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Energy Tidbits

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US Attacking Houthis Seems Inevitable Especially with US Navy Shooting Down a Drone in "Self-Defense"

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

This week's memo highlights:

1. US seems boxed and has to attack the Houthis especially given the US Navy had to shoot down a Houthis drone yesterday in "self defense". [click here]

2. EOG sees US oil growth YoY in exit 2024 to be less than half of the exit 2023 900,000 b/d YoY growth. [click here]

3. Moving into the period when Cdn WCS less WTI differential normally seasonally narrow. [click here]

4. Trans Mountain's CER filing expects them to begin line fill for TMX in either March or May. [click here]

5. Expect an early and abrupt to Cdn winter drilling given the warm temperatures and lack of snowfall so far this winter. [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: -14 bcf draw from US gas storage; now +553 bcf YoY surplus

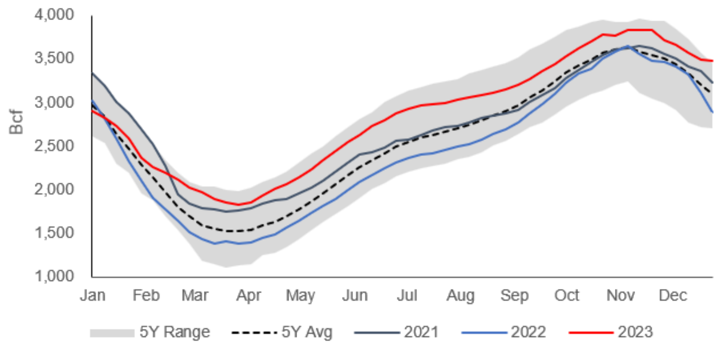
It's a bad indicator for natural gas prices when there is a barely a draw from storage in the last week of Dec. This week, there was a very small draw compared to last year. For the week of Dec 29, the EIA reported a -14 bcf draw, much smaller than the -87 bcf draw reported for the week of Dec 22, 2022. Recall that it started to turn to warmer than normal temperatures in Dec 2022. Total storage is now 3.476 tcf, representing a surplus of +553 bcf YoY compared to a surplus of +348 bcf last week. This is the highest storage has been in 5 years, with the previous high being 3,460 bcf from 2020. Total storage is +302 bcf above the 5-year average, up from the +316 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 (12/29/22)		5-year average (2018-22)	
Region	12/29/23	12/22/23	net change	implied flow	Bcf	% change	Bcf	% change
East	799	805	-6	-6	699	14.3	736	8.6
Midwest	968	985	-17	-17	848	14.2	877	10.4
Mountain	228	232	-4	-4	158	44.3	170	34.1
Pacific	280	280	0	0	165	69.7	228	22.8
South Central	1,201	1,187	14	14	1,054	13.9	1,066	12.7
Salt	344	329	15	15	278	23.7	313	9.9
Nonsalt	857	858	-1	-1	776	10.4	753	13.8
Total	3,476	3,490	-14	-14	2,923	18.9	3,077	13.0

Source: EIA

Figure 2: US Natural Gas Storage – Historical vs Current



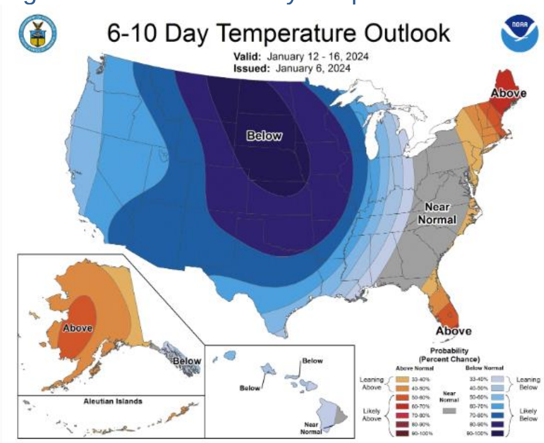
Source: EIA, SAF

Natural Gas: NOAA sees below normal temperatures ahead for most of US

NOAA 6-10 & 8-14 day temp outlook

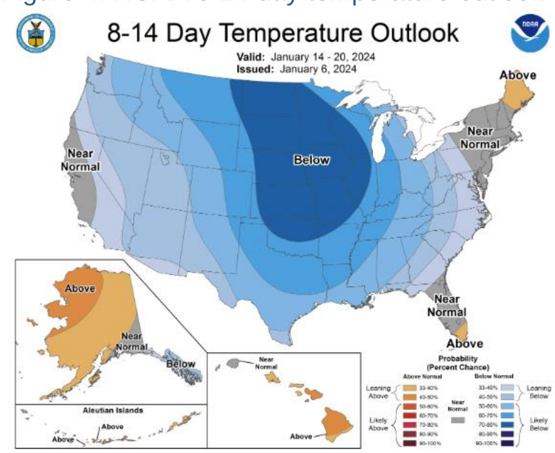
Yesterday, we tweeted [LINK] "*Best near-term @NOAA temp outlook this winter. Today's covers Jan 12-20, below normal temps expected for most of US. Need sustained cold in Jan after warm Nov/Dec start to winter. #NatGas #OOTT.*" It's been a warm start to winter in Nov and Dec. But we are now seeing NOAA's near-term, 6-10 and 8-14 day, temperature outlook is showing normal to colder than normal temperatures in most of the US. Our concern is unchanged – it's really tough but not impossible to catch up from a warmer than normal Nov and Dec. But it needs a cold Jan and Feb. Below are the NOAA 6-10 day and 8-14 day termperature outlooks posted yesterday, Jan 6.

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



Source: NOAA

Figure 4: NOAA 8-14 day temperature outlook as of Jan 6



Source: NOAA

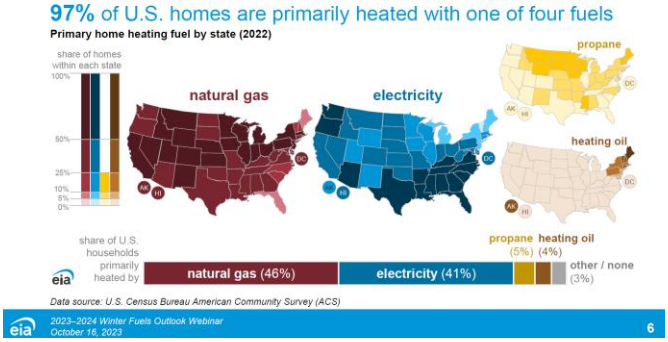
Natural Gas: 62% of US homes have winter home heating fueled by natural gas

Natural gas home heating

Here is what we wrote in our Nov 19, 2023 Energy Tidbits memo on overview of US home heating by fuel. "*Our primary focus for winter weather tends to be in the US NE and around the Great Lakes for the combination of population density, areas that have colder winters, and a higher percentage of the US homes in these regions that primarily use natural gas for heating. Below is the EIA's map from Oct showing the primary fuel source for heating homes. (i) On Thursday, we tweeted [LINK] "62% of US homes winter heated directly (46%) and indirectly (16%) by #natgas. All direct fuel % splits unchanged YoY ie. #natgas 46%, electricity 41%, etc. @EIAgov #natgas fuels 40% of electricity for home heating ie. indirect*

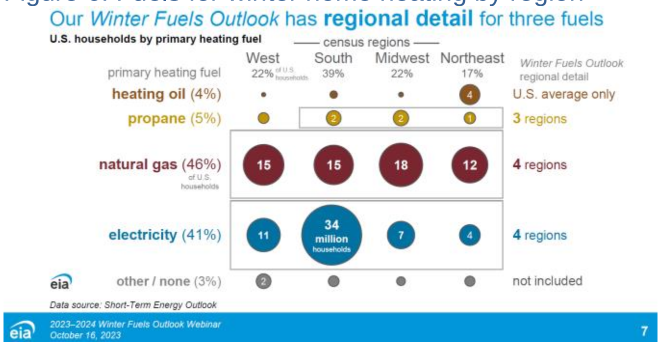
16% #OOTT." (ii) Natural gas continues to be the major fuel for "direct" fuel for home heating with 46% of US homes followed by electricity 41%, propane 5%, heating oil 4% and other/none at 3%. Note these % shares are unchanged vs last year. (ii) much of the electricity is provided by natural gas. (iii) Natural also is the major fuel to generate electricity. On a direct basis, electricity is the primary source for heating 41% of US homes. The EIA notes that natural gas provides the fuel for 40% of electricity. The EIA wrote "Last winter, electricity generation fueled by natural gas reached a new record of 619 billion kilowatthours (kWh), accounting for nearly 40% of all generation in the U.S. electric power sector. We forecast a similar level and share of natural gas generation for winter 2023–24. The addition of new natural gas-fired generating capacity has been one factor keeping natural gas the largest source of power generation. By October 31, we expect U.S. natural gas generating capacity to have grown by 4.7 gigawatts (GW) from the previous October." ivi) Adding the indirect and direct, natural gas provides the fuel for 62% of US homes."

Figure 5: Fuels for winter home heating of US homes



Source: EIA

Figure 6: Fuels for winter home heating by region



Source: EIA

Natural Gas: Increasing chance for NE BC/NW AB natural gas M&A

Cdn/US natural gas M&A

We have been highlighting the very warm winter and lack of snowfall this winter in Alberta and BC. Later in the memo, we again highlight the very warm start to winter and lack of snowfall and how this is increasing risk to an early and abrupt end to winter drilling season in BE and Alberta. It is important to remember that it's been very warm in western Canada in Nov/Dec and there is an increasing risk to an early and abrupt end to winter drilling season.

This could put at risk planned end of winter drilling. We believe an early and abrupt end to winter drill also increases the chance for NE BC/NW Alberta natural gas M&A in the run up to the start of LNG Canada 1.8 bcf/d Phase 1 LNG project. We have been highlighting how there is the need/opportunity for >15 bcf/d of new natural gas supply in US and Canada to support the current building out of new LNG capacity thru the end of the decade. This is a huge task and one that, by itself, is a set up for natural gas M&A. Here is what we tweeted on Dec 1 [LINK] *"Will any #NatGas price & shares pull back with a warm winter open up opportunity for strategic M&A incl in CAN. See 👇SAF 11/5/23 Energy Tidbits. Need/opportunity for >15 bcfd of US/CAN supply by 2030, incl #LNGCanada 1.8 bcfd Phase 1 startup in a yr or so. #OOTT".*

Good timing for strategic buyers with LNG Canada 1.8 bcf/d Phase 1

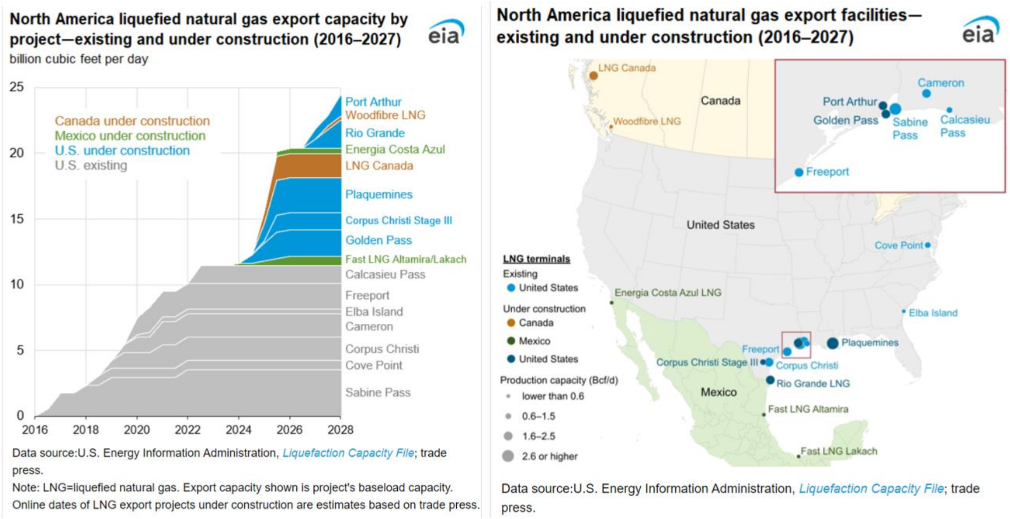
The reason for our highlighting the warm winter and the risk of an early and abrupt end to winter drilling is that it increases the probability for M&A to support LNG Canada Phase 1. Here is what we wrote in our Dec 3, 2023 Energy Tidbits memo on how a low HH gas price set up this type of M&A. "*We expect to see M&A for NE BC/NW Alberta natural gas to LNG Canada Phase 1 is only part of what we believe is an overlooked major natural gas trend in North America – the start up of >15 bcf/d of export capacity out of Canada, the US and Mexico by 2030. We believe that a warm winter/low natural gas price period is good timing for Cdn natural gas consolidation in the face of the expected start up in approx. 1 year for LNG Canada's 1.8 bcf/d Phase 1. We have stated for months that we continue to believe that LNG Canada 1.8 bcf/d Phase 1 sets up the need for the LNG Canada joint venture partners to acquires supply from M&A and/or long-term supply arrangements. We don't believe they would want to go into start up of LNG Canada 1.8 bcf/d Phase 1 without some certainty of at least several years supply. No question they will assume some level of future Montney drilling but the BC/Blueberry River First Nations deal leads to less clarity to plan multi-year drilling plans. It won't just be Montney gas for LNG Canada, but it will be strategic natural gas buyers to take advantage of an expected improvement in Cdn natural gas differentials with adding 1.8 bcf/d of export capacity*."

Also with the need/opportunity for >15 bcf/d of Cdn & US gas in next 5 yrs

Here is what we wrote in our Nov 5, 2023 Energy Tidbits memo. "*Need/opportunity for >15 bcf/d of Cdn & US gas in next 5 yrs. There was a good reminder last week there is a need/opportunity for >15 bcf/d of US and Canada natural gas supply over the next five years. The EIA Natural Gas Weekly posted Oct 26 [LINK] highlighted "Over the next five years, we expect North America's liquefied natural gas (LNG) export capacity to expand by 12.9 billion cubic feet per day (Bcf/d) as Mexico and Canada place into service their first LNG export terminals and the United States adds to its 11.4 Bcf/d of existing LNG capacity. By the end of 2027, we estimate LNG export capacity will grow by 1.1 Bcf/d in Mexico, 2.1 Bcf/d in Canada, and 9.7 Bcf/d in the United States from a total of ten new projects across the three countries." Mexico' has been unable to grow natural gas production so the need/opportunity to fill this capacity is for US and Canadian natural gas supply. And this 12.9 bcf/d oesn't include the buildout of Mexico domestic natural gas infrastructure capacity that TC Energy forecast last year to add 3 bcf/d demand for Permian natural gas via pipeline.*

Of this, only 11% (1.8 bcf/d) is direct Canada natural gas export via LNG Canada Phase 1. But the other big swing factor is the question on how much US natural gas can grow. Obviously more if the price is higher. But there will be the need or opportunity for more Cdn natural gas thru the US, not less. And at the same time, Canada will have the direct LNG Canada 1.8 bcf/d to export markets that will take some of Canada's existing natural gas moving to the US out to the LNG Canada instead. Our Supplemental Documents package includes the EIA blog."

Figure 7: North American LNG capacity growth thru 2027



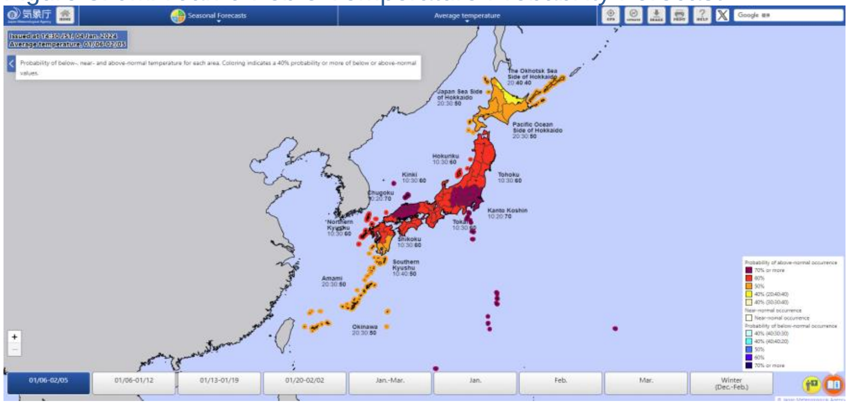
Source: EIA

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

Japan is the #2 LNG importer just behind China. It's now Jan and JKM LNG markets are no longer really worried about a risk to winter LNG prices and, with the forecast for warmer than normal Jan, it is setting up a repeat of winter 2022/23 where the warm winter led to JKM LNG prices being held back for months. This is when JKM LNG prices should be high and not showing JKM LNG futures around $11.50 for Feb and then $11.35 in March. Every Thursday, the Japan Meteorological Agency updates its 30-day outlook [LINK]. The January 4 update calls for much warmer than normal temperatures for January and into the first week of February. The JMA forecast is for Jan 6 – Feb 5, With the first week extremely warmer than normal while the second week overall is a bit more mild but still warm. Below is the JMA's 30-day temperature probability forecast for Jan 6 – Feb 5.

Japan's 30-day temperature forecast

Figure 8: JMA Jan 6-Feb 5 Temperature Probability Forecast



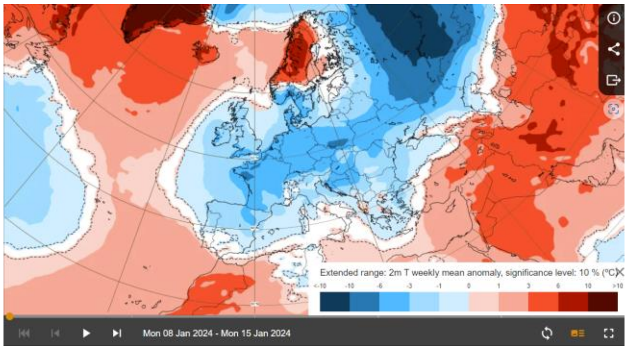
Source: Japan Meteorological Agency

Natural Gas: Colder than normal temperatures forecast for Europe this week

Europe temperature forecast

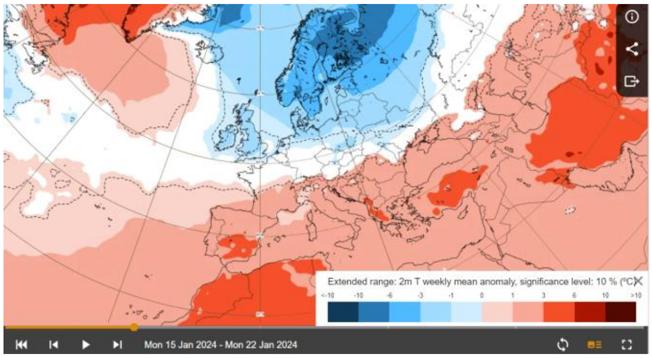
The short-term weather forecasts for Europe have been pretty accurate so far this winter. The ECMWF (European Centre for Medium-Range Weather Forecasts) temperature probability forecasts from yesterday still calls for colder than normal temperatures for the Jan 8-15 week, before warmer for the Jan 15-22 and Jan 22-29 weeks. Our view remains for Europe gas prices is that it's been too warm this winter and the worries about winter natural gas start to become less of an issue after Jan. And we aren't seeing sustained cold weather in Europe. Our concern is always a warm start to winter needs to get offset sometime and a warmer than normal winter can be a hold back on natural gas/LNG prices for several months. Last winter 2022/23 was a hot winter and it held back prices all of 2023.

Figure 9: ECMWF Jan 8-15 Temperature Probability Forecast



Source: ECMWF

Figure 10: ECMWF Jan 15-22 Temperature Probability Forecast



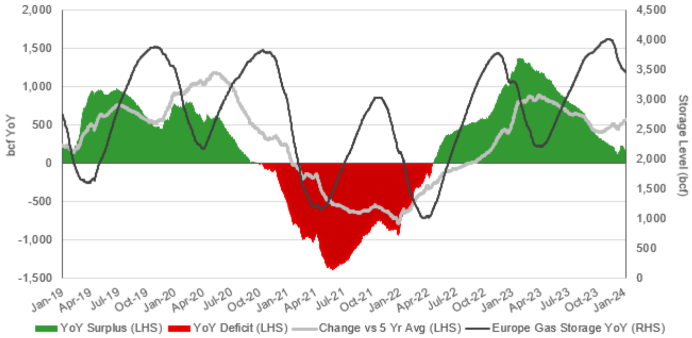
Source: ECMWF

Europe gas storage

Natural Gas: Europe storage drops to 85.85%

The cooler temperatures were more typical of winter in Europe over the past couple weeks has finally led to draws in EU gas storage. Please note that Europe generally refers to the start of winter natural gas withdraw season as starting Oct 1, whereas North America refers to the start of winter natural gas season as starting Nov 1. After entering winter essentially full at over 99%, Europe is now drawing on its gas storage. This week, Europe storage decreased by -0.97% WoW to 85.85% on Jan 3 vs 86.82% on Dec 27. Storage is now +2.44% greater than last year's levels of 83.41% on Jan 3, 2022. But remember the panic of late 2021 on natural gas, it was because Europe gas storage was only 67.21% full on Dec 1, 2021. Below is our graph of Europe Gas Storage Level.

Figure 11: European Gas Storage Level



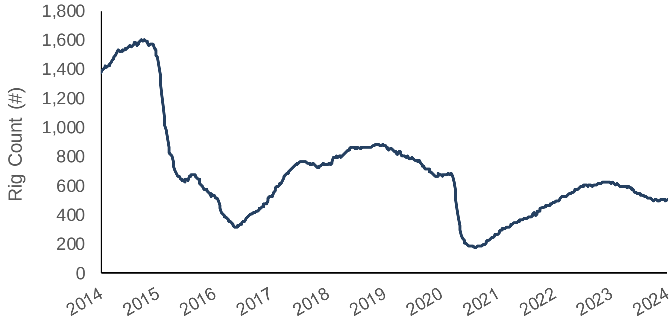
Source: Bloomberg, SAF

US oil rigs +1 WoW

Oil: US oil rigs +1 WoW to 501 rigs, US gas rigs -2 WoW to 118 rigs

On Friday, Baker Hughes released its weekly North American drilling rig data. (i) Total US oil rigs were +1 rig WoW to 501 oil rigs as of Jan 5. 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 +3 rigs WoW to 308 oil rigs, others -2 rigs WoW to 69 oil rigs, Eagle Ford -1 rig WoW to 48 oil rigs and Mississippian +1 rig WoW to 1 total oil rig. (iii) US gas rigs were down – 2 rigs WoW to 118 gas rigs. We expect further softening in gas rig counts as the warm winter in North America has kept gas prices from jumping up, while recent solid WTI prices should keep oil rig counts steady.

Figure 12: Baker Hughes Total US Oil Rigs



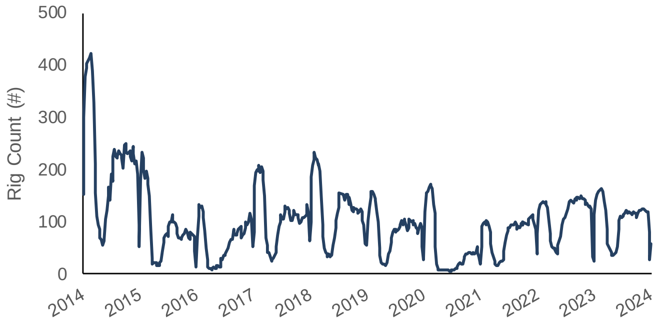
Source: Baker Hughes, SAF

Oil: Total Cdn rigs up +39 rigs to 125 total rigs

Cdn total rigs up WoW

As expected, there was a big bounce back from the usual Christmas drop-off in Canadian rigs. For the week of Jan 5, total Cdn rigs were up +39 WoW to 125 total rigs. On a per province basis, Alberta was up +26 rigs WoW to 91 rigs, BC was flat WoW at 20 rigs, Saskatchewan was up +12 rigs WoW to 12 rigs and Manitoba was up +1 rig WoW to 1 rig. Cdn oil rigs were up +31 rigs WoW to 58 oil rigs and are down -55 oil rigs YoY. Cdn gas rigs were up +8 rigs WoW to 67 gas rigs, which is down -9 rigs YoY.

Figure 13: Baker Hughes Total Cdn Oil Rigs



Source: Baker Hughes, SAF

Oil: US weekly oil production estimates down -0.100 mmb/d WoW to 13.200 mmb/d

US oil production down WoW

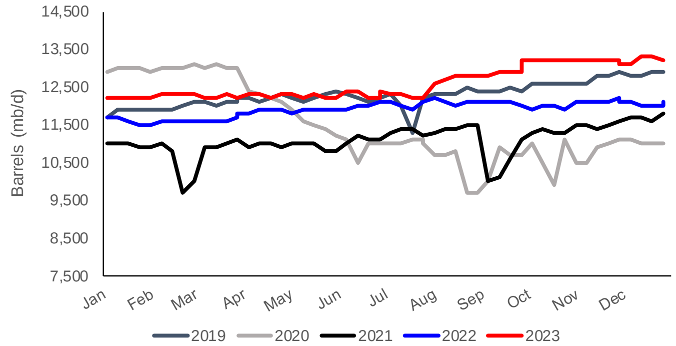
Two weeks ago, there was a third upward adjustment (this time a +0,2 mmb/d adjustment) to the EIA weekly estimates in H2/23. The first was in August, when our Aug 13, 2023 Energy Tidbits memo highlighted the EIA increased their weekly US oil production estimates by +0.4 mmb/d. Then, our Oct 15th Energy Tidbits memo highlighted the EIA's second big, another +0.4 mmb/d, adjustment to the weekly production estimates. On Wednesday, Dec 20th, the EIA wrote "*When we release the Short-Term Energy Outlook (STEO) each month, the weekly* *estimates of domestic crude oil production are reviewed to identify any differences between recent trends in survey-based domestic production reported in the Petroleum Supply Monthly (PSM) and other current data. If we find a large difference between the two series, we may re-benchmark the weekly production estimate on weeks when we release STEO. This week's domestic crude oil production estimate incorporates a re-benchmarking that increased estimated volumes by 189,000 barrels per day, which is about 1.4% of this week's estimated production total*". This 3rd EIA adjustment was needed to bring the weekly production estimates in line with the EIA's actuals. The latest Form 914 (with October actuals) was +0.048 mmb/d higher than the weekly estimates of 13.200 mmb/d. This week, the EIA's production estimates were down -0.100 mmb/d WoW at 13.200 mmb/d for the week ended December 29. Alaska was down -0.002 mmb/d WoW to 0.435 mmb/d. Below is a table of the EIA's weekly oil production estimates.

Figure 14: 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
2022-Jan	01/07	11,700	01/14	11,700	01/21	11,600	01/28	11,500		
2022-Feb	02/04	11,600	02/11	11,600	02/18	11,600	02/25	11,600		
2022-Mar	03/04	11,600	03/11	11,600	03/18	11,600	03/25	11,700		
2022-Apr	04/01	11,800	04/08	11,800	04/15	11,900	04/22	11,900	04/29	11,900
2022-May	05/06	11,800	05/13	11,900	05/20	11,900	05/27	11,900		
2022-Jun	06/03	11,900	06/10	12,000	06/17	12,000	06/24	12,100		
2022-Jul	07/01	12,100	07/08	12,000	07/15	11,900	07/22	12,100	07/29	12,100
2022-Aug	08/05	12,200	08/12	12,100	08/19	12,000	08/26	12,100		
2022-Sep	09/02	12,100	09/09	12,100	09/16	12,100	09/23	12,000	09/30	12,000
2022-Oct	10/07	11,900	10/14	12,000	10/21	12,000	10/28	11,900		
2022-Nov	11/04	12,100	11/11	12,100	11/18	12,100	11/25	12,100		
2022-Dec	12/02	12,200	12/09	12,100	12/16	12,100	12/23	12,000	12/30	12,100
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

Source: EIA

Figure 15: EIA's Estimated Weekly US Oil Production



Source: EIA, SAF

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

EOG sees lesser US oil growth

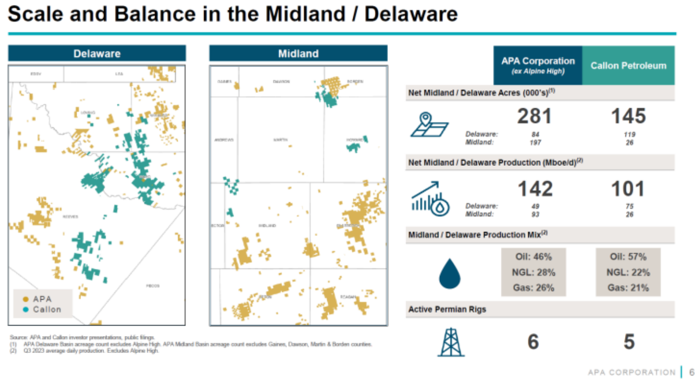
Earlier this morning, we tweeted [LINK] ""*But I think it's going to be considerably less, less than half of that number" EOG President Helms when asked what he sees US oil production growth exit 2024 vs exit 2023 compared to exit 2023 that was +900,000 b/d YoY. It's Math: Rigs down, frac crews down,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

Oil: Apache's $4.5b acquisition of Callon is latest Permian deal

Apache latest to buy in Permian

Markets have been waiting for the next Permian deal following Exxon's Oct 11 $59.5b acquisition of Pioneer and Chevron's Oct 23 $53b acquisition of Hess. Early Thursday morning, we tweeted [LINK] "*Breaking! Another Permian deal. Apache buying Callon in all-stock deal valued at $4.5b incl $1.9b of net debt. #OOTT."* It wasn't as big a deal but Callon was another of the identified likely Permian targets by US analysts. The US analysts have provided lots of color on the deal and the next M&S targets. So we thought we would note three items that didn't get as much attention in their comments. (i) No cut in Permian rigs. At least initially, Apache said they will not cut Permian rig count. Normally a deal like this will see the proforma entity have less rigs. The caveat is that this is "*right now*". In the Q&A, mgmt. replied '*Yes. At this point, Neil. The good news is that their program is -- competes for capital. So we envision continuing those right now. We'll continue ours. They'll continue theirs. Obviously we get past close, we'll look at that, but we like what they're doing, and we like the opportunity set that it brings to the combined company*." (ii) Synergies include cost of capital savings. Maybe its Apache splitting the synergies into different buckets but we don't usually see other companies highlighting the cost of capital savings by Apache having a lower cost of capital. It's valid and something that investment bankers will be telling any other buyers to include in their synergies. (iii) No mention of drilling longer horizontal wells. (iii) One item that surprised us was Apache did not mention in their slide deck or in the call anything about drilling longer wells. This is the big upside that Exxon and others have been highlighting as a benefit of having more contiguous lands. Apache made zero mention of drilling longer horizontals. The only mention of longer horizontals was in the brief comments Callon CEO made at the start on what Callon has done "*Over the past several years, we focused on strategically building a leading Permian position across the Delaware and Midland Basins, integrating high-quality assets into our business and extending our runway of high-return, long lateral development locations. This position has largely benefited from our life-of-field co-development model, which we believe is a true differentiator from our peers. As we evolve the approach over the last few years, it has allowed our well productivity to trend counter to industry.*" Our Supplemental Documents package includes excerpts from the Apache slide deck.

Figure 16: Apache and Callon lands



Source: Apache

Oil: No surprise, Perman earthquakes lead to additional water injection restrictions

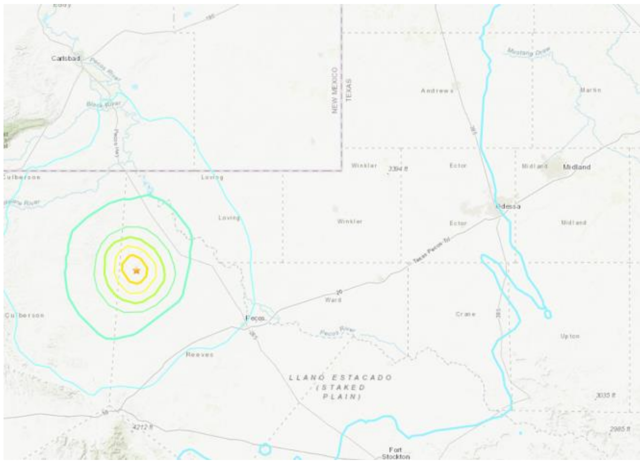
Permian water injection restrictions

Our Nov 12, 2023 highlighted two big earthquakes in the Delaware Basin that we said would add more costs/time for Permian water disposal. We remind that the big difference for the US plays is that earthquakes are associated with waste water disposal and normally not fracking. This means that the drilling/fracking can continue but the producers have to find some other place to dispose of the waste water. This is added costs/time but doesn't stop drilling/fracking. These added costs/time kick in next week on Jan 12. The Texas RRC's Dec 19 Seismicity response [LINK] suspended water injection, effective Jan 12, in a deep water disposal wells. The Texas RRC wrote "*December 19, 2023 Action. From November 8 through December 17, 2023, the TexNet Seismic Monitoring Program reported that seven (7) earthquakes occurred in northern Culberson and Reeves Counties with magnitudes (M) of 5.2, 3.6, 4.0, 3.6, 3.8, 3.7, and 3.9 (in order of occurrence). These are the most recent events in a continuing sequence of earthquakes that have occurred in this area over the last three years. RRC staff has determined that injection into deep geologic strata — below the base of the Wolfcamp Formation and especially the Devonian, Silurian, and Ellenburger Formations — is likely contributing to recent seismic activity in the Northern-Culberson Reeves Seismic Response Area (NCR SRA). In response to continued seismicity within the NCR SRA, RRC is suspending all disposal well permits that inject oil and gas waste into deep strata within the boundaries of the NCR SRA. This action applies to 23 deep disposal wells. The permit suspension is effective on January 12, 2024.*" Our Supplemental Documents package includes the Texas RRC release.

11/08/23: Another 5.3 earthquake to add costs/time for Permian water disposal

Here is what we wrote in our Nov 12, 2023 Energy Tidbits memo. "*On Tuesday, we tweeted [LINK] #Permian. 5.3 earthquake just now in Delaware Basin. Too early to know if is linked to the normal reason of waste water disposal. Permian earthquakes not normally linked to fracking. #OOTT." Early Tuesday morning, there was a big 5.3 earthquake in the Texas portion of the Delaware Basin. It was part of a cluster of 10 earthquake over 2.5 on Nov 8. Note we tweeted it was a 5.3 and it was subsequently revised by the USGS as a 5.2. The USGS called the earthquake area Coalson Draw, but the earthquake was just over 20 km west-southwest of Mentone, Texas and over 40 km west-northwest of Pecos, Texas. As noted below, the area around Mentone has now seen three of the strongest six earthquakes in Texas history. The expectation is that the Texas RRC will implement additional waste water disposal restricttions around the earthquake areas. As of our 7am MT new scut off, the RRC has not posted any notice on their seismicity response page. We suspect this is due to the RRC being closed on Friday for Veterans Day.*

Figure 17: 5.2 earthquake on Nov 8, 2023, >20 km west-southwest of Mentone, Texas



Source: USGS

Nov 8th' 5.2 earthquake is tied for the 4th strongest in Texas history

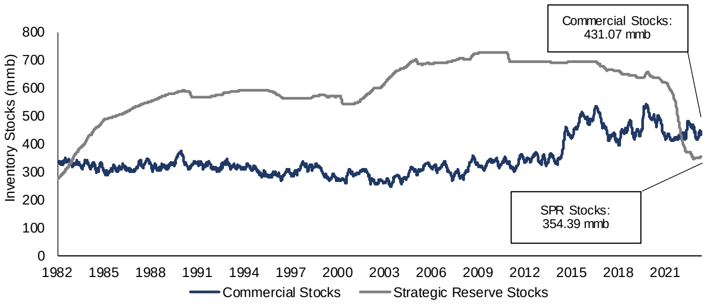
Here is another item from our Nov 12, 2023 Energy Tidbits memo on the earthquakes. "*As noted above, the Nov 8 earthquake was revised to a 5.2, which ties to the 4th strongest in Texas history. Three of the six strongest earthquakes in Texas history are around Mentone. . The USGS all time rankings are: (i) Aug 16, 1931, 5.8 earthquake near Fort Davis. (ii) Apr 14, 1995, 5.7 earthquake near Alpine. (iii) Nov 16, 2022, a 5.4 earthquake west-southwest of Mentone. (iv) Dec 16, 2022, a 5.2 earthquake north-northwest of Midland. And Nov 8, 2023, a 5.2 earthquake west-southwest of Mentone and (vi) March 26, 202, a 5.0 earthquake west of Mentone."*

Oil: US SPR reserves now -76.677 mmb lower than commercial crude oil reserves

US SPR reserves

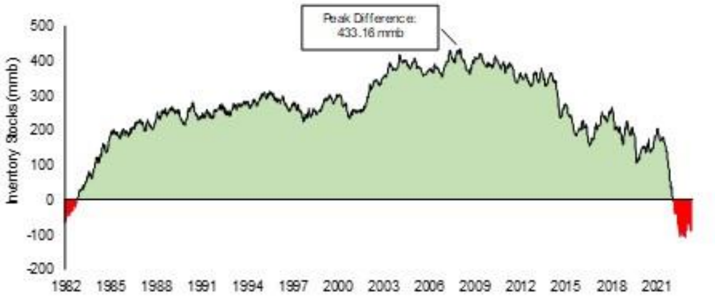
Oil in the US Strategic Petroleum Reserves (SPR) continues to be much lower than total US commercial crude oil reserves. The SPR went back below commercial for the first time since 1983 in the Sept 16, 2022 week. The deficit narrowed this week after a draw in commercial oil stocks of -5.503 mmb. The EIA's weekly oil data for December 29 [LINK] saw the SPR reserves increase +1.055 mmb WoW to 354.388 mmb, while commercial crude oil reserves decreased -5.503. mmb to 431.065 mmb. There is now a -76.677 mmb difference between SPR reserves and commercial crude oil reserves. The below graphs highlight the difference between commercial and SPR stockpiles.

Figure 18: US Oil Inventories: Commercial & SPR



Source: EIA, SAF

Figure 19: US Oil Inventories: SPR Less Commercial



Source: EIA, SAF

Oil: US gasoline prices -0.04 this week to $3.08

US gasoline prices

It seems like US gasoline prices, at least for now, seem to be holding around $3.10 for the past few weeks on a national average. Yesterday, AAA reported that US national average prices were $3.08, which is down $0.04 WoW, down $0.14 MoM and down $0.21 YoY from $3.29. 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 down $1.86 WoW to $21.71

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. And crack spreads have been bouncing around +/- $2 for the last seven weeks. This week, crack spreads were -$1.86 WoW to $21.71 as of Jan 5, which followed $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 $23.57 are a little above the high end of the more normal pre-Covid that was more like $15-$20, which should support the continued normal seasonal ram up in refinery runs.

Explaining 321 crack spread

People often just say "cracks", which refers to the 321 crack spread. This is the spread or margin that refiners make from buying crude at a certain price and then selling the finished petroleum products at their respective prices. The 321 crack spread is meant to represent what a typical US refinery produces. It assumes that for every three barrels of crude oil, the refinery will produce two barrels of gasoline and one barrel of distillates. So the crack spread is based on that formula and worked back to a crack spread per barrel. Below is the current 321 crack spread, which was $21.71 as of the Friday Jan 5, 2024 close.

Figure 20: Cushing Crude Oil 321 Crack Spread Jan 5, 2014 to Jan 5, 2024

Source: Bloomberg

Oil: Advantage of big Cdn oil plays, they are tightly spaced multi leg no frack wells

Cdn top oil plays are no frack

Earlier we noted the added waste water restrictions for the Permian oil frack plays. Whenever we see additional restrictions on frack plays like in the Permian oil, I t always reminds us of the advantage of the hot Cdn oil plays in the last two years are plays that do not require fracking. The Clearwater is the most well known but this technique of drilling tightly spaced muilti leg no frack wells has worked in several plays. One of the first to gain prominence was back in 2022. Here is what we wrote in our Oct 30, 2022 Energy Tidbits memo. "*We think its worth noting this "technology" development from that is applicable to a wide range of oil plays for a wide range of Cdn oil producers. This should provide upside to many Cdn oil and gas oil plays. On Wednesday, we tweeted [LINK] "It's Working! Upside is applicable to many Cdn #Oil plays by small/big producers. See 👇$CPG tightly spaced multi-leg horizontal wells without need for fracking cost/execution. Works in Viewfield, looking at Shaunavon & "see if "can apply it throughout our other assets". #OOTT". Crescent Point held its Q3 call on Wednesday. This seems straightforward and not any proprietary technology. It's a simple drilling concept and the reality of the world is, it's the part of drilling a well (the horizontal section) that would seem difficult to not execute. Afterall, industry has been drilling horizontal wells, especially in SE Sask, since the late 80s. This can be copied easily by any company especially small ones that are disadvantaged by not being able to access the frac spreads. Technology advancements are on plays that we have called for years crappy conventional oil zones that became way better with multi stage frac wells. We don't think the math will work as well for true shale plays, but, the reality is that most of the* *"new" oil plays over the past decade are crappy conventional oil zones in Canada and the US. This should make more of any potential recoverable oil reserves economic, extend the recovery factor of these pools by sweeping up more of the pool edges. This will add to reserve values as it makes previously uneconomic oil reserves economic. The concept is drilling multi-leg horizontal wells on a tight spacing without fracking. So it is a drilling cost play. And not a fracking play. Crescent Point is doing it in the Viewfield Bakken and say also the Shaunavon, but there is no reason why the concept shouldn't work in the other crappy conventional plays. And they also note that they are looking to apply it "throughout our other assets". Here is what CPG said in the opening statement, and then in the Q&A where they explained it. It's not huge but we suspect the payouts are very quick. And the other advantage is that it becomes impossible to screw up a well, which could happen with a bad frac job. This is drilling several legs so each leg is an independent well bore. "For example, in our Viewfield Bakken play, we drilled our first multilateral open horizontal well and are now drilling a second based on the success of the first. By adopting a new well design, we have removed the need for fracture stimulation in these multilateral horizontals, expanding the economic boundaries of the play. We also continue advancing our decline mitigation projects throughout our Saskatchewan operations to enhance secondary recoveries and moderate future capital requirements" "Yeah, thanks for the question, Michael. So this is something that our teams have been looking at. Trying to figure out how to expand the economic boundaries of the play as you step out from the core. So with this, I think drilling has -- the drilling technology has gotten so good that -- it's a little bit cheaper now to attack some of the areas in this play with just drilling instead of having to frac. So these multilaterals are obviously tighter space than our frac wells and if you look at total recovery and initial production from a section under these multilateral wells versus our conventional frac well, you get higher production and higher reserves potentially for lower capital. So we're pretty excited about it. It's early days, 125 plus boe per day per well, and if our production hangs in and it hits our UR estimates, we probably have over 100 or more locations to go and incorporate that into our five-year plan in Viewfield. And we are looking at other areas in our portfolio i.e. like Shaunavon, obviously this area and Viewfield has a little bit better porosity permeability maybe then say Shaunavon does. So early days still, but we will to see if we can apply it throughout our other assets." There was nothing specific in the slide deck."*

Oil: Trans Mountain plans line fill for either March or May pending regulatory decision

Trans Mountain plans TMX line fill in Mar or May

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

12/14/23: Trans Mountain warns TMX expansion delay could be 2 years

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

10/03/23: Trans Mountain CEO says $200 mm for every month of delay

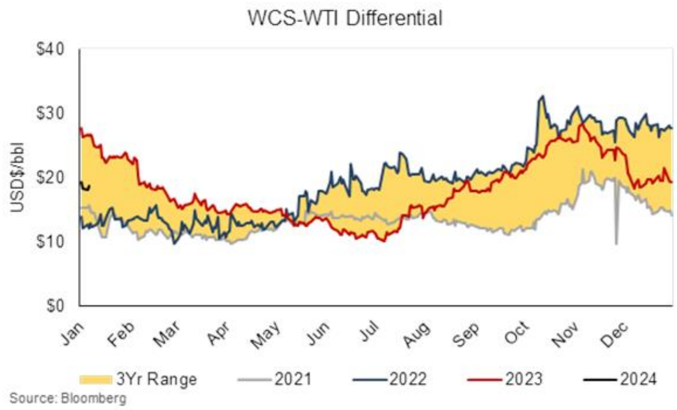
Here is what we wrote in our Oct 8, 2023 Energy Tidbits memo. *"The Calgary Herald interview with Trans Mountain CEO Farrell did not specifically address the B.C. First Nation saying it was entitled to an appeal of the CER approved minor route change. But CEO Farrell's timing for line-fill to start end of Jan and commercial operations at the loading terminal by the end of March, which suggests she doesn't see any risk to her timeline for TMX startup. On Tuesday, we tweeted [LINK] "Risk to timing, hopefully only small, for 1st #Oil at TMX expansion? Seems hard for CER to not hear A.B.C First Nation appeal on the route change. CER Mission statement 👇incl "recognizing and respecting the rights of the Indigenous peoples of Canada"? Thx @AmandaMsteph. #OOTT." The Canadian Press had reported [LINK] "In a letter to the regulator dated Wednesday, a lawyer representing the Stk'emlupsemc te Secwepemc Nation (SSN) said the decision to grant the route deviation Monday without providing its reasons has left the First Nation without the ability to decide its next steps. Article content. The letter said the First Nation has the right to request a reconsideration of the decision, or to appeal it through the Federal Court of Appeal." We have to believe the key reason that Trans Mountain isn't seeing any impact to its timing is that money talks and the owner of the pipeline is the Cdn government and not private sector. And CEO Farrell indicates that every month of delay is $200 million. The Calgary Herald wrote "I think we're close (on the latest price tag). For sure, there's pressure on it because every time there's a bit of a delay or you have to do a regulatory hearing, or you have to find a new methodology, that puts pressure on the contingency and on the reserve. But we are close, in that range," she added, noting rising interest rates are another factor. "The biggest pressure on this project* *right now is the timing, for sure. So every month of delay is $200 million that accrues to the project."*

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

WCS differentials normally narrow in spring

Every year we will include this reminder that we are moving into the period of normal seasonal narrowing of Cdn heavy oil differentials. There is no hard and fast rule because there are always unplanned events. But there are also global items that impact Cdn heavy oil differentials. However, int eh next couple months, we will be moving into the time of the year that normally sees Cdn heavy oil differentials narrow. This is the time of year, when refineries tend to maximize production of asphalt ahead of the annual summer paving season. As is said in Canada, there are two seasons in Canada – winter and paving season. Below is graph showing WCS-WTI differentials that shows this normal seasonal trend of narrowing WCS-WTI differentials from Feb thru May. We have seen Cdn heavy oil differentials narrowing already and a key factor for that is the OPEC+ cuts, which tend to first be on heavy/medium sour barrels that would tend to compete with Cdn heavy/medium barrels. WCS less WTI differential closed on Jan 5, 2024 at $19.25, which compares to Jan 5, 2023 at $26.70, Jan 5, 2022 at $12.10 , and Jan 5, 2021 at $15.35.

Figure 21: WCS less WTI oil differentials



Source: Bloomberg

Oil: Enbridge Line 5 tunnel replacement project completion likely at least 2029

Enbridge Line 5 tunnel

Yesterday, we tweeted [LINK] "*ICYMI.. Enbridge Line 5 replacement project completion likely not until at least 2029! Great Line 5 status recap by @RBNEnergy @vtobben #OOTT."* On Wednesday, RBN Energy posted a good blog "*Down To The Waterline - Michigan Gives Line 5 A Nudge, But Pipeline Still Ensnared By Controversy"* [LINK], which is a great status recap of the challenges, in particular the state and federal approvals, faced by Enbridge in trying to get the Line 5 replacement project completed. The blog also included a reminder that the likely completion project is still not until at least 2029. As a reminder, Line 5 is fully operational but the long-proposed tunnel project under the Straits of Mackinac is to protect the pipeline from potential accident. Line 5 is important because it carries up to 540 mb/d of light crude and NGLs into the states from Canada without needing lots of rail cars or tankers to get it across/around the great lakes into Michigan (it goes under the strait for 4.5 miles).

The pipeline is almost 70 years old, and they need to replace their aged dual pipes that currently run under the strait with a single, 30-inch pipe. Michigan Gov Whitmer has for years fought to stop this tunnel project and to force Enbridge to cease operations on Line 5 altogether, so it has taken years longer to get all final approvals. In early December, the Michigan Public Service Commission issued a sitting permit to Enbridge, which means the last big roadblock in the project approval is now the US Army Corps of Engineers who need to give the OK on the tunnel that the pipe will go in. They already delayed their draft Environmental Impact Statement (EIS) from late 2023 to early 2025, with a final version expected in 2026. Enbridge expects the construction to take 3-4 years, so we're now looking at a 2029-2030 target completion year for the tunnel. We think this is a great reminder of how hard it is, especially in North America, to get any sort of pipeline infrastructure built. Below is a map with Enbridge's Line 5 pipeline and the Mackinaw Strait highlighted. Our Supplemental Documents package includes the RBN blog.

Figure 22: Enbridge Line 5 map

Source: Enbridge

Reminder, Enbridge Line 5 supplies 55% of Michigan propane needs

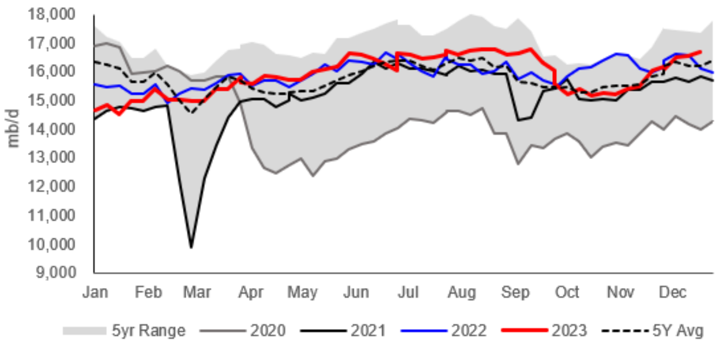
This item has showed up several times in our Energy Tidbits memos and it's a reminder that Enbridge Line 5 is critical to Michigan propane needs. Fortunately, as noted earlier in the memo, NOAA is calling for a warmer than normal Dec in Michigan. We first noted this in a June 19, 2020 tweet [LINK] started "*A weekend must read, Enbridge "impact of a Line 5 shutdown" is excellent recap of who, where, what gets hit by Line 5 shut down*." It includes tidbits such as "*Line 5 supplies 65% of propane demand in Michigan's Upper Peninsula, and 55% of Michigan's statewide propane needs*." There would also be a big impact on refineries to the east "*Refineries served by Enbridge in Michigan, Ohio, Pennsylvania, Ontario and Quebec would receive approximately 45% less crude from Enbridge than their current demand.*" There was a good map that shows how Line 5 fits into other Enbridge pipelines delivering oil to places like Imperial's Sarnia and Nanticoke refineries in Ontario. [LINK]

Oil: Refinery inputs up +0.121 mmb/d WoW to 16.679 mmb/d

Refinery inputs +0.121 mmb/d WoW

There are always unplanned issues that impact crude oil inputs into refineries, but refineries around the world follow seasonal patterns for their maintenance. There was the normal summer ramp up that lasted a little longer than normal given the big crack spreads. We saw the decline in crude oil inputs for the fall turnarounds, but it looks like US refineries are in their normal seasonal winter ramp up so we have been seeing a steady increase in crude inputs. On Thursday, the EIA released its estimated crude oil input to refinery data for the week ended December 29 [LINK]. The EIA reported crude inputs to refineries were up +0.121 mmb/d this week to 16.679 mmb/d and are up +2.859 mmb/d YoY. Refinery utilization was up +0.2% WoW to 93.5%, which is +14.3% YoY.

Figure 23: US Refinery Crude Oil Inputs



Source: EIA, SAF

Oil: US net oil imports -0.758 mmb/d WoW as oil exports up +1.377 mmb/d WoW

US net oil imports

The EIA reported US "NET" imports were down -0.758 mmb/d to 1.603 mmb/d for the December 22 week. US imports were up +0.619 mmb/d to 6.895 mmb/d against exports which were +1.377 mmb/d WoW to 5.292 mmb/d. (i) Venezuela weekly imports. We know why the EIA doesn't have any data in the row for Venezuela weekly oil imports but we still don't know if the weekly oil imports are off or if Venezuela is included in the weekly oil imports in the Others number. But we do know that Chevron continues to import >100,000 b/d from Venezuela into the Gulf Coast. Give the EIA credit for putting out weekly oil import estimates, but it's a reminder that we have to be careful about using the weekly oil import estimates. Rather we need to make sure we go to the monthly data for oil imports. ii) The WoW increase in US imports was driven mostly by "Top 10". The Top 10 was up +1.029 mmb/d. Some items to note on the country data: (i) Canada was up +0.368 mmb/d to 3.796 mmb/d. (ii) Saudi Arabia was up +0.064 mmb/d to 0.139 mmb/d. (iii) Mexico was up +0.572 mmb/d to 0.952 mmb/d. (iv) Colombia was down -0.028 mmb/d to 0.129 mmb/d. (v) Iraq was down -0.141 mmb/d to 0.239 mmb/d. (vi) Ecuador was down -0.059 mmb/d to 0.083 mmb/d. (vii) Nigeria was up +0.015 mmb/d to 0.095 mmb/d.

Figure 24: US Weekly Preliminary Imports by Major Country

(thousand b/d)	Sep 29/23	Oct 6/23	Oct 13/23	Oct 20/23	Oct 27/23	Nov 3/23	Nov 10/23	Nov 17/23	Nov 24/23	Dec 1/23	Dec 8/23	Dec 15/23	Dec 22/23	Dec 29/23	WoW
Canada	3,291	3,544	3,723	3,387	3,485	3,873	3,835	3,846	3,243	3,972	3,572	3,686	3,428	3,796	368
Saudi Arabia	291	67	208	436	294	192	242	224	141	400	316	406	75	139	64
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	524	656	609	614	1,004	465	366	971	571	876	633	851	380	952	572
Colombia	143	289	150	146	74	364	316	217	143	289	214	215	157	129	-28
Iraq	306	247	127	182	351	187	283	36	178	166	85	22	380	239	-141
Ecuador	125	0	0	92	133	61	36	126	112	252	233	49	142	83	-59
Nigeria	0	46	48	89	30	39	70	79	174	226	111	162	80	95	15
Brazil	209	362	63	221	168	234	135	257	148	274	255	197	238	305	67
Libya	89	88	47	86	106	0	86	86	0	87	87	86	0	171	171
Top 10	4,978	5,299	4,975	5,253	5,645	5,415	5,369	5,842	4,710	6,542	5,506	5,674	4,880	5,909	1,029
Others	1,237	1,030	967	760	780	979	1,004	687	1,123	966	1,011	1,076	1,396	986	-410
Total US	6,215	6,329	5,942	6,013	6,425	6,394	6,373	6,529	5,833	7,508	6,517	6,750	6,276	6,895	619

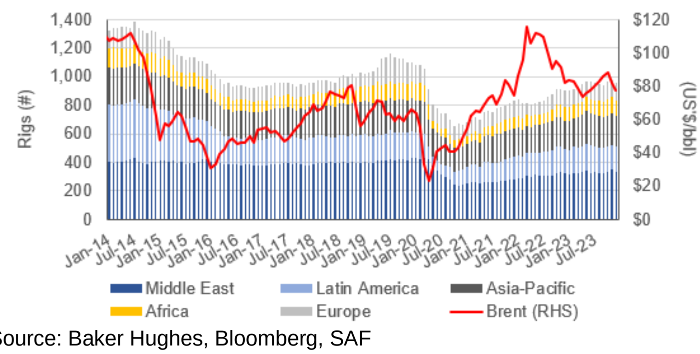
Source: EIA, SAF

Oil: Baker Hughes International rigs -23 MoM to 955 rigs in December

International rigs -23 MoM in December

On Friday, Baker Hughes posted its monthly update to international rigs, in total, that show rigs in December decreased MoM. (i) Total international rigs decreased by -23 rigs MoM to 955 rigs in December, and total rigs are now up +149 rigs from the recent low of 806 in April 2022. (ii) Norway and Nigeria had the largest MoM increases of +3 rigs to 18 rigs and +2 rigs to 16 rigs, respectively. In contrast, Algeria and Saudi Arabia had the largest MoM decreases of -9 rigs to 38 rigs and -7 rigs to 10 rigs, respectively. In December, Ukraine's rigs were flat at 46 rigs and is +13 rigs YoY from 33 rigs in December 2022 post the Russia invasion. (iii) The largest YoY increases came from Mexico, Ukraine, and the UAE at +13 rigs, +13 rigs, and +10 rigs, respectively. The largest YoY decreases were realized by Colombia, Kuwait and Argentina which had declines of -11 rigs, -3 rigs and -3 rigs, respectively. (iv) December's count of 955 rigs was +6% YoY from 900 in December 2022, and down -13% vs pre-Covid November 2019 of 1,104 rigs. The YoY rig count is as follows: Africa +17 rigs, Asia-Pacific +17 rigs, Europe +7 rigs, Latin America +1 rig, and the Middle East +13 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 +13 rigs to 80 active rigs in December 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 25: Baker Hughes International Rig Count and Brent Price



Source: Baker Hughes, Bloomberg, SAF

Oil: Pemex, new Olmeca refinery to process 243,000 b/d in 2024, 320,000 b/d in 2025

Olmeca refinery ramping up

Going into 2023, Mexico's (Pemex) ramp up in its existing refineries capacity utilization and the start up of the new 340,000 b/d Olmeca (formerly known as Dos Bocas) was expected to have a big reduction to Mexico oil exports including to the US Gulf Coast. But that didn't happen as Olmeca start was delayed and Pemex had a series of problems at its refineries in the first 4-months of 2023. But Olmeca is ramping up and that means Pemex should be increasing the amount of its domestic oil production that it refines in Mexico and therefore there should be less Mexico oil for export. On Thursday, the WSJ reported "*Speaking at President Andrés Manuel López Obrador's morning press conference, Romero Oropeza said Pemex's six refineries in Mexico processed 794,000 barrels a day of crude oil last year, while its Deer Park refinery in Texas processed 270,000 barrels a day. With the new refinery in operation, Pemex expects to raise its total crude processing to 1.5 million barrels a day this year, and to increase that to nearly 1.8 million barrels a day by 2026, he added. The new refinery is located in Dos Bocas, in southern Tabasco state. The Olmeca refinery, one of López Obrador's flagship infrastructure projects, is expected to process 243,000 barrels a day this year and raise that to 320,000 barrels a day in 2025, Romero Oropeza said.*"

Mexico oil exports in Oct were down 0.160- mmb/d MoM

As noted in our Dec 31,2023 Energy Tidbits memo, the new 340,000 b/d Olmeca refinery started operations in September but we do not have any indication of how much crude is being processed. But there was an indicator that it is processing some level as Pemex oil exports were down 0.160 mmb/d MoM to 0.883 mmb/d. Here is what we wrote in our Dec 24, 2023 Energy Tidbits memo on the Pemex October oil export data. "*On Friday, Pemex posted its oil exports for November [LINK] Pemex does not provide any commentary on the data but reported November oil exports were 0.883 mmb/d, which was -1.1% YoY and -16.1% MoM vs 1.053 mmb/d in October. Pemex oil exports were down 0.160 mmb/d MoM and its exports to the US were down 0.126 mmb/d MoM to 0.631 mmb/d vs 0.757 mmb/d in October 2023. The US tends to be a higher margin market so Pemex typically prioritizes oil exports to the US. Please note that Mexico oil exports were expected to decline in Q4/23 with the start up of their new 340,000 b/d Olmeca (formerly known as Dos Bocas) refinery. Pemex does not provide the refinery processing volumes for November but does provide an indicator by noting its production of refined products in November was +0.161 mmb/d MoM and more refined oil means less oil for export. Below is our table of the Pemex oil export data.*"

Figure 26: Pemex Mexico Oil Exports

Oil Exports (thousand b/d)	2016	2017	2018	2019	2020	2021	2022	2023	23/22
Jan	1,119	1,085	1,107	1,071	1,260	979	832	980	17.8%
Feb	1,241	1,217	1,451	1,475	1,093	1,006	925	949	2.6%
Mar	1,062	1,001	1,176	1,150	1,144	925	905	971	7.3%
Apr	1,081	1,017	1,266	1,023	1,179	923	1,024	989	-3.4%
May	1,204	958	1,222	1,205	1,062	1,031	965	1,087	12.6%
June	1,098	1,157	1,110	995	1,114	1,106	1,029	1,203	16.9%
July	1,146	1,255	1,156	1,079	1,051	1,173	1,062	1,052	-0.9%
Aug	1,261	1,114	1,181	1,082	1,190	1,099	915	1,076	17.6%
Sept	1,425	1,159	1,206	995	1,023	983	1,022	1,119	9.5%
Oct	1,312	1,342	1,027	963	908	935	971	1,053	8.4%
Nov	1,273	1,388	1,135	1,114	1,171	1,025	893	883	-1.1%
Dec	1,115	1,401	1,198	1,115	1,243	1,037	900		

Source: Pemex, SAF

Oil: Reuters, US relief allowed Venezuela oil exports +12% YoY to 695,000 b/d

As expected, US providing its license to Chevron a year ago has led to a direct increase in Venezuela oil exports. Basically Venezuela oil exports in 2023 were up by about the same level as its renewed oil exports to the US. On Wednesday, Reuters reported [LINK] "*Venezuela's oil exports increased 12% last year to almost 700,000 barrels per day (bpd) as the United States eased sanctions imposed since 2019 on the OPEC country's energy sector, according to data and documents viewed by Reuters.*" And "*China, which never suspended imports of Venezuelan crude amid U.S. sanctions, last year remained the largest destination for Venezuela's oil, taking about 65% of the country's average exports of 695,192 barrels per day (bpd), according to LSEG vessel monitoring data and PDVSA documents. The U.S. received 19% of shipment volumes or about 135,000 bpd, while countries in Europe took 4% and Cuba imported 8%. Nations including Brazil, Colombia and Panama also received cargoes last year, the data showed.*" Our Supplemental Documents package includes the Reuters report.

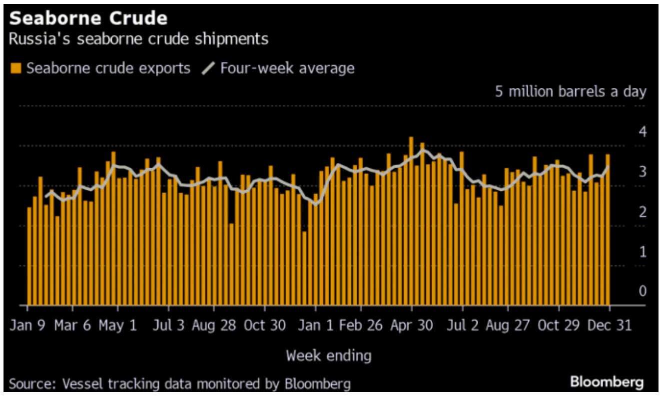
Venezuela oil exports 695,000 b/d in 2023

Oil: Russia crude oil shipments 180,000 b/d over its Dec commitment

On Tuesday, we tweeted [LINK] "*Saudi won't be happy! Russia #Oil shipments +0.56 mmbd WoW to 3.78 mmbd for Dec 31 week. 4-week average to Dec 31 now 3.46 mmbd, +0.18 mmbd vs 3.28 mmbd commitment. Plus RUS is to make added cuts effective Jan 1. Thx @JLeeEnergy #OOTT.*" Russia's oil shipments were above what they had promised for Dec and had committed to ~3.28 mmb/d of crude oil shipments thru Dec 2023. But they were over by 180,000 b/d. And this is before they deliver on their increased commitment to reduce exports (combined but not specified oil and petroleum products) by a further 200,000 b/d to 500,000 b/d. Bloomberg wrote "*Russia's seaborne crude exports ended the year on a high, as four-week average shipments climbed to the highest since early November and weekly flows jumped to the most since July. About 3.46 million barrels a day of crude were shipped from Russian ports in the four weeks to Dec. 31, tanker-tracking data monitored by Bloomberg show. That was up by 230,000 barrels a day from the period to Dec. 24. The more volatile weekly average jumped by 560,000 barrels a day to 3.78 million.*
Four-week average crude shipments were about 120,000 barrels a day below their May-June level — the baseline used by Moscow for the reduction in combined crude and product exports it has pledged to its partners in the OPEC+ group. Russia has said it will deepen its oil export cuts to 500,000 barrels a day below the May-June average during the first quarter of 2024, after Saudi Arabia said it would prolong its unilateral one-million-barrel-a-day supply reduction and several other members of the OPEC+ group agreed to make further output curbs. The Russian cut will be shared between crude shipments, which will be reduced by 300,000 barrels a day, and refined products, according to Deputy Prime Minister Alexander Novak. For December, the reduction was set at 300,000 barrels a day, spread across both crude and refined products in undefined proportions. That complicates assessments of whether Russia is meeting the commitment to its OPEC+ partners." Our Supplemental Documents package includes the Bloomberg report.

Russia oil shipments above commitment

Figure 27: Russia's seaborne crude shipments thru Dec 31 week



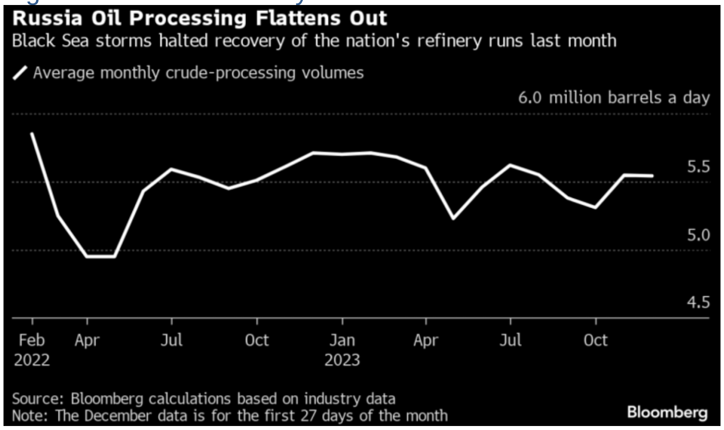
Source: Bloomberg

Oil: Russian refineries processing oil down 200,000 b/d due to storms

Russia oil refinery runs

On Tuesday, Bloomberg reported "*Russia's average daily refinery runs from Dec. 21 to 27 dropped by nearly 200,000 barrels from the prior week to 5.45 million barrels, said the person familiar with the matter. The decline was mainly driven by lower crude processing at Rosneft's Tuapse plant in southern Russia that ships the bulk of its fuel abroad via the Black Sea, the person said. The Tuapse facility cut its runs as storm warnings were announced on the website of the regional administration in late December. The storms also halted crude loadings at the CPC oil terminal located nearby, according to the Caspian Pipeline Consortium operator.*" This is normally a strong refining period, absent interruptions like seen this week. Please note that the below graph is the graph from Bloomberg report even thought it doesn't look to show the 200,000 b/d WoW decline. Our Supplemental Documents package includes the Bloomberg report.

Figure 28: Russia refinery runs thru Dec 27 week



Source: Bloomberg

Oil: Damage control, all OPEC+ members re-affirm commitment

OPEC+ damage control

No surprise, OPEC went into damage control with their Wednesday press release [LINK] following Angola's withdraw from OPEC. OPEC wrote "*OPEC and non-OPEC oil-producing countries re-affirm commitment to unity, full cohesion and market stability through the Declaration of Cooperation (DoC). At the outset of 2024, the OPEC Secretariat in consultation with OPEC Member Countries and the non-OPEC producing countries participating in the DoC, re-affirms the full commitment by the countries participating in the DoC to unity and cohesion, as well as their continued and unwavering efforts to maintain oil market stability going forward through the Declaration of Cooperation, signed on 10 December 2016 and further endorsed in subsequent meetings. Moreover, OPEC Member Countries re-affirm their steadfast commitment to the shared objectives of unity and cohesion both within the Organization, and with the non-OPEC producing countries participating in the DoC.*" Our Supplemental Documents package includes the OPEC release.

Oil: OPEC+ Joint Ministerial Monitoring Committee meeting on Feb 1

OPEC+ JMMC on Feb 1

Reuters reported [LINK] OPEC+ set its next Joint Ministerial Monitoring Committee (JMMC) for Thursday February 1. This will be a virtual meeting via video conference and not an in-person meeting. The JMMC normally has meetings every two months so this would be the plan. Recall at the Nov 30 meeting, the OPEC+ countries agreed to voluntary cuts starting Jan 1, 2024 for approx. 2.2 mmb/d, which includes the Saudi Arabia 1 mmb/d voluntary cut.

Oil: US/Houthis Red Sea military escalation seems inevitable

Escalation in Red Sea

We have to believe the oil story for Monday is when does the US attack the Houthis and what will happen to oil and markets thereafter. We think escalation in the Red Sea is inevitable. The US has boxed itself by threatening the Houthis with unnamed consequences for any more attacks and then one day later, the Houthis attack and the Houthis have come back with their own warning to the US and allies. The US has to do something or else no one will believe them when they warn in other circumstances. (i) Earlier this morning, we tweeted [LINK] "*How can US not attack Houthis? Warned on consequences if they don't stop. 👇Yesterday a Houthi drone "was shot down in self-defense by USS LABOON (DDG 59) in international waters of the Southern Red Sea". self-defense suggests targeted US Navy! [LINK] #OOTT." Yesterday* US CENTCOM tweeted "*On the Jan. 6, at approximately 9:30 a.m. (Sanaa time), an unmanned aerial vehicle launched from Iranian-backed Houthi-controlled areas of Yemen was shot down in self-defense by USS LABOON (DDG 59) in international waters of the Southern Red Sea in the vicinity of multiple commercial vessels. There were no casualties or damage reported*." US CENTCOM may not say it directly, but shooting down in self-defense suggests the drone was targeted at the US Navy. (ii) Last Sunday, we tweeted [LINK] "*does the US have no choice but to conduct air strikes on Houthi bases onshore on Yemen? if not, how can Maersk or others resume Red Sea transit knowing the Houthis will keep attacking even with Operation Prosperity Guardian? escalation seems inevitable #OOTT.*" Earlier last Sunday morning, we tweeted [LINK] "*Houthis say will attack US navy, "interests" and US commercial shipping! Houthis leaders this morning "We will target them, We will make American battleships, American interests, and American shipping traffic a tars, our drones, and our military operations" #OOTT #Oil.*" (ii) This week's developments reinforce that view. Yesterday, we tweeted [LINK] "*Red Sea military escalation seems inevitable. US threatened consequences if Houthis kept attacking - they did. US has to do something. 👇Houthis, US "will pay an unprecedented price & will bear the*

consequences as a result of their foolishness" "all options are open" #OOTT." (iii) On Wednesday, a joint statement by the US, Australia, Bahrain, Belgium, Canada, Denmark, Germany, Italy, Japan, Netherlands, New Zealand and the UK "*warn the Houthis against further attacks*" and "*Let our message now be clear: we call for the immediate end of these illegal attacks and release of unlawfully detained vessels and crews. The Houthis will bear the responsibility of the consequences should they continue to threaten lives, the global economy, and free flow of commerce in the region's critical waterways. We remain committed to the international rules-based order and are determined to hold malign actors accountable for unlawful seizures and attacks."* This was a pretty clear warning to the Houthis other than what might be the consequences. (iv) On Wednesday, we tweeted [LINK] "*What will Houthis see as implied consequence? "warn the Houthis against further attacks" "Houthis will bear the responsibility of the consequences should they continue to threaten lives ....." "call for the immediate end of these illegal attacks" USAUBHCADKDEITJPNLNLNZGB #OOTT."* (v) On Thursday, the Houthis used unmanned boats loaded with explosives in the Red Sea for the first time. The boat exploded but wasn't close to any US Navy or commercial ships. The point being it was the Houthis responding to the US warning the day before. (vi) Our tweet yesterday included the Saba Saturday report [LINK] that had the Houthis clear warning back to the US. Saba wrote "*President Al-Mashat chairs military leaders meeting & confirms that American will pay his crime price against our heroes." "He added, "If America is committed to protecting Israel, we confirm that we are committed to protecting and supporting our brothers in Gaza and are ready for all possibilities, and the options are open." "He added, "We tell the American that his crime against our heroes from the naval forces will not pass without a strong response. They will pay an unprecedented price and will bear the consequences as a result of their foolishness."*
And "*The President said, "We know how to communicate with those who claim to be strong, and we know the language they understand well."* Our Supplemental Documents package includes the US joint statement and Saba's Jan 1 report and Jan 6 report.

12/25/23, Houthis warned US only "*seen prelude & preliminary steps*"
Here is an item from our Dec 31, 2023 Energy Tidbits memo. "The Houthis responded to last week's US announcement of "*Operation Prosperity Guardian*" with their own warning to the US that it was only getting started on what it was doing in the Red Sea. The Houthis had a very strong warning to the US and any countries working with them to help Israel. They clear warn they are only now just getting started. On Monday, we tweeted [LINK] *"#Houthis warn only "seen prelude & preliminary steps". Weapons have greater range. "no red lines in front of us" claim to seas also includes "Arabian Sea" Not just US, also "Britain, France &U those in their orbit" you have seen are a prelude and preliminary steps." #OOTT."* There were multiple warnings from the Houthis defense minister. The Houthis aren't going away and continue to warn the US, UK, France and anyone else who joins in to help Israel. They warn their weapons have longer range than most expect and there are no red lines in front of them. Saba (Yemen news) wrote "*Major General Al-Atefi said: "Our strategic deterrent weapons and their ranges reach far beyond what the enemies expect, and there are no red lines in front of us. All possibilities are open, all the time distance is absolute, and our fighting spirit is long."* They highlight their claim to seas also includes the "Arabian Sea", whereas most just normally think of them as Red Sea and Bab el Mandeb. They remind its not just the US but "*America, Britain,*

France, and those in their orbit". And they aren't stopping as long as Hamas is under attack "." *Because we provide you with the painful future as long as you persist in your hostile attitudes against our brothers and people in the besieged and abused Gaza. "* He continued, "*Be certain that we will transform the geography of the seas, from the Red Sea, the Gulf of Aden, the Arabian Sea, and Bab al-Mandab, into the curse of geography that will descend upon your heads like lightning bolts*."
And they aren't stopping as long as Hamas is under attack "." *Because we provide you with the painful future as long as you persist in your hostile attitudes against our brothers and people in the besieged and abused Gaza. "* He continued, "*Be certain that we will transform the geography of the seas, from the Red Sea, the Gulf of Aden, the Arabian Sea, and Bab al-Mandab, into the curse of geography that will descend upon your heads like lightning bolts*." Our Supplemental Documents package includes the Saba report on the Houthi Defense Minister comments. [LINK]

Oil: Maersk will divert vessels away from Red Sea "for the foreseeable future"

Maersk diverts ships from Red Sea

No one should have been surprised to see Maersk's Friday announcement [LINK] that "*On 2nd January 2024, A.P. Moller – Maersk announced that it would pause all vessels bound for the Red Sea / Gulf of Aden in light of the recent incident involving Maersk Hangzhou and ongoing developments in the area. The situation is constantly evolving and remains highly volatile, and all available intelligence at hand confirms that the security risk continues to be at a significantly elevated level. We have therefore decided that all Maersk vessels due to transit the Red Sea / Gulf of Aden will be diverted south around the Cape of Good Hope for the foreseeable future*." Maersk had just restarted its container ships the Red Sea/Bab el Mandeb with the startup of the US-led Operation Prosperity Guardian. No surprise, the Houthis immediately attacked a Maersk container ship and now Maersk has to stop again. Last week's (Dec 31, 2023) Energy Tidbits memo highlighted the breaking news that the Houthis had attacked a Maersk container ship in response to Maersk resuming its shipping thru the Red Sea/Bab el Mandeb. Here is what we wrote in last week's memo. "*Breaking news this morning in the Red Sea should likely be the oil story for oil markets. Please note that we have a 7am MT news cut off. But the breaking news was the Houthis attack on a Maersk container ship and the US response, which was significant from a few fronts. (i) First, no one should have been surprised to see the breaking news this morning that the Houthis attacked a Maersk ship in response to Maersk's resumption of ships thru the Red Sea with the US & allies start of Operation Prosperity Guardian. The Houthis reportedly first hit the container ship with a missile and then tried to board it with 4 small boats. (ii) Second, the US Navy helicopters responded and, in self-defence, sunk 3 of the 4 small Houthi boats killing their crews. The 4th small boat escaped. We believe this is the first reported US attack on the Houthis, albeit in self-defence, with reported Houthi casualties. (iii) Third, Maersk has reportedly paused for 48 hours its resumption of ships thru the Red Sea. As noted below, Maersk had just resumed the transits this week after the US & allies began Operation Prosperity Guardian to protect commercial ships in the Red Sea. (iv) Our first tweet this morning was* [LINK] *"Breaking! Houthis response to Maersk resuming shipments via Suez. Tried to board container ship, but US Navy to the rescue, "returned fire in self-defense, sinking 3 of the 4 small boats, & killing the crews". Won't be surprised if Houthis increase drone attacks. #OOTT." Our tweet forwarded the CENTCOM tweet* [LINK] *that said the US responded to the distress call about being under attack by 4 Houthi small boats by sending helicopters who "returned fire in self-defense, sinking three of the four small boaytds, and* *killing the crews." (v) Our second tweet added one key additional detail – the Maersk container ship had first been hit by a Houthi missile. We tweeted [LINK] "OOPS! Missing from CENTCOM report. @AFP reports Maersk ship was 1st hit by missile before attempted boarding by Houthis. @AFP also reports Maersk has paused Suez transit for 48 hrs. #OOTT [LINK]."* Our Supplemental Documents package includes the Maersk Jan 5 advisory.

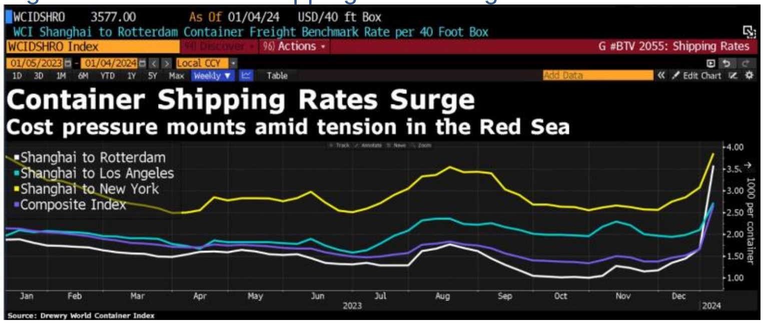
Other major shippers did not follow Maersk in resuming Red Sea transit

Here is what we wrote in our last week's (Dec 31, 2023) Energy Tidbits memo when Maersk resumed Red Sea/Bab el Mandeb transit for its container ships. "*We were in the camp that was surprised to see last week's reporting that Maersk was going to resume cargo shipments thru the Suez Canal and therefore the Red Sea and Bab el Mandeb. The initial reports were that they expected to do so but didn't specify a time. But that changed on early Thursday. We tweeted [LINK] "What will Houthis do? Maersk updated schedule shows almost all container ships Asia/EU will go thru Suez Canal from now on. Thx @terjesolsvik. See 👇12/25 tweet, Houthis warned only "seen prelude & preliminary steps" "no red lines in front of us" #OOTT [LINK]."   We did not look at the new Maersk schedule but relied upon Reuters reporting "Denmark's Maersk (MAERSKb.CO) will sail almost all container vessels travelling between Asia and Europe through the Suez Canal from now on while diverting only a handful around Africa, a Reuters breakdown of the group's schedule showed on Thursday. Major shipping companies, including container giants Maersk and Hapag-Lloyd (HLAG.DE), stopped using Red Sea routes and the Suez Canal earlier this month after Yemen's Houthi militant group began targeting vessels, disrupting global trade. Instead, they rerouted ships around Africa via the Cape of Good Hope to avoid attacks, charging customers extra fees and adding days or weeks to the time it takes to transport goods from Asia to Europe and to the east coast of North America. But Maersk on Dec. 24 said it was preparing a return to the Red Sea, citing the deployment of a U.S.-led military operation to protect vessels, and on Wednesday released schedules showing ships were headed for Suez in the coming weeks. A detailed breakdown showed that while Maersk had diverted 26 of its own ships around the Cape of Good Hope in the last 10 days or so, only five more were scheduled to start the same journey. By contrast, more than 50 Maersk vessels are set to go via Suez in coming weeks, the company's schedule showed." As noted in the breaking news above, Maersk had resumed container ships transit in the Red Sea only to be attacked by the Houthis. Even prior to this morning's attack, we had not seen any reports of the other major shipping companies following Maersk's lead in resuming Suez Canal shipments".*

Container shipping rates had surged prior to Maersk's Jan 5 update

On Thursday night we were watching Bloomberg markets China Open and tweeted [LINK] "*Container shipping rates surge thanks to #Houthis. Suez handles ~12% of world trade so adds to global supply chain costs & time. Avoiding Red Sea & going the long way around Cape of Good Hope for typical Singapore/Rotterdam adds ~3,280 miles and 10-15 days. Thx @jcgnana #OOTT."* Our tweet included the below Bloomberg graph. And then when we saw the Maersk advisory on Friday morning, we tweeted [LINK] " 👇*container shipping rate surge was **yesterday**! @FranSchwar* *report: Maersk diversion around Cape of Good Hope for foreseeable future, encourage customers "to prepare for complications in the area to persist and for there to be significant disruption to the global network" #OOTT."*

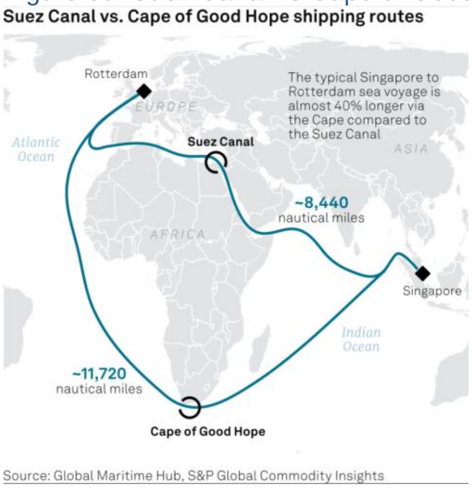
Figure 29: Container Shipping Rates Surge



Source: Bloomberg

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

Figure 30: Suez Canal vs Cape of Good Hope shipping routes



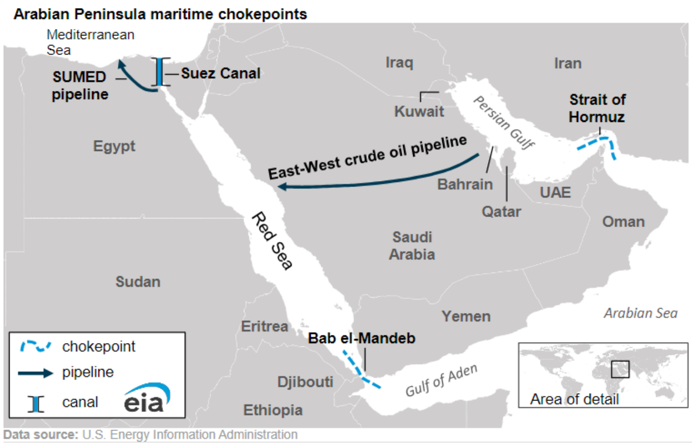
Source: Platts

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

Bab el Mandeb 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 31: Bab el-Mandeb Strait, a world oil chokepoint



Source: EIA

Figure 32: 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**

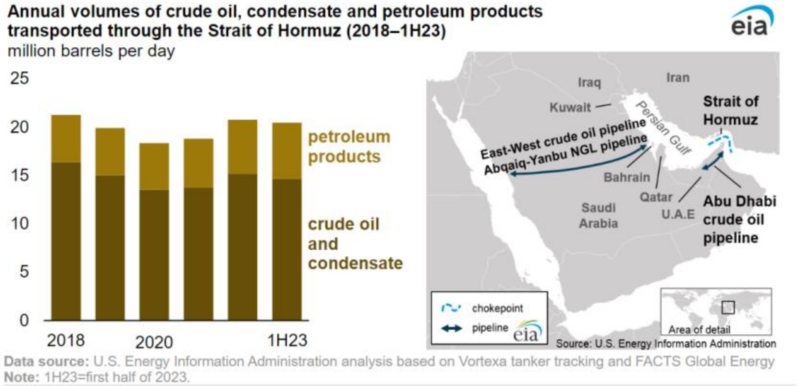
Data source: U.S. Energy Information Administration analysis based on Vortexa tanker tracking
Note: LNG=liquefied natural gas, 1H23=first half of 2023

Source: EIA

Bab el Mandeb can be worked around whereas the Strait of Hormiz can't

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



Source: EIA

Figure 34: 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: ISIS takes responsibility for bombs that killed 84 & injured 284 in Iran

ISIS in Iran

We don't care where it is in the world, deadly bombings that kill civilians should never happen. The only relief from the two suicide bombs that killed 84 and injured 284 in Iran on the 4th anniversary of Soleimani's death is that Iran is blaming ISIS and not the US or Israel. It Iran had blamed US and/or Israel and taken retaliatory actions, it could have exploded into a much bigger Middle East situation. Early Thursday morning, we tweeted [LINK] "*Add to #Oil watch. Iran "relevant agencies should take action to ..... decisively deal with the perpetrators & the fair punishment of the perpetrators ....of this crime" What is "fair punishment" for bombing that killed 84, injured 284 on Soleimani's anniversary? #OOTT.*" We attached the IRNA (Iran state media) report on iran's response to the bombings on the 4th anniversary of Soleimani's death. It wasn't clear who did the bombings. Later that day, video emerged of one of the suicide bombers. And then later, ISIS took credit for the bombings and the reports were that it was hoped Iran might have blamed Israel and taken action. Deadly bombing is never good news but at least it wasn't a bombing that could have exploded the Middle East into who knows what if Iran had blamed Israel and had quickly taken actions. But on Friday, PressTV (Iran state media) reported [LINK] "*Iranian President Ebrahim Raeisi says the cause of the terrorist bombings in Kerman can be traced back to the grudge that Zionists hold against top anti-terror commander General Qassem Soleimani as he jeopardized the plans to establish another Israel in the region by creating and backing Daesh terrorist group*." And "*Raeisi also noted that Qassem Soleimani strengthened the resistance in the region and left Israel surrounded by powerful forces that could thwart its expansionist plans. The US role in the establishment of Daesh terrorist group has also been highlighted by some American politicians, both Democratic and Republican.*"

Oil: Iraq is "*unwavering*" to permanently conclude the presence of US forces n Iraq

Iraq will move to get US troops out

For the second week, we are still surprised that the Iraq's response to the US air strike doesn't seem to get much market attention. But it looks like the US air strike on Iraq two weeks ago was indeed a pivot point and Iraq is now "unwavering" in its commitment to conclude arrangements to remove US troops from Iraq. We think this adds big geopolitical risk to what happens in Iraq post the US departure and that will add risk to oil. Of course, that is unless you think that everyone in Iraq and Kurdistan will be getting along fine without any issues. On Friday, we tweeted [LINK] *"Geopolitical risk, incl #Oil, in Iraq after US leaves* *or will everyone get along? Iraq PM ".. justification for their existence [US] have ended" ".. establishing arrangements for the conclusion of this [US] presence. This commitment by the government is unwavering .." #OOTT."* On Friday, Iraqi News Agency (official state media) reported on Iraq PM Al-Sudani's comments on Friday morning. Al-Sudani had pretty clear comments they are moving to get US troops out of Iraq. They wrote "*We steadfastly assert our principled stance to conclude the presence of coalition forces, given that the justifications for their existence have ended. We are currently in the process of scheduling the commencement of dialogue through the bilateral committee tasked with establishing arrangements for the conclusion of this presence. This commitment by the government is unwavering, ensuring the pursuit of complete national sovereignty over Iraq's land, sky, and waters."* Note that the PM says that justification for their existence have ended ie. the US is no longer needed. It's worth a read. Our Supplemental Documents package includes the Iraqi News Agency report. [LINK].

12/25/23 US strikes were "an unacceptable violation of Iraqi sovereignty"

Here is what we wrote in last week's (Dec 31, 2023) Energy Tidbits. "W*e were surprised that the US air strike on Iraq and Iraq's response didn't seem to get too much market attention. We don't know what will happen but it didn't seem like the type of event that just gets forgotten quickly. Plus the potential impact of conflict in Iraq could be significant on oil markets. It's why we believe this Iraqi/US event and what happens next needs to be on radar screens. On Wed, we tweeted [LINK] "Iraq #Oil geopolitical risk. Will Iraq eventually forgive or will this turn out to be a a pivot point? Iraq govt statement. "US attack on military sites.... justifying it as a response. constitutes a clear hostile act .....unacceptable violation of Iraqi sovereignty.." #OOTT." Iraq's formal response was to the US air strike on three locations in Iraq that killed one and injured 18 others. Bloomberg reported "US forces on Christmas Day struck three installations linked to an Iran-backed insurgent group, their latest retaliation against militias targeting Americans. The strikes are "intended to degrade and disrupt the ongoing series of attacks against the United States and our partners" and to "deter" Tehran's proxy forces "from conducting or supporting further attacks," Biden wrote Wednesday in a letter to congressional leaders." Our tweet included the Iraqi New Agency (Iraq state media) report of Iraq's response to the air strike. It's worth reading the short Iraqi response "Iraqi government condemns the US attack, considers a violation of sovereignty." Here is part of their response "The statement added, "At the same time, the Iraqi government condemns what transpired early this morning, Tuesday, December 26, 2023, during which Iraqi military sites were targeted by the American side justifying the act as a response. This resulted in the martyrdom of one service member and the injury of 18 others, including civilians. This constitutes a clear hostile act. It runs counter to the pursuit of enduring mutual interests in establishing security and stability, and it opposes the declared intention of the American side to enhance relations with Iraq". "We emphasize that this action undermines the bilateral relations between the two nations and will further complicate the efforts to achieve mutual understandings through collaborative dialogue aimed at concluding the presence of the international coalition. Above all, it constitutes an unacceptable violation of Iraqi sovereignty," the statement continued." Our Supplemental Documents package includes the Iraqi News Agency statement."*

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

Libya oil production

As of our 7am MT news cut off, we haven't seen any reports or tweets this week from the Libya National Oil Corporation on the status of the shut-in oil production at its Sharara oilfield in southwest Libya. Early Wednesday morning, we tweeted [LINK] ""*Protesters shut down Libya's Sharara oilfield" "was prompted by the lack of action regarding their demands for development and better services in south Libya" Never know but protest shutdowns tend to be short. Sharara ~270,000 b/d. Thx @Abd0Assad #OOTT [LINK]."* However, on Friday, Bloomberg reported on comments from Libya oil minister writing "*Libya's output drops to 981,000 barrels a day following outage at Sharara oil field, Oil Minister Mohamed Oun says in interview."* This would be a production loss of over 200,000 b/d as the NOC has been reporting how Libya oil production has been over 1.2 mmb/d for the last several months. We were a little surprised by Bloomberg reporting "**Separately, Mellitah Oil Gas Co. chairman Al-Bashir Ahmed says the El Feel oil field the company operates is currently producing."* We had seen reports earlier in the week that protestors were also shutting in the nearby ~60,000 b/d El Feel oilfield. Plus, we expected El Feel to be shut in as we thought it had power sourced from Sharara and its oil linked in with Sharara oil for the pipeline north. But it appears that El Feel is still operating.

Prior to protests, Libya oil production was stable at 1.2 mmb/d

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

Oil: Xi teases on deeper reform for economy in his New Year address

Xi's New Year address

Xi's made a relatively short 2024 New Year message. The message, like other leaders, is general and Xi doesn't get into a lot of specifics. But we thought one of his primary messages was reassuring on the their priority to achieve steady and long-term economic development. (i) The headlines were on Taiwan although Xi would not call it a country or call it Taiwan. Rather he said "*China will surely be reunified, and all Chinese on both sides of the Taiwan Strait should be bound by a common sense of purpose and share in the glory of the rejuvenation of the Chinese nation."* (ii) Last Sunday, we tweeted [LINK] "*No specifics from Xi but teases on deepen reform for economy. "will consolidate & strengthen the momentum of economic recovery, & work to achieve steady and long-term economic development. We will deepen reform & opening up across the board ...." #OOTT"* We thought his primary theme was on the economy, noting the headwnds todate, but then emphasizing their focus for the future. Some of Xi's comments were "*Next year will mark the 75th anniversary of the founding of the People's Republic of China. We will steadfastly advance Chinese modernization, fully and faithfully apply the new development philosophy on all fronts, speed up building the new development paradigm, promote high-quality development, and both pursue development and safeguard security. We will continue to act on the principle of seeking progress while maintaining stability, promoting stability through progress, and establishing the new before abolishing the old. We will consolidate and strengthen the momentum of economic recovery, and work to achieve steady and long-term economic* *development. We will deepen reform and opening up across the board, further enhance people's confidence in development, promote vibrant development of the economy*". Our Supplemental Documents package includes the Xi address.

Oil: China approves AstraZeneca to fight respiratory diseases for children

AstraZenaca in China

We have been reporting on respiratory cases in China but it never seemed to be a story of concern for the world or markets. And that may very well be the case. But it's hard for us to not have some doubt or concern given what played out with Covid. And when we see that China has approved a western vaccine, it should at least put it on the radar. It didn't get any real coverage but on Tuesday, AstraZeneca reported "*Beyfortus approved in China for the prevention of RSV disease in infants*" [LINK]. And *"Beyfortus is the first approved preventive option to protect against RSV in a broad infant population, including protecting those infants born healthy at term, or preterm, or with specific health conditions that make them vulnerable to severe RSV disease."* We thought this was significant given China has stayed away from western vaccines for Covid. And AstraZeneca also noted *"RSV. Data from the Chinese Center for Disease Control and Prevention revealed that RSV is one of the leading viral pathogens causing acute respiratory infections in children under five years old, with infants under one year old experiencing the most substantial disease burden.6 Severe RSV infections in infants can lead to issues such as recurrent wheezing or asthma, indicative of impaired lung function, with potential long-term impact on the health of children.7 Data indicated that RSV ranks among the top three pathogens in children's viral respiratory infections, potentially leading to a compounded epidemic of multiple respiratory viruses. This scenario places significant pressure on paediatricians, prompting increased medical treatment and hospitalisation."* Our Supplemental Documents package includes the AstraZeneca release.

Oil: Investors continue to avoid Chinese stocks despite relative risk valuations.

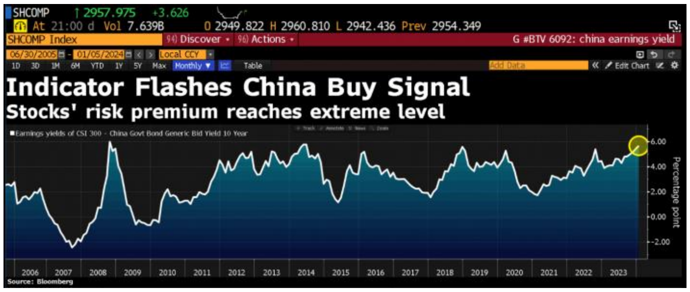
Investors avoid Chinese stocks

Investors continue to avoid Chinese stocks despite their valuations. It's like investrors all see Chinese stocks are cheap for a reason. On Thursday night, a couple of Chinese stocks charts shown a different times on Bloomberg Markets China Open caught our attention and we tweeted [LINK] "*Hmmm! Investors haven't got or are just ignoring the message "Indicator flashes China buy signal: stocks' risk premium reaches extreme level" Good graphs from @business China Open tonight. #OOTT."* First was the chart "*Downtrend in Chinese Stocks. CWI 300 nears Dec 20 closing low of 3283.99".* What continues to get our attention is how Chinese stocks are actually lower than at the worst times of Covid. Then later was the chart *"Indicator Flashes China Buy Signal: Stocks' risk premium reaches extreme level*". This chart graphed "*Earnings yields of CSI 300 – China Govt Bond Generic Bid Yield 10 Year".*

Figure 35: Downtrend in Chinese Stocks

Source: Bloomberg

Figure 36: Indicator Flashes China Buy Signal



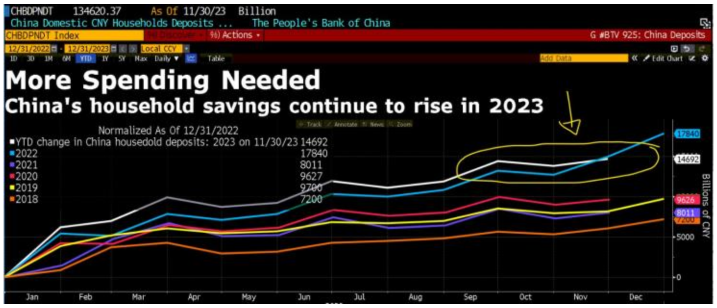
Source: Bloomberg

Oil: Will Chinese finally dip into their Covid savings?

China household savings

One of the big negatives or holdbacks to China in 2023 has been that that consumers really haven't dipped into their Covid savings like we saw in US, Canada and other places and that has been a big stimulus to these economies. On Tuesday, we tweeted [LINK] "*Only now (Oct/Nov) seeing Chinese consumers dipping into savings & not increasing YoY. China relaxed Covid restrictions at end of 22. Two months don't make a trend but potential economy surprise if Oct/Nov savings dip becomes a trend. Thx @YvonneManTV @DavidInglesTV. #OOTT.*" What jumped out at us on the below Bloomberg graph was how we saw the first months where China household savings didn't increase YoY in 2023. We recognize a couple months doesn't make a trend but if it continues it will be something that brings a potential upside surprise to the economy if consumers start to draw down on their savings like we saw in US and Canada. Below is the Bloomberg graph attached to our tweet.

Figure 37: China's household savings



Source: Bloomberg

Oil: China air passengers in 2023 reached 93.9% of pre-Covid levels

China air passengers 97.6% of pre-Covid

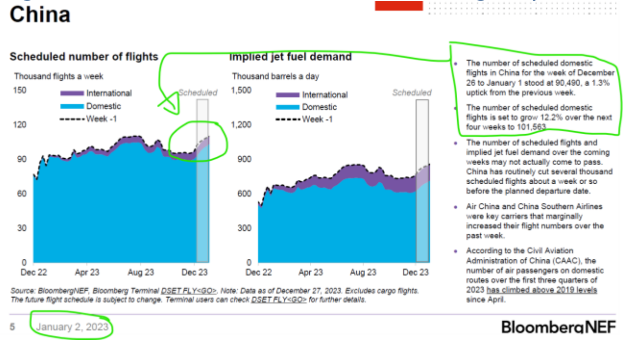
On Friday, we tweeted [LINK] "*Not bad considering Chinese consumers are still hesitant. China air passengers in 2023 +146.1% YoY to 93.9% of pre-Covid and air cargo was +21% YoY to 97.6% of pre-Covid reports Xinhua. Now need international air passengers to/from China to pick up. #OOTT."* Chinese air travel and air cargo was up in 2023 but still below pre-Covid 2019 levels. In 2023, air passengers were +146.1% YoY to 93.9% of pre-Covid and air cargo was +21% YoY to 97.6% of pre-Covid. On Friday, Xinhua (China state media) reported [LINK] "*China's civil aviation sector handled 620 million passenger trips in 2023, up 146.1 percent from the previous year, and reaching 93.9 percent of the pre-pandemic level in 2019, official data showed. Total transport turnover of this sector was 118.83 billion tonne-kilometers in 2023, an increase of 98.3 percent year on year, reaching 91.9 percent of the pre-pandemic level in 2019, the Civil Aviation Administration of China said in a statement on its website Friday. The sector transported 7.35 million tonnes of cargo and mail in 2023, up 21 percent year on year, returning to 97.6 percent of the figure recorded in 2019*."

Oil: China scheduled domestic flights stuck back at March 21-27 levels

China scheduled domestic flights

Earlier this morning, we tweeted [LINK] "*China stalled economy/Chinese consumers still holding back. Chinas scheduled domestic flights +1.3% WoW to 90,490. But China scheduled domestic flights for the last 2 months have been stuck ~90,000 fligts, which is Mar 21-27 levels. Thx @BloombergNEF Claudio Lubis #OOTT."* On Tuesday, BloombergNEF posted its Aviation Indicators Weekly Jan 2, 2023 report, which was their report since their Dec 13 report. (i) BloombergNEF reported that the num The number of scheduled domestic flights in China for the week of Dec 26 to Jan 1 was +1.3% WoW to 90,490 flights. This looks negative. The Dec 13 report noted the then next 4-week scheduled domestic flights were to grow 8.8% to 97,847 flights. So the Dec 26-Jan 1 scheduled domestic flights of 90,490 flights is well below the 97,847. Plus at 90,490 flights is the same concern we have had for weeks, it is basically back to Mar 21-27 levels. BloombergNEF also notes "*The number of scheduled domestic flights is set to grow 12.2% over the next four weeks to 101,563."*

Figure 38: China Scheduled Domestic flights per Jan 2 report



Source: BloombergNEF

Oil: Regal Hotels says international travel to Hong Kong & China is not yet back

Regal Hotels on international travel

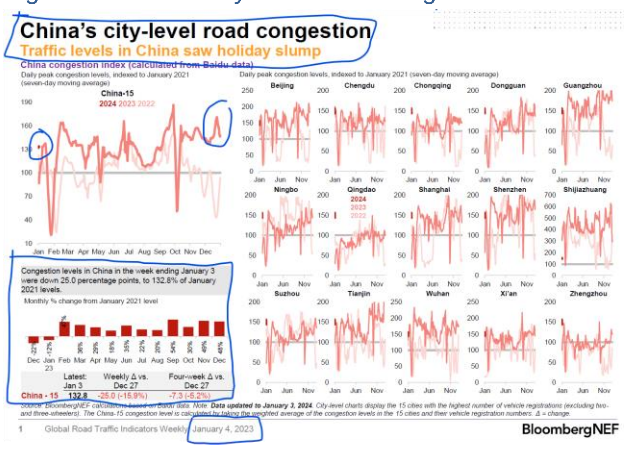
Hong Kong based Regal Hotels International Vice Chairman Poman Lo was on Bloomberg on Thursday evening. (i) Hong Kong. We tweeted [LINK] "*1/2. International travel still not back to Hong Kong. HK city hotels back to pre-Covid in occupancy & room rates. but "still have to work harder at bringing back international travel" HK airport hotels are ~60-70%. Regal Hotels Vice Chair. thx @RishaadTV @DavidInglesTV #OOTT.*" Our tweet included a short clip of Lo's comments that were that city hotels in Hong Kong are back t pre-Covid levels in terms of both occupancy and rates. Lo highlighted how Regal's big airport hotels were even over 100% occupancy at times as some rooms had two uses some day. But that the airport hotels and therefore the international travelers to Hong Kong were only back to 60% to 70% of pre-Covid levels. (ii) Mainland China. We tweeted [LINK] "*2/2. International travel still not back to China. "Domestic travel has actually been booming" >150% up YoY. "in terms of international travel, i do think it will take some time to bring back those travelers". Regal Hotel Vice Chair. Thx @RishaadTV @DavidInglesTV. #OOTT*". Lo wasn't specific on the % versus pre-Covid but it sounds like domestic travel is back to pre-Covid but international travelers are nowhere near back to pre-Covid.Our tweete also included a short clip of Lo's comments.

Oil: Baidu China city-level road congestion saw holiday slump

China city-level traffic congestion

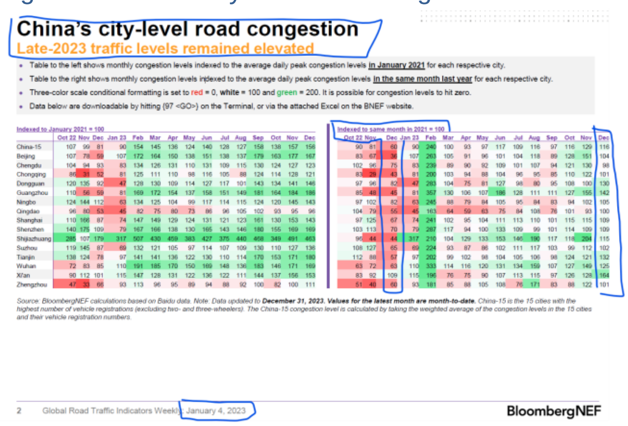
On Wednesday, BloombergNEF posted its Global Road Traffic Indicators Weekly report, which was their first report since their Dec 14 report that has the Baidu city-level road congestion for the week ended Dec 13. (i) BloombergNEF posted its Global Road Traffic Indicators Weekly Jan 4, 2024, which includes the Baidu city-level road congestion for the week ended Jan 3. (ii) BloombergNEF said "*traffic levels in China saw holiday slump*" and that congestion levels in China for the week ended Jan 3 were down 25% to 132.8% of Jan 2021 levels. We will have to watch to see what happens in Jan. (iii) For the top 15 cities, Dec 2023 was 116 of Dec 2021 levels, and 14 of 15 cities in Dec 2023 being up vs Dec 2021. The only marginally down city was Chengdu that was 98 of Dec 2021. (iv) The negative is that Dec 2023 was only 116 of Dec 2021, which is less than Nov 2023 that was 129 of Nov 2021 so the increase in city-level road congestion compared to the same months in 2021 seems to have stalled. Nov 2023 was the best month relative to 2021 other than Feb 2023 that was 240 of Feb 2021 as Feb 2023 was the first Chinese New Year without Covid restrictions. (v) For the top 15 cities, all of them in Dec 2023 a(re higher YoY vs Dec 2022 but Covid restrictions were still in Dec 2022.

Figure 39: China city-level road congestion for the week ended Jan 3



Source: BloombergNEF

Figure 40: China city-level road congestion for the week ended Jan 3



China's city-level road congestion

Late-2023 traffic levels remained elevated

- 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

	Oct 22	Nov	Dec	Jan 23	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
China-15	107	99	81	90	154	145	136	124	140	128	127	158	138	157	156
Beijing	107	78	59	107	172	164	150	138	151	138	137	179	163	177	167
Chengdu	104	94	93	83	134	126	131	110	131	109	115	130	124	127	123
Chongqing	86	31	52	81	125	111	110	98	116	105	88	124	114	128	121
Dongguan	120	135	92	47	128	130	109	114	127	117	101	143	134	141	146
Guangzhou	110	56	59	81	169	172	154	137	158	151	149	181	164	184	186
Ningbo	124	144	112	63	134	125	104	99	117	114	115	124	120	145	143
Qingdao	96	80	53	45	82	75	80	73	86	96	105	102	93	95	96
Shanghai	110	166	87	74	147	149	129	124	131	121	123	161	130	153	143
Shenzhen	140	175	109	79	167	166	138	130	165	143	146	180	155	169	169
Shijiazhuang	285	107	179	317	507	430	459	383	427	375	440	468	349	491	463
Suzhou	119	145	87	69	132	121	105	97	114	107	109	130	110	127	136
Tianjin	138	124	78	97	141	141	136	122	130	110	114	170	153	171	180
Wuhan	72	83	85	110	191	185	170	150	169	148	136	183	146	171	169
Xi'an	90	112	101	115	147	128	131	122	136	122	111	144	137	156	153
Zhengzhou	47	33	66	93	113	96	95	89	94	88	92	100	82	100	111

Indexed to same month in 2021 = 100

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

*Source: BloombergNEF calculations based on Baidu data. Note: Data updated to **December 31, 2023. Values for the latest month are month-to-date.** China-15 is the 15 cities with the highest number of vehicle registrations (excluding two- and three-wheelers). The 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 January 4, 2023 BloombergNEF

Source: BloombergNEF

Oil: Caixin Manufacturing PMI at 50.8 in December, up from 50.7 in Nov

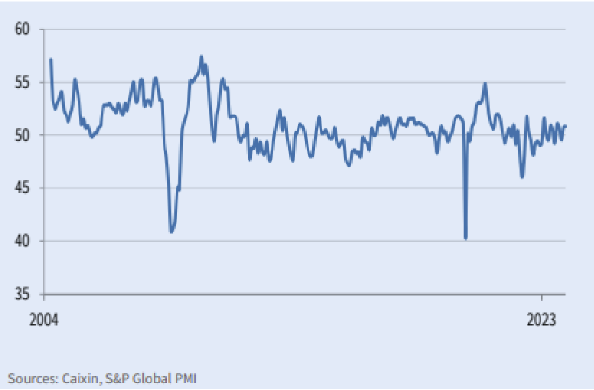
As a reminder, there are two China manufacturing PMI data from S&P Global that come out each month. The Official Manufacturing PMI that normally comes out the day before the Caixin Manufacturing PMI data that we track. We have focused on the Caixin PMI as it is viewed as more of a leading indicator for 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 Nov was released at 6:45pm MT Tuesday night [LINK] and we tweeted [LINK] "*Positive view from China smaller &*

Caixin Manufacturing Dec PMI 50.8

export oriented firms. China Caixin Manufacturing PMI Dec 50.8 (est 50.4) vs Nov 50.7, Oct 49.5, Sep 50.6, Aug 51.0. "Overall, the economic outlook for the manufacturing sector continued to improve in December ..." 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 edged up 0.1 points to 50.8 in December, the fourth time in five months that the index has been in expansion, indicating a sustained improvement in the sector. "Both supply and demand expanded as the market continued its upward trend, boosting production and sales. The subindexes for output and total new orders reached new highs since May and February, respectively, with particularly strong demand for consumer goods. But overseas purchasing power remained limited, with the gauge for new export orders in contraction for the sixth consecutive month, despite a softer rate of contraction."* Our Supplemental Documents package includes Caixin Manufacturing PMI report.

Figure 41: China Caixin General Manufacturing PMI

sa, >50 = improvement since previous month



Source: Caixin, S&P Global

China stalled recovery/weak consumer, official PMI in Dec down for third mth
Here is what we wrote in last week's (Dec 31, 2023) Energy Tidbits memo. "*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 or two before the Caixin Manufacturing PMI data that we track. We have focused on the Caixin PMI as it is viewed as more of a leading indicator for how the China recovery is doing as it is a more export-oriented PMI and export have been the big driver of China for the past 20 years. However, we will also report on the Official Manufacturing PMI for an indicator of the Chinese consumer and domestic demand. Earlier this morning, we tweeted [LINK] "Chinese stalled recovery & consumer staying on sidelines. Official manufacturing PM down for 3rd mth to 49.0 in Dec vs 49.4 in Nov, lowest in 6 mths. 👇state media says 3 times, need to boost/expand domestic demand! #OOTT." The Official Manufacturing PMI was 49.0 in Dec, down for the 3rd consecutive month and the lowest in six months. So not good. But what also struck us was the Global Times (state media under China Communist Party) short report highlight four times the need to boost/expand domestic demand, which reinforced the weak domestic demand and the consumer staying on the sideline.*

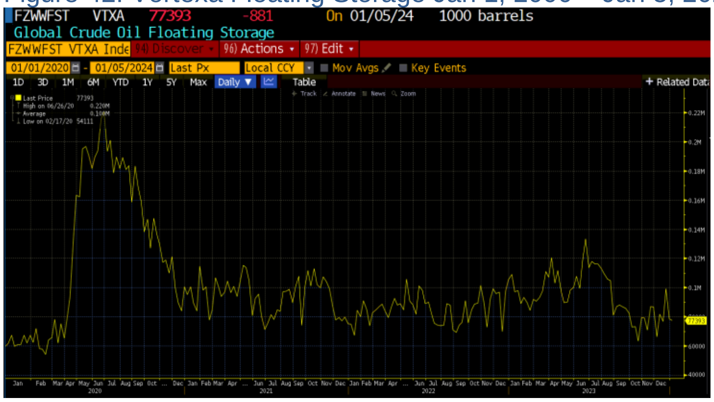
> *One example was ""We should coordinate the expansion of domestic demand and the deepening of supply-side structural reforms, and integrate the two organically," Li Chao, an NDRC spokesperson, said at a press briefing for the key macroeconomic policy priorities in 2024 on December 19." Our Supplemental Documents package includes the Global Times reporting."*

Vortexa floating storage

Oil: Vortexa crude oil floating storage est 77.39 mmb at Jan 5, -0.88 mmb WoW

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 Dec 30 at 9am MT. (i) Yesterday, we tweeted [LINK] "*Floating #Oil storage 01/05 is 77.39 mmb, -0.88 WoW vs revised up 12/29 of 78.27 mmb. 12/29 revised +5.29 & 1222 revised +8.94 mmb. Last 7-wk average 80.88 mmb. Want to watch #OPEC+ voluntary cuts vs coming into seasonally low demand in Q1. Thx @Vortexa @business. #OOTT."* (ii) As of 9am MT yesterday, Bloomberg posted Vortexa crude oil floating storage estimate for Jan 5 at 77.39 mmb, which is -0.88 mmb WoW vs revised up Dec 29 of 78.27 mmb. Note Dec 29 was revised +5.29 mmb vs 72.98 mmb originally posted at 9am on Dec 30. (iii) Revisions. Other than the upward revision to Dec 22, all other weeks had downward revisions. The revisions for the prior seven weeks from the estimates posted yesterday at 9am MT vs the estimates posted on Bloomberg at 9am MT on Dec 30 are as follows: Dec 29 revised +5.29 mmb. Dec 22 revised +8.94 mmb. Dec 15 revised +2.39 mmb. Dec 8 revised -0.18 mmb. Dec 1 revised -3.08 mmb. Nov 24 revised +0.71 mmb. Nov 17 revised -0.48 mmb. (iv) There is a wide range of floating storage estimates for the past seven weeks, but a simple average for the past seven weeks is 80.88 mmb vs last week's then seven-week average of 80.32 mmb.. (v) Also remember Vortexa revises these weekly storage estimates on a regular basis. For example, when most report on the Vortexa data on Monday morning, they will be reporting on different estimates. We do not track the revisions through the week. Rather we try to compare the first posted storage estimates on a consistent week over week timing comparison. Normally we download the Vortexa data as of Saturday mornings around 9am MT. (vi) Note the below graph now goes back to Jan 1, 2020 and not just three years as floating storage in Apr 2020 had started to reflect the Covid impact. (vii) Jan 5 estimate of 77.39 mmb is -31.44 mmb YoY vs Jan 6, 2023 of 108.83 mmb. (viii) Jan 5 estimate of 77.39 mmb is -142.93 mmb vs the Covid peak of 220.31 mmb on June 26, 2020. (ix) Jan 5 estimate of 77.39 mmb is +11.78 mmb vs pre-Covid Feb 28, 2020 of 65.61 mmb. (x) Below are the last several weeks of estimates posted on Bloomberg as of 9am MT Jan 6, 9am MT Dec 30, and 9am MT Dec 23.

Figure 42: Vortexa Floating Storage Jan 1, 2000 – Jan 5, 2024, posted Jan 6 at 9am MT



Source: Bloomberg, Vortexa

Figure 43: Vortexa Estimates Posted 9am MT on Jan 6, Dec 30, and Dec 23

Posted Jan 6, 9am MT

FZWWFST VTXA Inde — 01/05/2023 - 01/05/2024

	Date	FZWWFST VT... Last Px
Fr	01/05/2024	77393
Fr	12/29/2023	78274
Fr	12/22/2023	99054
Fr	12/15/2023	76910
Fr	12/08/2023	81661
Fr	12/01/2023	66349
Fr	11/24/2023	86501
Fr	11/17/2023	87064
Fr	11/10/2023	70935
Fr	11/03/2023	78975
Fr	10/27/2023	79556

Dec 30, 9am MT

FZWWFST VTXA Inde — 01/01/2020 - 12/29/2023

	Date	FZWWFST VT... Last Px
Fr	12/29/2023	72975
Fr	12/22/2023	90109
Fr	12/15/2023	74522
Fr	12/08/2023	81841
Fr	12/01/2023	69433
Fr	11/24/2023	85790
Fr	11/17/2023	87539
Fr	11/10/2023	72057
Fr	11/03/2023	79349
Fr	10/27/2023	79913
Fr	10/20/2023	64323

Dec 23, 9am MT

FZWWFST VTXA Inde — 01/01/2020 - 12/22/2023

	Date	FZWWFST VT... Last Px
Fr	12/22/2023	83681
Fr	12/15/2023	76386
Fr	12/08/2023	83255
Fr	12/01/2023	71610
Fr	11/24/2023	87097
Fr	11/17/2023	88086
Fr	11/10/2023	73571
Fr	11/03/2023	80658
Fr	10/27/2023	80145
Fr	10/20/2023	65283
Fr	10/13/2023	73117

Source: Bloomberg, Vortexa

Oil: Vortexa crude oil floating storage WoW changes by regions

Vortexa floating storage by region

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, Dec 29, in total, was revised +5.29 mmb. The main revisions in a region vs the originally posted (as of 9am Dec 30) floating oil storage for Dec 29 were Other revised +3.59 mmb, Europe revised -2.26 mmb, and Asia revised +2.01 mmb. (iii) The major WoW changes by region were Other -5.58 mmb WoW, Europe +3.57 mmb WoW and West Africa -3.10 mmb WoW. (iv) Jan 5 of 77.39 mmb is down a huge 56.01 mmb vs the summer June 23, 2023 peak of 133.40 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 -37.90 mmb and Other -20.95 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 Dec 29 that was posted on Bloomberg at 9am MT on Dec 30.

Figure 44: Vortexa crude oil floating by region

Vortexa Crude Oil Floating Storage by Region (mmb)				Original Posted	Recent Peak	
Region	Jan 5/24	Dec 29/23	WoW	Dec 29/23	Jun 23/23	Jan 5 vs Jun 23
Asia	35.70	35.93	-0.23	33.92	73.60	-37.90
Europe	8.93	5.36	3.57	7.62	6.49	2.44
Middle East	9.58	7.61	1.97	6.41	7.17	2.41
West Africa	2.97	6.07	-3.10	5.31	7.62	-4.65
US Gulf Coast	3.61	1.12	2.49	1.13	0.97	2.64
Other	16.60	22.18	-5.58	18.59	37.55	-20.95
Global Total	77.39	78.27	-0.88	72.98	133.40	-56.01
Vortexa crude oil floating storage posted on Bloomberg 9am MT on Jan 6						
Source: Vortexa, Bloomberg						

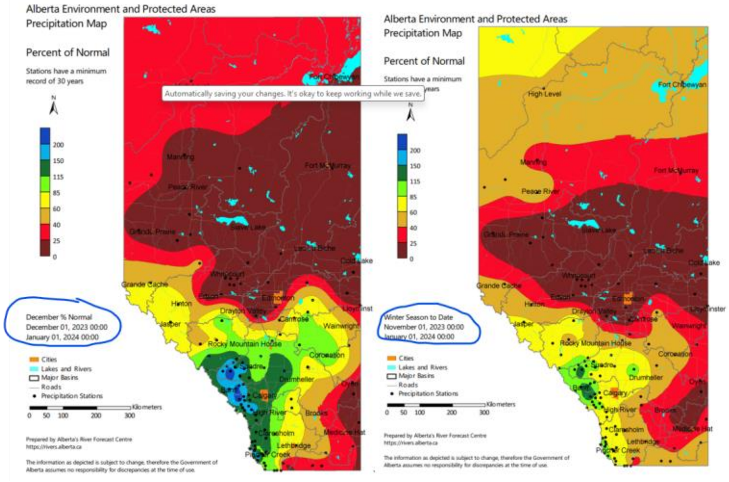
Source: Bloomberg, Vortexa

Oil & Natural Gas: Set up for an early & abrupt end to Cdn winter drilling in Feb/Mar

Risk for abrupt end to winter drilling

We keep warning that we are seeing the set up for an early and abrupt end to the Cdn winter drilling season as its been warmer than normal and accumulated snowfall has been much less than normal. So we won't be surprised to see road bans and an early end to conventional winter drilling in late Feb/early March. Why? The ideal conditions for a long winter drilling season is good sustained cold weather in Nov/early Dec before the snow hits. Good sustained cold will then make sure there is a deep freeze in the ground. The ideal world is to get a good deep freeze first and then lots of snow over the winter. If you get lots of snow, it will act as an insulating blanket to keep the deep freeze in the ground for longer once it gets to end of Feb/early March and frozen ground allows a longer winter drilling season. Conversely, the negative is that you don't have good sustained cold and so you don't get a good deep freeze in the ground. And then you get the snow and that acts as an insulating blanked from any cold in Jan from getting deep int eh ground for a deep freeze. Recall the concept of how you see documentaries on survival in Alaska and how they keep themselves warm by digging out a snow cave. So the problem is that there isn't a deep freeze so when it starts to get warm in late Feb/early March, the snow melts and there isn't a deep freeze and there is an abrupt end to winter drilling season. And the problem is if there isn't much snow, it melts quickly and the ground gets exposed quickly. On Wednesday, we tweeted [LINK] *"Increasing risk for early & abrupt end to Cdn winter #Oil #NatGas drilling season. It's been warm so no deep freeze in the ground. Plus 👇very little snowfall so not much snow insulating blanket so when it turns warmer, the ground will be quickly exposed to sun. #OOTT."* Alberta had just posted the accumulated snowfall for Dec and it was another month of low snowfall that has made the Nov 1 thru Dec 31. Our tweet included the below Alberta precipitation maps for the month of Dec and Nov 1 thru Dec 31.

Figure 45: Alberta % of Normal Precipitation For Dec 2023 and Nov 1-Dec 31, 2023



Source: Alberta River Forecast Centre

Oil & Natural Gas: Lack of precipitation is also bad for 2024 wildfire season

On Wednesday, our second tweet on the Alberta accumulated snowfall was [LINK] "*Other big negative is need to get a lot of snowfall to get more moisture in the ground for agriculture and to reduce the risk of wildfires. We need snow in Alberta!"* We really need a lot of snowfall in Alberta so there can be a big melt and more moisture gets in the ground. The lack of moisture in the ground will create a higher risk for wildfires in the summer and also be a negative for agriculture. There is no doubt that we need a lot more snowfall in Jan, Feb and March in Alberta.

Very little snowfall in Nov/Dec

Oil & Natural Gas: Low water levels can also impact water usage by oil and gas

We remind that any water shortages will also impact oil and gas operations. We have seen this in NE BC when low water levels led to some restrictions on water usage by the oil and gas sector. It is still early but we won't be surprised if there are some water restrictions this summer if we keep seeing the low precipitation for the rest of the winter.

Low water levels can impact oil and gas

Oil & Natural Gas: TIPRO Texas oil and natural gas jobs down MoM in November

On January 4, the Texas Independent Producers and Royalty Owners Association (TIPRO) updated their employment figures for the Texas upstream sector for November [LINK]. November saw a decrease of 800 jobs MoM, and employment is down to 210,700 active jobs across direct oil and gas extraction and services but is still 14,700 more jobs than in November 2022. TIPRO wrote "*TIPRO's new employment data yet again indicated strong job postings for the Texas oil and natural gas industry during the month of November. According to the association, there were 11,907 active unique jobs postings for the Texas oil and natural gas industry in November, including 3,740 new job postings added during the month by companies. In comparison, the state of California had 3,255 unique job postings last month, followed by Oklahoma (1,376), Louisiana (1,819) and Pennsylvania (1,334). TIPRO*

TIPRO November jobs update

reported a total of 51,187 unique job postings nationwide last month within the oil and natural gas sector." Our Supplemental Documents package includes the TIPRO release.

Energy Transition: Europe wind generation +43% YoY to record 62.9 TWh in Dec

Record Europe wind generation in Dec

One of the negatives to Europe natural gas prices in Dec was the record wind generation. It was a good year for Europe wind generation and Dec 2023 was huge month being +43% YoY to 62.9 TWh. On Tuesday, Platts reported "*Europe's December wind output rises 43% on year to record 63 TWh"* [LINK]. Platts wrote "*European wind power production surged in December to a record 62.9 TWh, up 43% year on year, according to daily data by WindEurope. Wind generation averaged 84.5 GW in the month, lifting the 2023 average above 58 GW, up 11% from 2022. Many countries set new peak records during December, while European wind set a new daily output record on Dec. 22, averaging 139 GW. Strong wind drove an increase in negative hourly pricing, while capture prices fell sharply."* Platts also noted "*Meanwhile, wind output is forecast to fall in early 2024 after it fell 15% over Dec. 25-31 from Week 51's all-time high. Germany's output was forecast to fall from above 40 GW on Jan. 3 to around 12 GW by Jan. 6 with similar declines seen across northwest Europe, while Iberia could see rising wind supply, according to spotrenewables.com."* Our Supplemental Documents package includes the Platts report.

Figure 46: Europe monthly wind generation

EUROPEAN MONTHLY WIND GENERATION

(avg GW)	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2020	63	78	56	41	36	32	35	32	37	55	51	58
2021	55	62	55	46	46	29	35	38	34	51	57	63
2022	68	87	52	56	42	35	38	31	42	53	64	59
2023	79	61	76	48	47	34	44	39	42	64	80	85

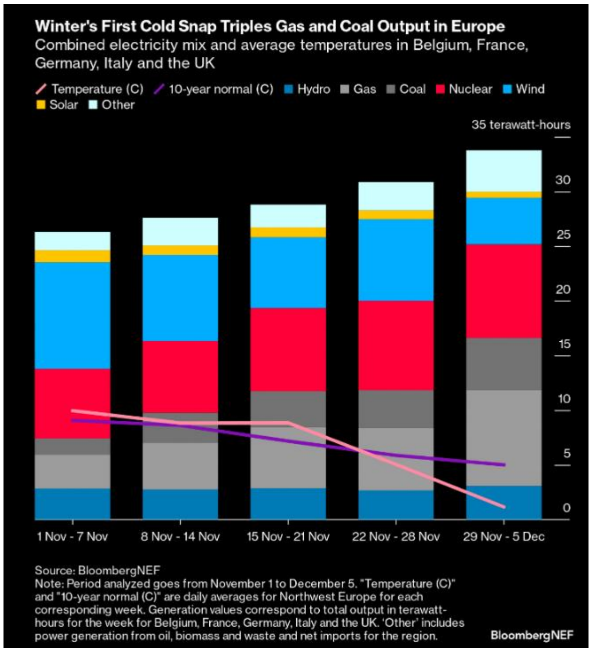
Source: S&P Global Commodity Insights based on WindEurope, TSO data

Source: PLatts

Cold winter temps in EU typically *b*ring decreasing wind generation

Platts didn't mention how weather would have impacted the Dec wind generation. It was warm in Europe for most of December until it turned colder in the last week of December. Platts then highlighted how wind generation was expected lower in Jan. The normal correlation in Europe wind generation is that it goes down when its cold. Here is what we wrote in our Dec 10, 2023 Energy Tidbits memo. "*On Wednesday, we tweeted [LINK] "Europe wind generation 101. Winter: positive correlation. as temps drop, so does wind generation. #NatGaS has been saving the day this week. Good thing for people cold spell is ending & a warm winter is expected. Thx @BloombergNEF Adriana Martins, Andreas Gandolfo #OOTT." BloombergBNEF posted a reported "Winter Cold Snap Triples European Coal and Gas Generation: BNEF." Natural gas and coal have saved the day in Europe with the cold weather. BNEF wrote "The first cold week of the 2023/24 winter saw gas and coal output in Belgium, France, Germany, Italy and the UK rise sharply. Temperatures dropped to* *under 2C — almost 4C below the 10-year average — for the week commencing Nov. 29. This led to a week-on-week rise in electricity demand of 5%, and an accumulated 27% increase since temperatures started dropping at the beginning of November." Besides the tripling of European coal and gas generation, nuclear generation was up 36%, BNEF also noted "nuclear output over the same period rose by 36%, meeting some of the increase in demand." What we also noted was what we called Europe wind generation 101, when BNEF wrote "However, the cold spell also brought with it a halving of output from renewables. As temperatures dropped, wind speeds around Europe dipped. The correlation between wind output and temperature during the winter months — contrary to the summer seasons — is positive. This means as temperatures reduce, wind output is also expected to drop." So getting colder in Europe in the winter typically means less wind electricity generation. Note also they warn about the summer in Europe that when it gets hotter in the summer, it typically means wind generation gets lower. Our Supplemental Documents package includes the BNEF report."*

Figure 47: Winter's First Cold Snap Triples Gas and Coal Output in Europe



Source: BloombergNEF

Energy Transition: UK Labor leader "growing the economy is THE Number One"

UK Labour Leader on the economy

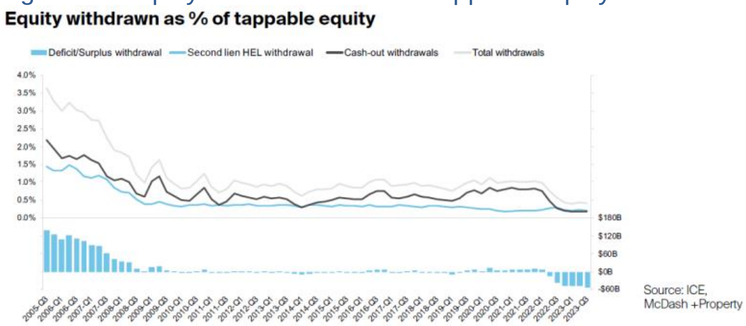
One of our big themes for the last two years has been that western leaders will be shifting away from their huge climate policies as they face the reality that the climate policies are not working anywhere near their plans/aspirations. It's an election year in the UK with the expected election call not being until the fall. But the politicians are already pitching their priorities and policies. And we are seeing the opposition party, the UK Labour Party, back off their climate ambitions. Earlier this morning, we tweeted [LINK] "*Election 101 - It's the* *economy, not #ClimateChange. "Growing the economy is The Number One. The Number One, without that we won't be able to do what we need to do on climate change, on public services. It has to be Number One." UK Labour leader Starmer. Thx @WilfredFrost #OOTT".* Starmer was interviewed on Sky News this morning and clear that growing the economy is The Number One priority. Starmer said "*What I am saying is that we are determined to achieve our mission. We got five missions, five central things that I want an incoming Labour government to achieve. And they will be our priorities. Growing the economy is The Number One. The Number One, without that we won't be able to do what we need to do on climate change, on public services. It has to be Number One*." Starmer, like other politicians, is very good at differentiating their party from the other party even if they are conceptually doing the same things. Starmer was hugely critical of Sunak for being irresponsible in backing off his climate policies. But Starmer said he isn't being irresponsible even if he backed off his clean energy being an outright pledge to an ambition. Our Supplemental Documents package includes the transcript we made on Starmer's comments.

Capital Markets: US home-owners have $250b of "*tappable equity*"

$250b of US home-owner tappable equity

There was a good reminder on Thursday that US home-owners have a lot of untapped equity available in their homes for when interest rates start to fall. It is up to almost $250b and a source of cash that will likely be tapped/spent to some reasonable degree once interest rates fall. On Thursday, we tweeted [LINK] "*Overlooked source of cash for US consumer that will inevitably be unlocked/spent when interest rates drop. @DianaOlick @SquawkCNBC highlighted high rates stopping US home owners from tapping into home equity ie. for home renovations, college, etc. Data from @ICEMortgageTech."* Until we saw the piece on CNBC Squawk Box on Thursday morning, we hadn't focused on how mortgage or finance rates had dramatically stopped US home-owners from borrowing against their home equity for items like home renovations, college costs, etc. Our tweet included the ICE Mortgage Technology data referenced by CNBC. ICE's report "Mortgage Monitor Report: December 2023" wrote "*Only 0.41% of tappable equity available at the start of the quarter was withdrawn in Q3, roughly on par with what we've seen over the previous three quarters, but 55% below the average from 2010-2022 ▪ Those figures suggest elevated interest rates caused homeowners with an existing mortgage to forgo accessing $54B in home equity in Q3 2023 alone, and nearly $250B over the past 18 months ▪ Such deficits are worth watching to see how they may weigh on consumer spending, especially home renovations."* Our Supplemental Documents package includes excerpts from the ICE report.

Figure 48: Equity withdrawn as % of tappable equity



Source: ICE Mortgage Technology

Capital Markets: Calgary real estate remains a sellers market

Calgary real estate market

Calgary had another strong real estate year in 2023 with continued strong real estate prices driven by immigration and a market that is expected to continue to be strong. On Wednesday, the Calgary Herald reported [LINK] "*Calgary's rising housing prices, low inventory likely to persist in 2024: CREB. 'We haven't seen spreads narrow like this ... since 2006,' said the Calgary Real Estate Board's chief economist." "Low inventory and rising prices became common refrains in Calgary's housing market last year — a trend the city's real estate board says will likely continue in 2024. The city's benchmark price landed at $570,100 in December, say new data from the Calgary Real Estate Board (CREB), to end a year in which buyers increasingly shifted toward more affordable apartment-style homes. "A consistent theme throughout 2023 is that we have struggled with supply — especially affordable supply," said Ann-Marie Lurie, CREB's chief economist. Overall, Calgary is averaging a 44 per cent decline in inventory over its 10-year average. That theme is expected to persist among homes where the need is greatest: There's consistently been one month's supply or less for single-detached homes selling for less than $600,000, which Lurie said is around the lower end for Calgary's market. "Conditions are still really tight in the lower end of the market," she said. The same goes for apartment condos: Those going for less than $200,000 have less than a month of supply, and $300,000 to $400,000 units have less than two months of supply. The only segment that improved inventory in 2023 were high-end, single-detached homes going for more than $700,000, Lurie said. "That's where we actually have some supply," she said. Those rising prices for single-detached homes encouraged more buyers to apartments and condominiums, according to the CREB report. Apartment-style properties were the only type to report a gain in sales over 2023, notching a record 7,884 sales — and subsequently resulting in record-high average prices. As of December, apartment and condominium units surpassed Calgary's 2014 record high, hitting $321,400 — a 13 per cent increase over the previous year."* The Calgary Herald also wrote "*Largely thanks to rapid population growth in Alberta over the past two years, Calgary bucked national trends that generally saw major housing markets simmer amid a high-interest environment. The steep increases in interprovincial migration welcomed new buyers who experienced runaway housing prices in provinces such as Ontario and B.C., Lurie said, which helped offset the intended effects of high interest rates."* The Calgary Herald highlighted population growth but didn't specify something all Calgarians have seen – immigration is significant. Our Supplemental Documents package includes the Calgary Herald report.

Canada's population was +430,635 in Q3, +1.03 million in YTD Sept 30

The reason why we highlighted immigration was that Canada has had a record year for international migration and this is driving real estate. Here is what we wrote in our Dec 24, 2023 Energy Tidbits memo. "*On Tuesday, Statistics Canada reported [LINK] Canada's population grew by 430,635 in Q3 to 40,528,396 at Oct 1, 2023. This was +1.1% QoQ, which was the higher percentage increase QoQ since Q2 1957 of +1.25. That brought Canada's total population growth for the first nine months of 2023 to +1,030,378, which has exceeded the record growth for any full year including last year's record growth. What was interesting was that 96.0% (420,728) the total population growth was due to the "international migration". This was split 107,972* *immigrants and 312,758 non-permanent residents. Our Supplemental Documents package includes the Statistics Canada numbers.* "

Reminder immigration forecasts normally exclude non-permanent residents
Here is another item from our Dec 24, 2023 Energy Tidbits memo. "*It is important to remember that most forecasts for Canada's population growth do not include non-permanent residents. Rather the forecasts normally only include growth in immigrants. We find this a little misleading as adding people is adding people to the country and it seems like non-permanent residents are here for much longer than many expect. It isn't unusual to speak to people in the service industry who have been in Canada for more than a decade as non-permanent resident. And in the case of Q3/23, non-permanent residents were 3x the growth of immigrants. It's why, when we saw the Statistics Canada data, we tweeted [LINK] "Reminder why CACdn housing demand keeps surprising to upside. Forecasts for "immigrants" normally do not include "non-permanent residents". There were 3x as many non-permanent residents vs immigrants in Q3/23: 107,972 immigrants vs 312,758 non-permanent residents."*

Canada's house shortfall forecast didn't include non-temporary residents
And this huge increase in international migration is why we worry about the housing forecasts by the Cdn govt agencies. Here is another item from our Dec 24, 2023 Energy Tidbits memo. "*The reason why our Tuesday tweet highlighted how the exclusion of non-permanent residents is a reason why housing demand surprises to the upside is because of the recent forecast by CHMC of housing gap of 3.45 mm housing units by 2030. Here is what we wrote in our Sept 17, 2023 Energy Tidbits memo. "Will Canada be short 3.5mm, 4.0 mm or more housing units by 2030? Canada's housing crisis was elevated in the Cdn press on Thursday with PM Trudeau's speech that included his measure to help build more rental housing with "the federal government: • will incentivize the construction of much-needed rental homes by introducing legislation to remove the Goods and Services Tax (GST) on the construction of new apartment buildings for renters." In the reporting around this issue, the common reporting was on how the CMHC (Canada Mortgage and Housing Corporation) forecast a supply gap of 3.45 million housing units by 2030. This estimate came from the CMHC Sept 13 report "Housing shortages in Canada. Updating how much housing we need by 2030". We had reviewed the short report when it came out so we were concerned that everyone was using the CMHC 3.45 million number as the shortfall of housing units. It is their baseline forecast but that forecast and their high case forecast both look low when you look at their key assumptions. Any analyst will tell you a forecast is only as good as its assumptions. So we tweeted [LINK] "Canada housing shortage. Don't have to be a housing analyst or demographer to read CHMC assumptions & think high case 4.01 mm short might be better than base case 3.45 mm short. Base and even high case are way less than 2022 immigrant & non-permanent resident levels." The CMHC base forecast assumes lower immigration numbers after 2025 because the Govt of Canada doesn't have formal immigration targets post 2025. [Note the current immigration targets are higher in 2024 and again higher in 2025] The CMHC wrote "The government has not yet determined the long-term level of immigration until 2030. For this reason,*

Statistics Canada and Oxford Economics project a relatively sharp decline in growth in the overall population in the years up to 2030. As a result, in this year's analysis, Canada's projected 2030 population of around 43 million people isn't significantly higher than last year's projection." And even in their high case of 4.01 mm housing units short, they use 600,000 to 700,000 immigrants per year as the number. Our concern on the high case is that it seems to infer that they aren't including temporary or non-permanent residents as the Govt of Canada immigration targets are for permanent immigrants ie. excluding temporary or non-permanent residents. In 2022, Canada had 437,180 immigrants and 607,782 non permanent residents. On March 22, 2023, Statistics Canada wrote ""For the year 2022, Canada welcomed 437,180 immigrants and saw a net increase of the number of non-permanent residents estimated at 607,782. Both of these numbers represent the highest levels on record, reflecting higher immigration targets and a record-breaking year for the processing of immigration applications at Immigration, Refugees and Citizenship Canada. The estimated gains in non-permanent residents recorded for 2022 are the highest for a single calendar year for which comparable data are available. Furthermore, it is the first time these gains are superior to those from immigrants over the same period." .

Figure 49: Supply gaps by scenario, 2030, millions of housing units

Table 5: Supply gaps by scenario, 2030, millions of housing units

	Baseline	Low-economic-growth	High-population-growth
Ontario	1.48	1.31	1.65
Quebec	0.86	0.77	1.09
British Columbia	0.61	0.55	0.69
Alberta	0.13	0.13	0.17
Manitoba	0.17	0.15	0.18
Saskatchewan	0.06	0.06	0.08
Nova Scotia	0.07	0.06	0.07
New Brunswick	-	-	-
Newfoundland and Labrador	0.06	0.03	0.07
Prince Edward Island	-	-	-
Canada	3.45	3.07	4.01

Source: CMHC calculations. Numbers may not add up because of rounding.

Source: CMHC

Demographics: Putin's push for babies, declares 2024 the 'Year of the Family"

Putin's push for more babies

Putin's greatest concern pre-Ukraine was Russia's shrinking population and it continues to be his big concern. Putin wasn't as blunt as his Nov 28 but there is no mistaking that he wants Russian women to have more babies. Putin, like other world leaders, gave his New Year Address to the Nation on New Year's Eve. [LINK] It was a short speech but he highlighted 2024 will be the Year of the Family and "a true big family is of course a family with children. He wants families to have lots of kids. Putin said "*The upcoming year of 2024 has been declared the Year of the Family in our country. And a true big family is of course a family with children, where you find care and attention, warm-heartedness and support for the parents, love and respect for each other. This kind of generational kinship and love of one's home fosters devotion to the Motherland."* Our Supplemental Documents package includes the Putin address.

Putin wants Russian women revive having 7, 8 or even more children
Here is what we wrote in our Dec 3, 2023 Energy Tidbits memo. "*It didn't get a lot of attention but, on Tuesday, Putin stressed that Russia had to overcome "the daunting demographic challenges". Even before the casualties from the Russia/Ukraine war, Russia had a shrinking population. Putin said "preserving and increasing the population of Russia is our goal for the coming decades and even generations ahead". On Tuesday, Putin said the key was to preserve and revive the excellent tradition of Russian families when grandmothers and great-grandmothers has seven, eight or even more children. On Tuesday, Putin, via videoconference, "addressed the plenary session of the World Russian People's Council. The key topic of the forum, dedicated to the 30th anniversary of the organisation's establishment, is the Present and Future of the Russian World." [LINK] A couple of his key sentences were "Thankfully, many of our ethnic groups have preserved the tradition of having strong multigenerational families with four, five, or even more children. Let us remember that Russian families, many of our grandmothers and great-grandmothers had seven, eight, or even more children. Let us preserve and revive these excellent traditions. Large families must become the norm, a way of life for all Russia's peoples. The family is not just the foundation of the state and society, it is a spiritual phenomenon, a source of morality." There were more comments on this goal. Our Supplemental Documents package includes the transcript of Putin's address.* "

Russia's shrinking population was Putin's greatest concern pre-Ukraine
Putin's focus on Russians having bigger families is not a new focus and not a new focus post Ukraine. Rather Russian's shrinking population, pre-Ukraine, was his greatest concern. Here is what we wrote in our Dec 26, 2021 Energy Tidbits memo. "*Putin's big press conference comments on Russia's population reminded us of an item we forgot to include in our Dec 5, 2021 Energy Tidbits – Putin's greatest concern is the shrinking Russia population. This week, Putin noted "There are issues that cannot but cause concern, including life expectancy, which has slightly decreased from 71.5 to 70.1 years." The item we forgot to include was Putin's comments at the "Russia Calling! Investment Forum" on Nov 30. [LINK]. Putin was asked "What keeps you awake at night?" In the sense, "What is your greatest concern?". Putin responds "We have domestic issues typical of Russia, primarily demographic problems. We had two natural declines in our demographic development: during World War II or the Great Patriotic War, as we call it, in 1943–1944, and in the early and middle 1990s after the collapse of the Soviet Union. There was an equal drop in the birth rate. It was the lowest in 1999 – I believe a little over 1,200,000. In 2006, we already had almost two million births – more than 1,900,000. This problem has acquired a systemic and economic character due to the shortage of workforce in the labour market. We have a little over 80 million there and our losses amount to 1.1–1.2 percent a year. In this context, demographics is one of our main problems both for humanitarian and economic considerations, and because we need to strengthen our statehood as well. I will not enumerate all the measures and instruments we are using and intend to continue using in the future in order to tackle this problem. In general, we managed to get things moving in the recent past. Overall, we understand what we can do and know how to do it."*

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

@Energy_Tidbits on Twitter

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

LinkedIn: Look for quick energy items from me on LinkedIn

Look for energy items 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].

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.

Door blows off Alaska Airlines Flight 1282 737 MAX 9, no one seriously hurt

The good news is that no one was reportedly seriously hurt in the Friday night Alaska Airlines 737 MAX 9 that had a door blow off 20 minutes into the flight. Yesterday, we tweeted [LINK] "*The Big Guy upstairs was looking out for the people on this Alaska Airlines flight - reportedly no serious injuries and, most of all, no one was sitting in the window seat in a plane with over 170 passengers*!" Our tweet include a video of the plane about to land with the door blown off. Alaska Airlines CEO tweeted [LINK] they are inspecting all of the 737 MAX 9 and expect it will be complete in the next few days. Alaska Airlines has 65 737 MAX 9 in their fleet. Last night, the FAA tweeted [LINK] "*The FAA is requiring immediate inspections of certain Boeing 737 MAX 9 planes before they can return to flight"* this Emergency Airworthiness Directive will affect ~171 airplanes worldwide. Our Supplemental Documents package includes the Alaska Airlines fleet as of Dec 31, 2023. [LINK]

Figure 50: Alaska Airlines 737 MAX 9

Source: 9News Australia

It's the economy Stupid

We chose not to include the comment "it's the economy, Stupid" in our tweet this morning on UK Labour Leader Starmer's comments as we didn't want to have people thinking we calling Starmer stupid. But it is a classic election mantra that is generally attributed to James Carville, who was Bill Clinton's campaign manager. Wikipedia writes "*The economy, stupid" is a phrase that was coined by James Carville in 1992. It is often quoted from a televised quip by Carville as "It's the economy, stupid." Carville was a strategist in Bill Clinton's successful 1992 U.S. presidential election against incumbent George H. W. Bush. His phrase was directed at the campaign's workers and intended as one of three messages for them to focus on. The others were "Change vs. more of the same" and "Don't forget health care." Clinton's campaign advantageously used the then-prevailing recession in the United States as one of the campaign's means to successfully unseat George H. W. Bush. In March 1991, days after the ground war in Kuwait, 90% of polled Americans approved of President Bush's job performance.[1] During the following year, Americans' opinions turned sharply; 64% of polled Americans disapproved of Bush's job performance in August 1992.[1]*"