergNEF posted its "Oil Price Indicators" weekly, which provides good charts depicting near-term global oil demand and supply indicators. (i) Note BloombergNEF uses different periods to determine the surplus/deficit, sometimes using a four-year average for 2017-2019 + 2022-2023, and other times using a five-year average 2017-2019 + 2022-2023. In both cases they do not include 2020 and 2021 in the averages. (ii) The global stockpile for crude oil and products surplus flipped from a +7.3 mmb surplus to a -18.3 mmb deficit for the week ending Jan 19. (iii) Total crude inventories (incl. floating) decreased by -2.1% WoW to 613.8 mmb, while the stockpile deficit widened from -10.0 mmb to -24.2 mmb. (iv) Land crude oil inventories decreased by -3.2% WoW to 535.3 mmb, widening the deficit to -33.0 mmb against the five-year average (2017-2019 + 2022-23). (v) The gas, oil, and middle distillate stocks decreased by -1.2% WoW to 166.1 mmb, with the deficit against the four-year average widening from -16.0 mmb to -17.1 mmb. Jet fuel consumption by international departures for the week of Feb 5 is set to fall by -9,800 b/d WoW, while consumption by domestic passenger departures is forecast to increase by +36,700 b/d WoW. Below is a snapshot of aggregate global stockpiles.

Figure 65: Aggregate Global Oil and Product Stockpiles



Source: BloombergNEF, US EIA, PJK, IE Singapore, FEDCom/Platts, PAJ ,Vortexa, Genscape. Note: As of the **week ending January 19, 2024.**

Source: BloombergNEF

Asian Pacific air traffic in 2023

Oil: Asia Pacific Airlines 2023 traffic results, growth in pax but decline in freight

On Wednesday, the Association of Asia Pacific Airlines released its full year 2023 traffic results [LINK] which is comprised of aggregate data across a total of 40 Asia Pacific airline carriers. (i) Air travel. International passenger air travel on the 40 airlines is up big YoY, but still well below 2019 levels. The AAPA reports preliminary 2023 travel figures "*showed robust growth in international passenger demand, underpinned by strong appetite for travel following the removal of the region's remaining pandemic-related travel restrictions. For the year, the region's airlines recorded a 161.0% increase in the number of international passengers carried to a combined total of 278.5 million. In revenue passenger kilometres (RPK) terms, demand rose by 131.0%, reflecting strength on short haul markets. The increase in demand was supported by a 106.2% expansion in available seat capacity for the year, as airlines restored flights within the region and across regions. The international passenger load factor returned to pre-pandemic levels with an average of 80.9% in 2023, an 8.7 percentage point increase compared to 2022."* (ii) Air cargo was down slightly at -2.8% YoY but would have been down more were it not for the +13.2% YoY growth for the month of December. "*Meanwhile, air cargo markets entered 2023 weighed by multiple headwinds, including inflation, a strong US Dollar and government policy dampening trade activity as well as household spending power. Nevertheless, the final months of the year saw demand grow strongly, led by an increase in e-commerce shipments. In December, international air cargo demand as measured in freight tonne kilometres (FTK) recorded a 13.2% year-on-year growth, further reducing the decline recorded for the full year 2023 to 2.8%. Offered freight capacity rose by 6.4%, resulting in a 5.8 percentage point decline in the average international freight load factor to 60.7% for the year".* Below is a snapshot of the APAA's traffic update.

Figure 66: APAA Preliminary International Air Traffic Data

International	Dec-23	Dec-22	% Change	Jan-Dec 2023	Jan-Dec 2022	% Change
Passengers (Thousand)	28,065	16,753	+ 67.5%	278,518	106,703	+ 161.0%
RPK (Million)	100,262	63,860	+ 57.0%	996,624	431,429	+ 131.0%
ASK (Million)	124,626	79,661	+ 56.4%	1,231,736	597,263	+ 106.2%
Passenger Load Factor	80.5%	80.2%	+ 0.3 pp	80.9%	72.2%	+ 8.7 pp
FTK (Million)	5,970	5,272	+ 13.2%	64,443	66,318	- 2.8%
FATK (Million)	9,941	8,354	+ 19.0%	106,121	99,702	+ 6.4%
Freight Load Factor	60.1%	63.1%	- 3.0 pp	60.7%	66.5%	- 5.8 pp

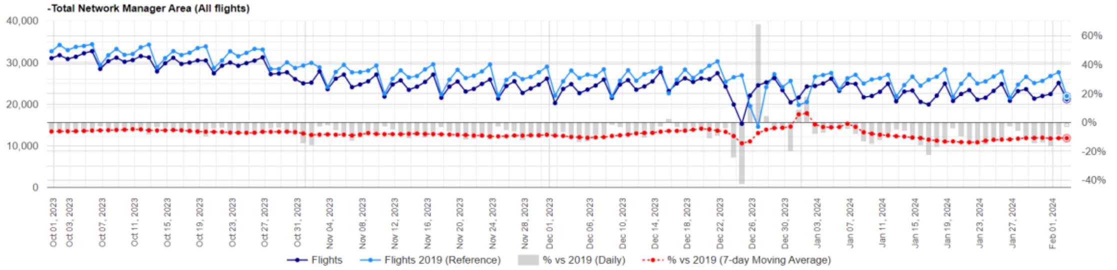
Source: AAPA

Oil: Europe airports daily traffic 7-day average is -11% below pre-Covid levels

Europe airports daily traffic

Other than over Christmas, European daily traffic at airports continues to be stuck below pre-Covid levels. As of our 7am MT news cut off, the latest Eurocontrol daily traffic at Europe airports shows the 7-day rolling average is -11.0% below pre-Covid 2019 levels. Eurocontrol updates this data daily and it is found at [LINK]

Figure 67: Europe Air Traffic: Daily Traffic Variation posted Feb 4



Source: Eurocontrol

Oil: IATA, air passenger data, travel 97.5% of pre-Covid levels in December

Air travel up in December

On Wednesday, the International Air Transport Association (IATA) released air passenger data for December 2023 [LINK] and the December 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 9th consecutive month, 2.3% above December 2019 levels. International air travel keeps recovering but is still below pre-Covid levels at 94.5% of December 2019 levels. (i) Total traffic in December, measured in revenue passenger kilometers (RPK), rose +36.9% YoY. Please note the IATA splits out total market air travel into International travel vs Domestic travel. (ii) For December 2023, total global RPKs were -2.5% vs December 2019 levels, but that was split between International RPKs -5.3% vs December 2019 and Domestic RPKs +2.3% vs December 2019 levels. (iii) Willie Walsh, IATA's Director General, commented "*The strong post-pandemic rebound continued in 2023. December traffic stood just 2.5% below 2019 levels, with a strong performance in quarter 4, teeing-up airlines for a return to normal growth patterns in 2024. The recovery in travel is good news. The restoration of connectivity is powering the global economy as people travel to do business, further their educations, take hard-earned vacations and much more. But to maximize the benefits of air* *travel in the post-pandemic world, governments need to take a strategic approach. That means providing cost-efficient infrastructure to meet demand, incentivizing Sustainable Aviation Fuel (SAF) production to meet our net zero carbon emission goal by 2050, and adopting regulations that deliver a clear cost-benefit. Completing the recovery must not be an excuse for governments to forget the critical role of aviation to increasing the prosperity and well-being of people and businesses the world over".* Our Supplemental Documents package includes the IATA release.

Figure 68: December 2023 Air Passenger Market

DECEMBER 2023 (% YEAR-ON-YEAR)	WORLD SHARE[1]	RPK	ASK	PLF(%-PT)[2]	PLF(LEVEL)[3]
Total Market	**100%**	**25.3%**	**24.1%**	**0.8%**	**82.1%**
Africa	2.1%	12.1%	18.7%	-4.3%	73.2%
Asia Pacific	22.1%	60.7%	53.4%	3.7%	81.2%
Europe	30.8%	12.5%	12.3%	0.1%	85.1%
Latin America	6.4%	16.3%	10.4%	4.2%	82.7%
Middle East	9.8%	16.4%	17.2%	-0.6%	78.2%
North America	28.8%	10.6%	12.0%	-1.0%	82.9%

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 December

We look at international air cargo as the data that affirms the level of export orders and trade. On Wednesday, the International Air Transport Association (IATA) announced cargo data for the month of December [LINK]. The IATA's Director General, Willie Walsh, noted that "*Despite political and economic challenges, 2023 saw air cargo markets regain ground lost in 2022 after the extraordinary COVID peak in 2021. Although full year demand was shy of pre-COVID levels by 3.6%, the significant strengthening in the last quarter is a sign that markets are stabilizing towards more normal demand patterns. That puts the industry on very solid ground for success in 2024. But with continued, and in some cases intensifying, instability in geopolitics and economic forces, little should be taken for granted in the months ahead".* Overall, mostly positive news, with cargo-tonne kilometres (CTKs) up big everywhere YoY (except Africa) while cargo load factors (CLFs) are slightly down or flat 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 69: December 2023 Air Cargo Market

DECEMBER 2023 (%YEAR-ON-YEAR)	WORLD SHARE *1	CTK	ACTK	CLF (%-PT) *2	CLF (LEVEL) *3
Total Market	**100%**	**10.8%**	**13.6%**	**-1.2%**	**45.9%**
Africa	2.0%	-1.2%	7.4%	-3.6%	41.0%
Asia Pacific	32.4%	18.5%	31.1%	-5.1%	47.9%
Europe	21.8%	8.6%	7.4%	0.6%	56.2%
Latin America	2.7%	6.4%	3.5%	0.9%	31.6%
Middle East	13.0%	18.3%	17.7%	0.2%	45.5%
North America	28.1%	2.0%	2.4%	-0.2%	40.3%

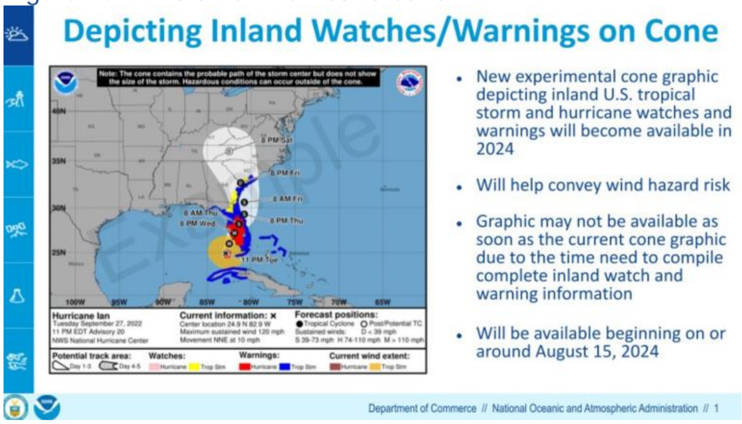
Source: IATA

Oil & Natural Gas: new NHC hurricane cone

New NHC hurricane cone

It's still four months to the start of the Atlantic hurricane season but, on Thursday, the National Weather Service tweeted [LINK] "*2/1 at 9am: The National Hurricane Center (@NHC_Atlantic) will be implementing a new experimental cone graphic beginning on or around August 15th 2024. This experimental graphic will help better convey wind hazard risk inland in addition to coastal wind hazards.*" This new hurricane cone looks like the same old cone with an added inland impact cone emphasis. Below is the new cone explanation.

Figure 70: NHC's new hurricane cone



Source: NOAA

Energy Transition: Chevron growing demand *affordable, reliable & ever-cleaner energy*

Chevron on oil and gas

We don't think Chevron changes any climate change side views by talking about the growing demand for oil and natural gas without using those words. And by their reminder to climate change side that the world needs oil and natural gas if the world wants to have affordable and reliable energy. Chevron released Q4 on Friday. We tweeted [LINK] "*How to say they see increasing demand for #Oil #NatGas for foreseeable future. "we also strengthened our portfolio with traditional and new energy acquisitions to help meet the growing demand for affordable, reliable and ever-cleaner energy" Chevron CEO. #OOTT.*"

Energy Transition: Liberals "carbon pollution pricing"

"carbon pollution pricing"

Just like we don't think Chevron's use of cleaner energy will convince any climate change side to believe Chevron has turned a new leaf on fossil fuels, we don't think the Liberals new terminology for carbon taxes will convince conservatives they are changing their tune on carbon tax. We were watching a news or business program when one of their climate crisis commercials came on, where they didn't use the term carbon tax. Rather they called it "*carbon pollution pricing*". We don't know how long they have used this term.

Energy Transition: John Podesta taking over from John Kerry as climate envoy

New US climate envoy

We weren't surprised that John Kerry stepped away from his role as Climate Envoy ostensibly to work on Biden's re-election. It's not that we doubt his move to help on the Biden re-election campaign. But we believe he also doesn't want to be the climate envoy as the US falls far behind on its climate ambitions. On Wednesday, the White House issued a "*Statement from National Security Advisor Jake Sullivan on John Podesta*" [LINK]. The White

House wrote "*President Biden's appointment of John Podesta to continue to lead our global climate efforts demonstrates the President's steadfast commitment to tackling the climate crisis – and reflects his belief that we have not a moment to lose. John has played–and will continue to play—a lead role in restoring U.S. domestic leadership on climate, including leading the Administration's implementation of the Inflation Reduction Act, the single largest investment to tackle climate change in history. John is a key architect of turning President Biden's bold vision – that tackling the climate crisis also represents the single biggest economic opportunity of our time – into a reality here at home*." Podesta is a well-known democrat going back to his role as Whiite House Chief of Staff for Bill Clinton in his second administration.

Energy Transition: A number of negative EV outlook news items this week

This seemed like a week of negative news and comments on EVs. When we say negative, we aren't saying EVs aren't growing in penetration. Rather, its news and comments that reinforce the growth of EVs is not anywhere near as fast or as cheap as assumed in the energy transition plans/aspirations. And EVs replacing ICE vehicles in terms of miles driven is probably the most critical success factor for the energy transition. Here are some of the items from the week.

A negative news week for EVs

Ford: Jan EV sales down 10.9% YoY

On Friday morning, Ford posted its January 2024 US auto sales. We tweeted [LINK] "*Ford Jan 2024 sales just out. EVs -10.9% YoY to 4,674 (was 5,247). Hybrids +42.7% YoY to 11,157 (was 7,816). ICE +2.6% YoY to 136,786 (was 133,293). Total +4.3% YoY to 152,617 (was 146,356). EVs not growing as fast as #NetZero plan. #Oil #Gasoline needed for longer. #OOTT.*" It is a good reminder of the emerging trend in H2/23 that EV sales growth are declining (in the case for Ford, Jan was -10.9% YoY), whereas hybrid sales are increase. And also increasing ICE vehicle sales.

Figure 71: Ford January 2024 auto sales

FORD MOTOR COMPANY JANUARY 2024 U.S. SALES

	January 2024	January 2023	% Change	Year-to-Date 2024	Year-to-Date 2023	% Change
SALES BY BRAND						
Electric Vehicles	4,674	5,247	-10.9	4,674	5,247	-10.9
Hybrid Vehicles	11,157	7,816	42.7	11,157	7,816	42.7
Internal Combustion	136,786	133,293	2.6	136,786	133,293	2.6
Total vehicles	152,617	146,356	4.3	152,617	146,356	4.3
SALES BY TYPE						
SUVs	68,120	62,774	8.5	68,120	62,774	8.5
Trucks	80,726	79,572	1.5	80,726	79,572	1.5
Cars	3,771	4,010	-6.0	3,771	4,010	-6.0
Total vehicles	152,617	146,356	4.3	152,617	146,356	4.3

Source: Ford

GM CEO "*it's true the pace of EV growth has slowed*", flex in more ICE vs EV

GM held its Q4 call on Tuesday. GM had a good quarter driven by ICE as they had disappointed on EVs and also came out with what they looked like a concession to their dealer group by saying they are going to add in hybrids. (i) Early Tuesday morning, we tweeted [LINK] ""*It's true the pace of EV growth has slowed, which has created some uncertainty" GM CEO Mary Barra just now. #Oil #Gasoline will be needed for longer. #OOTT.*" GM had just released Q4 results and our tweet was ahead of the earnings call. She said the said comment on the Q4 call. (ii) Will flex in more ICE. Barra highlighted that they aren't going to overbuild EVs with the slower pace of growth in EVs and she said "*we will build [EVs] to demand*". And then in her closing prepared remarks, Barra said "*In closing, we know the EV market is not going to grow linearly, and we are prepared to flex between ICE and EV productions, given our unique manufacturing capabilities to balance inventory levels and to build customer demand*." (iii) The other reality acceptance by GM by the less than expected EV customer demand is that they are now moving to add in more hybrids. In what looked like a concession to dealer complaints in H2/23, Barra said "*Our forward plans include bringing our plug-in hybrid technology to select vehicles in North America. Let me be clear, GM remains committed to eliminating tailpipe emissions from our light-duty vehicles by 2035, but in the interim, deploying plug-in technology and strategic segments will deliver some of the environmental benefit of EVs as the nation continues to build its charging infrastructure. We are timing the launches to help us comply with the more stringent fuel economy and tailpipe emissions standards that are being proposed and we plan to deliver the program in a capital and cost-efficient way because the technology is already in production in other markets. We'll have more to share about this down the road."* (iv) On Monday the day before the Q4 results, the WSJ reported that GM dealers wanted GM to make more hybrids. [LINK] The WSJ wrote "*Dealers who serve on advisory committees to the automaker have urged executives in several recent meetings to add hybrids to GM's lineup, according to people involved in the discussions. GM has focused on fully electric cars in recent years and largely bypassed hybrids, which pair an internal combustion engine with a small battery and electric motor to boost fuel efficiency. The dealers said they expressed concern that more customers are looking for a middle ground between conventional gas-engine cars and EVs, which are more expensive and require regular charging. GM executives have acknowledged the dealers' views but haven't made any commitments to future hybrid options, the people said. Automakers often solicit input from dealers on vehicle planning but still typically keep the details of future models under wraps."* Our Supplemental Documents package includes the WSJ report.

Renault cancels IPO of its new EV business, Ampere

On Monday, Renault announced [LINK] "*Renault Group has created Ampere, the only European EV and software pure player, with one goal: democratize EV in Europe faster than EV pure players………. Therefore, considering both current equity market conditions and stronger cash generation, Renault Group has decided to cancel the Ampere IPO process…….. Today, we took a pragmatic decision."* There wasn't much context in the release but there was in the call. Mgmt was asked *"Did investor concerns over the current European EV slowdown play any part in this decision?"* CEO de Meo replied "*So I see it pretty positive so far. Is the context influencing the decision? I think it's one of the elements because, I mean we would be – being totally blind and not looking left and right would have been not totally responsible as a management of team. I think there is a swing on the other side -- on the opposite side with EV, which I consider honestly pretty childish. Because three years ago, everybody was telling us that, if we would not go 100% EV, we would have been a bunch of zombies in 10 years. And now everybody is telling* *that we shouldn't do EV because, whatever the profitability, the thing, et cetera, et cetera. I think we need to get to -- people like us, they have to keep cool heads all the time."*

Energy Transition: ~4,700 car dealerships ask Biden to "hit the brakes" on EV mandate

Car dealerships want Biden to halt EV mandate

On Tuesday, we tweeted [LINK] "*~4,700 dealerships "now ask that you [Biden] hit the brakes" on his proposed EV mandate. "uncontestable" that the mandate is "completely unrealistic". ie. "means 800 new chargers would have to build every single day" to 2032. ICE vehicles & gasoline are here for longer! #OOTT."* It is important to note that this letter signed by over 4,700 dealers "*reflected the voice of our customers – the Americans who come to our dealerships every day to buy vehicles that are affordable and meet their needs*." Last week, Auto Dealers sent a new letter to Biden as a follow up to their Nov letter that had over 4,000 auto dealers sign and to which they said there was no response from the Biden Administration. In their Nov letter, the over 4,000 dealers asked Biden to "*tap the brakes*" on the proposed EV mandate. Last week's letter changed that and there are now over 4,700 dealers from across the US now asking Biden to "*hit the brakes*" on the proposed EV mandate. The dealers say *"It is uncontestable that the combination of fewer tax incentives, a woefully inadequate charging infrastructure, and insufficient consumer demand makes the proposed electric vehicle mandate completely unrealistic."* One of the items that make it unrealistic is on chargers, where they wrote "*Based on the government's estimates, 2.8 million public chargers will be needed by 2032, but only 170,000 public chargers exist today. That means 800 new chargers would have to be built every single day -- for the next nine years. Clearly, this is not even in the realm of possibility."* And they ask Biden to *"wait for the American consumer to make the choice to buy an electric vehicle, confident that they are affordable and won't strand them because of a lack of charging stations."* We suspect that this followup letter is most likely ignored as we can't expect Biden and his Administration believe they can win an argument against the growing dealer list and their customers. They are better off to ignore it. Our Supplemental Documents package includes the letter to Biden.

Figure 72: Ove 4,700 car dealerships ask Biden to "hit the brakes" on EV mandate

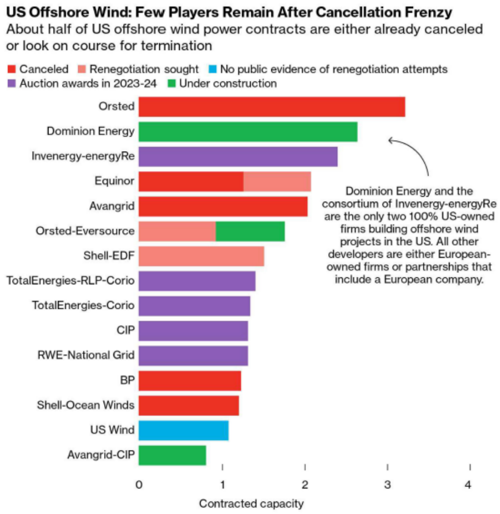
Source: EV voice of the customer

Energy Transition: BNEF ~half of US offshore wind canceled or on course to do so

No one should be surprised to see BlombergNEF's update on US offshore wind projects. One of the big energy transition themes in 2023 was how there were many offshore wind projects in the US and UK that were cancelled or put on a lengthy pause while developers try to renegotiate contracts to go try to make the projects economic. On Monday we tweeted [LINK] "*Here's why #NatGas will be needed for way longer! "about half of US offshore wind power contracts are either already canceled or look on course for termination" See 👇@BloombergNEF Atin Jain. #OffshoreWind is one of critical success factors for timely #energytransition.#OOTT.*" Our tweet included the below BloombergNEF chart. *BloombergNEF wrote "US Offshore Wind: Few Players Remain After Cancellation Frenzy. About half of US offshore wind power contracts are either already canceled or look on course for termination."* And "*The latest offshore wind project contracts to be canceled in the US - the BP and Equinor-owned 1.2-gigawatt Beacon Wind 1 project in New York and Orsted-owned 1 GW Skipjack Wind off thecoast of Maryland - bring the total of dead deals to almost 9GW. That is about a third of the 25GW capacity signed or awarded offtake contracts, according to BloombergNEF. The pain may not be over. Another 3.3GW of projects have sought contract renegotiations with state regulators and could still be on the chopping block."* However, BloombergNEF sees the bottom is near. They write "*NEF believes that the US offshore wind industry is approaching the end of its bruising phase of contract cancellations. The pipeline of projects that still hold contracts at lower prices with fewer contractual protections from inflation is dwindling. While these projects could still terminate their offtake contracts, an easing of interest rates and stabilization of project costs this year should help the developers transition to profitable business cases. The long-term outlook for US offshore wind remains promising. BNEF expects about 14.SGW of cumulative offshore wind installations by 2030 and 42.3GW by 2035, from just 42 megawatts of total capacity at the end of 2023."* Our Supplemental Documents package includes the BloombergNEF report..

~half of US offshore weind canceled

Figure 73: US Offshore wind projects



Source: BloombergNEF

Critical success factors for Net Zero aren't working as hoped

The BloombergNEF US offshore wind report is a reminder that one of the critical success factor for the energy transition is not working anywhere near as fast as hoped/planned. Here is what we wrote in our Oct 29, 2023 Energy Tidbits prior to COP28. Note that we neer wrote the blog. "*We expect to post a long overdue blog ahead of COP28, which runs from Nov 30 to Dec 1 in the UAE. Our view on the Energy Transition is unchanged for the past several years – it's happening but it will take way longer, cost way more and be a bumpy/rocky road. It is very hard to predict what will happen at COP28 but we would hope that everyone doesn't fool themselves with their starting point – all of the major items for the energy transition aren't working as planned. For the past few years, we have placed a priority for tracking the major items of the energy transition because their progress, or lack thereof, relative to their plans/aspirations is the most important factor for oil and natural gas for the next decade. It's why we have said for years that oil and natural gas will be needed for longer and therefore there will be cash flow value for the next decade. Our memos have highlighted the major energy transition items being well behind plans and aspirations. (i) EVs. The major oil consumption impact is forecast to come from EVs replacing ICE. So far, our focus has been on how EVs aren't displacing ICE mileage as much as assumed as forecasts like the IEA assume that every new EV replaces the miles driven by an ICE. It's like they assume that every EV sold means an ICE gets junked or stopped driving. So the IEA demand forecasts assume way too much demand destruction from new EV sales. But, as noted later in the memo, we expect to see forecasters reduce their assumption for EV adoption as they move to not assume the rate of growth in EVs isn't as fast asEVs move to lower and middle income. (ii) Sustainable aviation fuel. Sustainable aviation fuel is the key item for the airline industry to reach its Net Zero targets. The problem with SAF is that it is very expensive relative to jet fuel and there won't be enough supply. Climate change side has been trumpeting that there is a huge growth in SAF. That is correct, it is a huge growth, the amount of SAF tripled in 2022 but the IATA highlighted SAF supplied only 0.1% of total 2022 jet fuel consumption. We expect to see the reality of SAF potential to be reflected in new forecasts. (iii) Offshore wind is having a huge pause. This has been the big news item over the past six months – offshore wind projects in the US and Europe are being paused or trying to be renegotiated due to insufficient returns to developers. This is pause has been now going on for six months or so, and will need to be addressed as they are projects that were approved by governments so assumed to be happening. Best case scenario is a pause of a year. So it pushes back assumed startup of wind. (iv) Hydrogen costs too much so no buyers will step up. Hydrogen is expected to be a key fuel for energy intensive uses. The problem is that it is too expensive and there haven't been any large buyers step up to commit to long term hydrogen such that hydrogen suppliers can commit the billions for large commercial supply. We expect to see more reflect a significant reduction n their hydrogen penetration forecasts."*

Fits our 2022 Prediction leaders to admit energy transition isn't working

Here is another item from or Oct 29, 2023 Energy Tidbits memo. "*We don't expect to see many western leaders come out and directly say the energy transition isn't working but we do expect to see their actions reflect that* *conclusion. Our #1 prediction for 2022 was on this concept. We were probably 6 to 12 months early but it is unfolding. Here is what we wrote in our Dec 12, 2021 Energy Tidbits memo. "Its December and so analysts will soon be coming out with 2022 predictions, so we thought we would beat them with one of our main 2022 predictions. On Thursday, we tweeted [LINK] "Time for #2022Predictions. My #1 is more #EnergyTransition #NetZero leaders come out of closet, have a #MacronMoment ie. have "transition" not self inflicted shortage so 2021 energy crisis isn't every year. A return to #EnergySecurity = #Oil #NatGas #LNG strong thru 2030. #OOTT." This should not surprise readers as we have been noting the start of energy transition leaders starting to admit, in a politician's manner, that the energy transition isn't working as per aspirations and energy costs will be a lot higher than aspired. We have said for years that the energy transition will happen, but it will take longer, be bumpy road and cost more than the aspirations. Last week's (Dec 5, 2021) Energy Tidbits wrote on the ADNOC CEO speech There was much more in the speech, which is why we tweeted [LINK] "If more leaders have a "Macron Moment" in 2022, maybe COP28 UAE in 2023 can be catalyst for getting down to work on practical, commercial, sustainable energy solutions: pro climate/pro growth? See SAF Group transcript of @SultanAhmedalj8 #ADIPEC keynote. #EnergyTransition #OOTT." We do wonder if we will see more world leaders accept that the energy transition isn't working according to their aspirations and that there is an increasing risk of a decade of energy crisis like seen in Europe in H2/21 unless the world puts in an achievable energy transition plan." We think COP26 will turn out to be turning point, but a turning point to force energy transition leaders into changing their plan. It why we think we will more of the energy transition leaders come out of the closet and admit this in 2022. But what got us to tweet this week was after seeing Saudi Aramco CEO Nasser speech at the WPC in Houston. Nasser said "There is one more thing that can no longer remain unsaid. A majority of key stakeholders agree with these realities as much as they believe in addressing climate change. We know this, because they say so in private. They should say it publicly too. I understand their dilemma. Publicly admitting that oil and gas will play an essential and significant role, during the transition and beyond, will be hard for some." So our #1 2022 Prediction is that we will see leaders come out of the close and admit, in a politician's way, that the energy transition plan needs to be changed. The key result will be that fossil fuels are needed for way longer and the outlook for oil, natural gas and LNG will be stronger thru 2030 and beyond."*

Energy Transition: Tesla's "Urban Traveling Wagon" in China aka Cybertruck

Emissions per air passenger

On Monday morning, CNBC's Eunice Yoon was reporting on Tesla's Cybertruck showcase in Beijing. Yoon highlighted a key challenge for the Tesla Cybertruck or any pickup truck is that some cities don't allow pickup trucks in dense areas. We tweeted [LINK] "*If it walks like a duck,... Regs don't allow pickups into more packed parts of the city "so the fact that it [Tesla Cybertruck] was called a Urban Traveling Wagon, maybe not so catchy, but maybe could you get around some of the regulations" reports @onlyyoontv in Beijing. #OOTT.*" We probably should have put in our tweet something like China regulations don't allow pickup trucks in dense city areas, Teslas says no problem as they aren't selling trucks. Or is this just the line they will use to convince Chinese to buy the Cybertruck.

Capital Markets: is it bullish when all markets talk about is what could go wrong?

Bullish signal for maarekts?

On Wednesday morning, we were watching CNBC Squawk Box and heard a line that reminded us of oil and other markets. We tweeted [LINK] "*Reminds of current #Oil markets. "i still think we're in an environment where we're all talking about everything that could go wrong, which is bullish" Savita Subramanian BofA. "i agree with that" @michaelsantoli. just now on @SquawkCNBC #OOTT.*"

Demographics: Calgary councillor uses Dunning-Kruger to insult some voters

Dunning-Kruger effect

One of the Calgary local stories was the city council voting to begin the repeal process for its single-use items bylaw two weeks after it came into effect. The by law was that businrsses had to ask customers if they wanted a bag for a minimum feed and not provide od ware, straws etc unless the customer asked for them. But what cuaghjt our attention was how one of the Calgary councillors in favor of the bylaw used Dunnng-Kruger effect to insult those who didn't agree with the bylaw. The Calgary Herald wrote "*There is the other side. There is Gian-Carlo Carra, the councillor who advises us all to "chill out" because this is "small potatoes." "We are entering silly season," says Carra. Silly season seems to be the only season at city hall. On Tuesday, a chinook of common sense blew into the building. Carra mocks the anti-bag bylaw emails he's read and speaks of many of them as "sad and laughable." The councillor is talking about the emails not himself. Hear Carra as he reaches the peak of pomposity. "I'm reminded of the Dunning-Kruger effect which is the idea that people who have the least amount of knowledge on a subject have the most amount of confidence." He's talking about you, dear reader. I think it's an insult."* For reference, Psychology Today [LINK] defines it a little different "*The Dunning-Kruger effect is a cognitive bias in which people wrongly overestimate their knowledge or ability in a specific area. This tends to occur because a lack of self-awareness prevents them from accurately assessing their own skills*." It's why we have ended to more often heard Dunning-Kruger used against politicians or actors. Our Supplemental Documents package includes the Calgary Herald report.

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

@Energy_Tidbits on Twitter

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

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.

One of the world's classic golf course, Pebble Beach, featured this week
We normally leave golf as background while working on the memo especiallyhen Canadians are in the hunt, or following a major or a golf course that we have played. The PGA stop this week is the AT&T Pebble Beach Pro-Am with the main course being the famous Pebble Beach. And anyone who has played it, can't help watch and remember playing the same holes. Below is the signature 18th hole. The only issue with playing Pebble Beach is that the rounds are long because all the golfers want to take pictures, in particular the classic Jack Nicklaus pose on the 18 tee box. That has to be one of the replicated golf pictures, even moreso than Jack's classic picture on the stone arch on 18 at St. Andrews. The one recommendation we always make for anyone playing at Pebble Beach, arrange a good local caddy because the greens are tricky for speed and break.

Figure 74: Pebble Beach 18th Hole, Jack Nicklaus on 18th Tee

Source: flickr, Golf.com

National Chopsticks Day is Feb 6
As someone who grew up using both Japanese chopsticks (ohashi) and regular utensils, I was still surprised to hear there is a National Chopsticks Day, which is Feb 6 this year even though ¼ of the global population uses chopsticks as the primary eating utensil. Something that people may not realize is that there are generally different shapes of chopsticks by country. When I take people to dim sum, I can see the challenge that many people have using traditional Chinese chopsticks that don't have a much of a pointed tip as Japanese chopsticks. One other chopsticks etiquette you will often see Japanese people do when taking food from a big shared plate without a separate serving utensil is that they will tun their chopsticks around so they

don't take the food from the common shared plate using the ponts of the chopsticks that have been in contact with their mouth.   Below is Foodimentary picture of the traditional Japanese vs Korean vs Chinese chopsticks.

Figure 75: Japan vs Korea vs China traditional chopsticks

Source: Foodimentary