Energy Tidbits

December 10, 2023

Produced by: Dan Tsubouchi

Liberal's Proposes Cap on GHG Emissions at 35-38% Below 2019 Levels on Oil & Gas Would be a Huge Impact on the Sector

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. Many big questions emerge from the Liberals proposing a cap on GHG emissions at 35-38% below 2019 levels on the oil and gas sector. [click here]

2. Houthis are now warning any ships of any nationality in Red Sea that are heading to Israel. [click here]

3. Saudi Energy Minister Abdulaziz wasn't successful in convincing markets that the 2.2 mmb/d OPEC+ cut would lead to no growth in global oil stocks in Q1/24. [click here]

4. Continued forecasts for a much wamer than normal December are a negative to HH gas prices. [click here]

5. We expect COP28 to run later and look for a large number of qualifiers and outs in the final COP28 statement. [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. [click here]

7. For new readers to our Energy Tidbits and our blogs, you will need to sign up at our blog sign up to receive future Energy Tidbits memos. The sign up is available at [LINK].

Dan Tsubouchi	Ryan Dunfield	Aaron Bunting	Ryan Haughn
Chief Market Strategist	CEO	COO, CFO	Managing Director
dtsubouchi@safgroup.ca	rdunfield@safgroup.ca	abunting@safgroup.ca	rhaughn@safgroup.ca

Table of Contents

Natural Gas: -117 bcf draw from US gas storage; now +254 bcf YoY surplus

US gas storage +254 bcf YoY surplus

After last week's gas injection, this week storage saw a draw. For the week of Dec 1, the EIA reported a -117 bcf draw (vs expectations of -109 bcf draw) and a YoY decrease compared to the -21 bcf draw reported for the week of Dec 2, 2022. Recall that it started to turn to warmer than normal temperatures in Dec 2022. Total storage is now 3.719 tcf, representing a surplus of +254 bcf YoY compared to a surplus of +341 bcf last week. Total storage is +234 bcf above the 5-year average, up from the +303 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

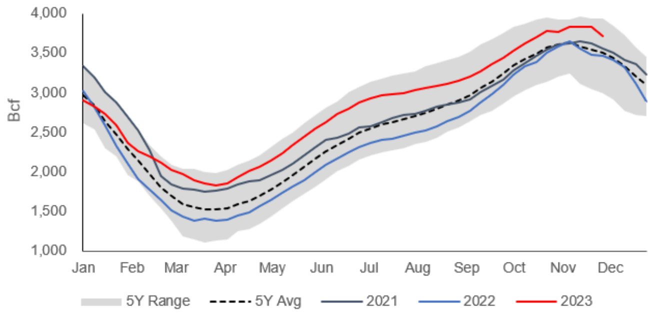
Working gas in underground storage, Lower 48 states — Summary text CSV JSN

	Stocks billion cubic feet (Bcf)				Historical Comparisons: Year ago (12/01/22)		Historical Comparisons: 5-year average (2018-22)	
Region	12/01/23	11/24/23	net change	implied flow	Bcf	% change	Bcf	% change
East	876	915	-39	-39	835	4.9	848	3.3
Midwest	1,082	1,111	-29	-29	1,030	5.0	1,021	6.0
Mountain	245	252	-7	-7	194	26.3	200	22.5
Pacific	289	298	-9	-9	218	32.6	266	8.6
South Central	1,228	1,260	-32	-32	1,190	3.2	1,150	6.8
Salt	334	343	-9	-9	325	2.8	320	4.4
Nonsalt	894	917	-23	-23	864	3.5	829	7.8
Total	**3,719**	**3,836**	**-117**	**-117**	**3,465**	**7.3**	**3,485**	**6.7**

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

Source: EIA

Figure 2: US Natural Gas Storage – Historical vs Current



Source: EIA, SAF

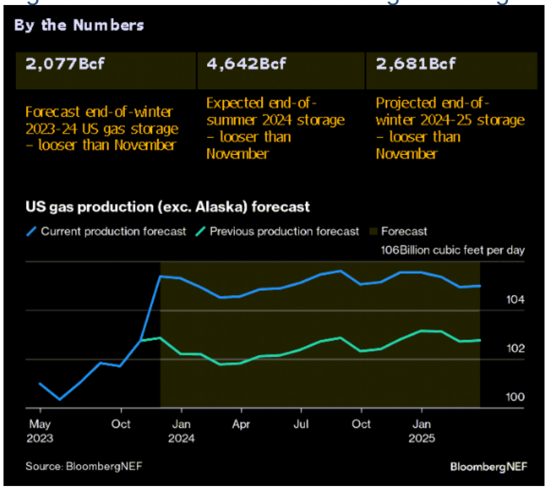
Natural Gas: BNEF increases US gas storage to 2.077 tcf at 03/31/24, +227 bcf YoY

BNEF forecasts higher storage

We have been warning that a warm start to winter means it has to get colder in Jan/Feb to avoid a weak winter natural gas season that impacts natural gas prices for several months. We don't have a model that equates heating degree days to US natural gas consumption but, BloombergNEF does. On Thursday, BloombergNEF posted its monthly forecast for US gas storage and they have increased their forecast for gas storage to end winter 2023/24 to 2.077 tcf at March 31, 2024, which would be +227 bcf YoY. The key factor to the increase is the mild temperatures so far, which increased their forecast by 109 bcf. BNEF wrote "*December is forecast to deliver 57 heating degree days below normal. This results in expected heating demand for the month that is 3.5 billion cubic feet per day (Bcf/d) below the last report's.*"

The 2nd factor is highe than expected US natural gas production that increased their forecast by 84 bcf. BNEF wrote "*US gas production (excluding Alaska) saw a massive 2.6Bcf/d month-on-month increase in November following a 1.0Bcf/d jump in October. BNEF has updated its production forecast to reflect the rapid increase and now expects 2024 to average 105.1Bcf/d, 2.7Bcf/d above our previous report*.* Our Supplemental Documents package the BNEF story.

Figure 3: BNEF forecast natural gas storage



Source: BloombergNEF

EIA STEO forecasts Apr 1/24 storage 1.994 tcf, +0.01 tcf vs Oct STEO

The EIA is to post its monthly Short Term Energy Outlook on Tuesday and we would expect, given the warm start to Dec, the EIA will, be like Bloomberg an dincrease its forecast for gas storage to end winter 2023/24. Here is what we wrote in our Nov 12, 2023 Energy Tidbits memo on the EIA's STEO Nov. "Given the continued strong YoY increase in forecast US gas production, the EIA Oct STEO increased its forecast for storage to end winter 2023/24. (i) The EIA STEO also forecasts US gas storage. Gas storage started the summer 2023 refill season at 1.850 tcf on April 1, 2023, which was +0.448 tcf YoY. For the summer 2023 draw season, the EIA forecasts storage on Nov 1, 2023 at 3.835 tcf, which is +0.266 tcf YoY but down vs Oct STEO of 3.854 tcf. (ii) The increasing US natural gas production has a bigger impact on storage to end winter 2023/24. The EIA forecasts gas storage to end the winter at 1.993 bcf, which would be +0.144 tcf YoY and up vs Oct STEO of 1.982 tcf. Below is a table tracking the working gas inventory forecasts and actuals since 2016."

Figure 4: EIA STEO US Natural Gas in Storage (2016-2024)

	Storage	2016-2024				
	Level	Low	High	Range	Average	Deviation
Mar 2016	2,486.3	1,184.9	2,486.3	1,301.4	1,835.6	35.4%
Oct 2016	4,012.7	3,236.3	4,012.7	776.4	3,624.5	10.7%
Mar 2017	2,062.5	1,184.9	2,486.3	1,301.4	1,835.6	12.4%
Oct 2017	3,816.5	3,236.3	4,012.7	776.4	3,624.5	5.3%
Mar 2018	1,390.3	1,184.9	2,486.3	1,301.4	1,835.6	-24.3%
Oct 2018	3,236.3	3,236.3	4,012.7	776.4	3,624.5	-10.7%
Mar 2019	1,184.9	1,184.9	2,486.3	1,301.4	1,835.6	-35.4%
Oct 2019	3,762.0	3,236.3	4,012.7	776.4	3,624.5	3.8%
Mar 2020	2,029.4	1,184.9	2,486.3	1,301.4	1,835.6	10.6%
Oct 2020	3,928.5	3,236.3	4,012.7	776.4	3,624.5	8.4%
Mar 2021	1,801.2	1,184.9	2,486.3	1,301.4	1,835.6	-1.9%
Oct 2021	3,665.4	3,236.3	4,012.7	776.4	3,624.5	1.1%
Mar 2022	1,401.5	1,184.9	2,486.3	1,301.4	1,835.6	-23.7%
Oct 2022	3,569.4	3,236.3	4,012.7	776.4	3,624.5	-1.5%
Mar 2023	1,849.6	1,184.9	2,486.3	1,301.4	1,835.6	0.8%
Oct 2023	3,835.4	3,236.3	4,012.7	776.4	3,624.5	5.8%
Mar 2024	1,993.8	1,184.9	2,486.3	1,301.4	1,835.6	8.6%
Oct 2024	4,010.6	3,236.3	4,012.7	776.4	3,624.5	10.7%

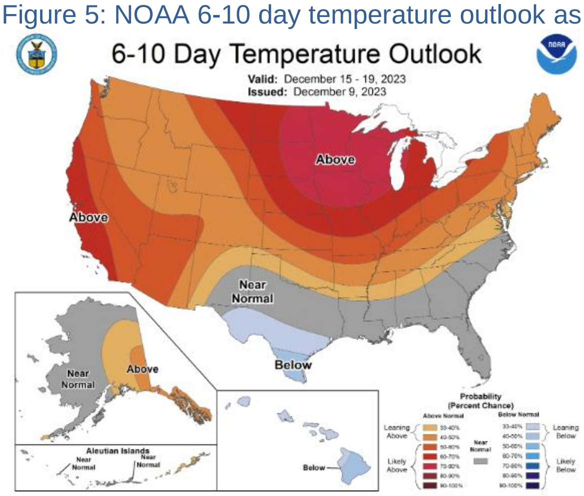
Source: EIA, STEO

Natural Gas: NOAA calls for much warmer than normal temps to Xmas

Warmer than normal in the US

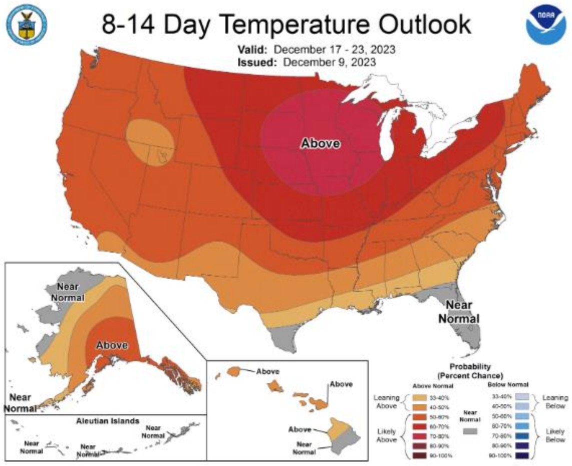
Yesterday, we tweeted [LINK] "*Negative for HH #NatGas prices. Today's @NOAA 6-10 & 8-14 day temp outlook still call for much warmer than normal temps for Dec 9-23. A warm start to winter is difficult, but not impossible to catch up, BUT will need a cold Jan! #OOTT.*" Dec is the first crucial month for weather driven natural gas demand and it continues to look like a warmer than normal start to winter. Our concern is always that a warmer than normal start to winter makes it really tough, but not impossible to catch up up. And a warmer than normal winter can effective cap natural gas prices for mosf of the year, as seen in 2023. NOAA provides On Friday, NOAA posted its monthly temperature outlook for Dec and it stil expects a warmer than normal Dec across almost all of the US including all the key natural gas home heating regions. Below is the NOAA Monthly Temperature Outlook memp for Dec. [LINK]

Figure 5: NOAA 6-10 day temperature outlook as of Dec 9



Source: NOAA

Figure 6: NOAA 8-14 day temperature outlook as of Dec 9



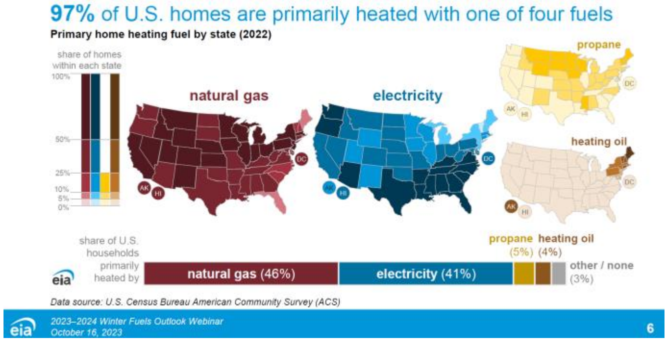
Source: NOAA

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

Natural gas home heating

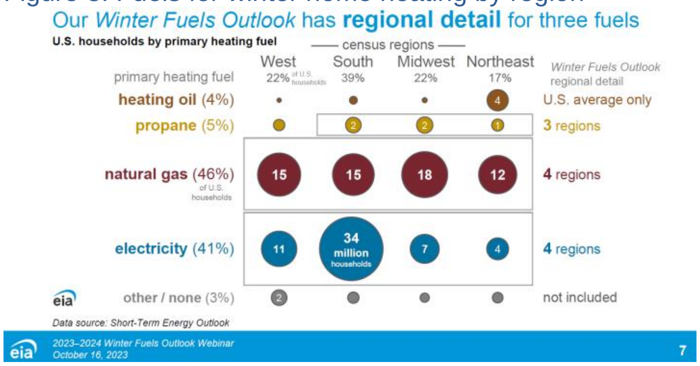
Here is what we wrote in our Nov 19, 2023 Energy Tidbits memo on overview of US home heating by fuel. "*Our primary focus for winter weather tends to be in the US NE and around the Great Lakes for the combination of population density, areas that have colder winters, and a higher percentage of the US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

Figure 7: Fuels for winter home heating of US homes



Source: EIA

Figure 8: Fuels for winter home heating by region



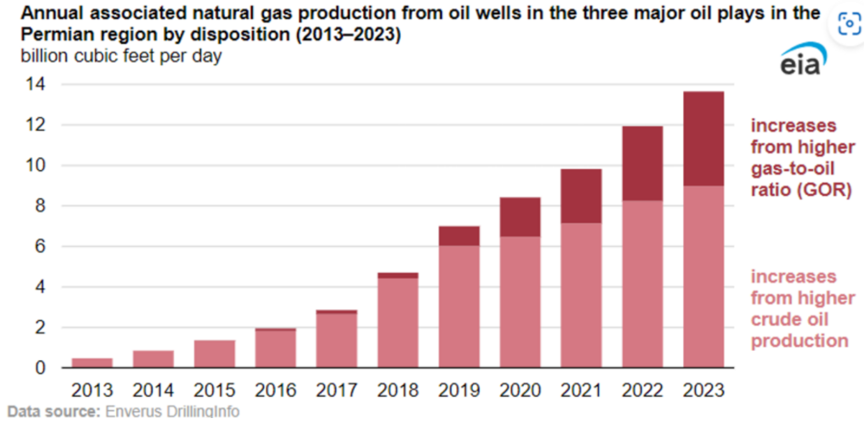
Source: EIA

Natural Gas: Increasing gas/oil ratio in Permian "oil' wells

Associated gas in Permian "oil" wells

For years, we have reminded that all of the major tight/shale "oil" plays in the US are oil wells that produce associated natural gas and NGLs. And that, as the wells age and lose pressure, these wells see increasing gas-to-oil ratio. On Wednesday, the EIA posted its blog "*Associated natural gas production has tripled since 2018 in top three Permian oil plays*" [LINK]. The EIA explained increase gas-to-oil ratio "*As more oil and natural gas are released within a well, the GOR tends to progressively increase, increasing the volume of associated natural gas produced per every barrel of oil. Pressure within the reservoir declines progressively as more oil is brought to the surface, which allows more natural gas to be released from the geologic formation."* On the Permian, the EIA writes "*Production of associated-dissolved natural gas, or associated natural gas, which is natural gas produced from predominantly oil wells, has nearly tripled since 2018 in the three top-producing tight oil plays in the Permian region. Associated natural gas from the Wolfcamp, Spraberry, and Bone Spring plays averaged a combined 13.7 billion cubic feet per day (Bcf/d) in the first seven months of 2023, up from an average of 4.7 Bcf/d in 2018, according to data from Enverus DrillingInfo. Associated natural gas production has grown due to increases in both crude oil production and the volume of natural gas per barrel of oil that a well produces, the gas-to-oil ratio (GOR), among the oil wells in these three plays."* Below is the EIA's Permian associated natural gas production graph from the Permian showing the impact of the increasing gas-to-oil ratio. Our Supplemental Documents package includes the EIA blog.

Figure 9: Associated natural gas and gas-to-oil ratio in Permian



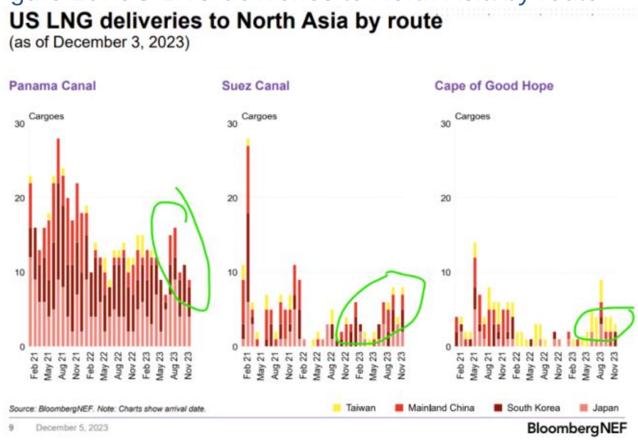
Source: EIA

More US LNG forced away from Panama Canal

Natural Gas: Panama Canal drought means US LNG takes longer to get to Asia

There are no signs that the Panama Canal drought problem and big reduction in ships is going to change in near term. One of the many impacts is forcing more US LNG from the Gulf Coast to take a longer route to Asia via the Suez Canal or Cape of Good Hope. On Tuesday, we tweeted [LINK] "*Panama Canal Traffic Jam. @BloombergNEF: More US #LNG to Asia having to take longer voyage time via Suez Canal or Cape of Good Hope. See 👇 @SPGlobal comparative tanker shipping voyage times. #OOTT.*" Our tweet included graphs from BloombergNEF's LNG Trade Weekly that showed US LNG deliveries to North Asia by route were decreasing via Panama Canal and increasing by the Suez Canal. We also included an item from our Dec 12, 2021 Energy Tidbits memo, the Platts table of Comparative LNG tanker shipping days to Asia. It shows the Suez Canal route adds 13 days to Japan/Korea and 4 days to South China/Taiwan.

Figure 10: US LNG deliveries to North Asia by route



Source: BloombergNEF

Figure 11: Comparative LNG tanker voyage days

Excerpt SAF Group Dec 12, 2021 Energy Tidbits Memo https://safgroup.ca/news-insights/

Figure 11: Comparative LNG tanker shipping days to China

	Japan/Korea	SChina/ Taiwan	West India	Southwest Europe	Northwest Europe	Northeast US	Argentina	Brazil	Egypt
Middle East	15	13	3	13*	16*	22*	21	24	8
Australia	9	7	9	21*	24*	29	21	25	15
Trinidad	33*	31*	22*	9	9	5	11	7	14*
Trinidad (via Panama Canal)	22**	27**							
Trinidad (most economic)	lower of above 2								
Nigeria	26	23	17	9	10	13	11	9	14*
Algeria	24*	22*	13*	1	4	9	14	12	5*
Belgium	28*	25*	16*	3	N/A	8	16	14	8*
Peru	21	24	27	23	24	24	9	14	29
Russia	3	5	15	27*	29*	35*	27	37	21
Spain	25*	22*	14*	N/A	3	7	14	11	5*
Norway	32*	28*	20*	6	3	9	19	18	12*
Sabine Pass (most economic)	lower of below 2, until Panama Canal starts	lower of below 2, until Panama Canal starts	lower of below 2, until Panama Canal starts	12	12	N/A	17	13	
Sabine Pass (via Suez Canal)	36*	32*	24*	N/A	N/A	N/A	N/A	N/A	17*
Sabine Pass (via Cape)	38	35	31	N/A	N/A	N/A	N/A	N/A	31
Sabine Pass (via Panama Canal)	23**	28**	N/A	N/A	N/A	N/A	N/A	N/A	

* Route uses Suez canal, adds one day extra for shipping and 24 cents/MMBtu for canal fees ** Route uses Panama canal, adds 21 cents/MMBtu for canal fees

Source: Platts

Source: Platts

LNG Canada 1.8 bcf/d Phase 2

Natural Gas: Will Canada GHC cap pause a Shell FID on LNG Canda 1.8 bcf/d Phase 2
Earlier this morning, we tweeted [LINK] "*Many big questions to be answered. 2030 is only 6 year away! Liberals "proposes to cap [GHG] 2030 emissions at 35 to 38 percent below 2019 levels" on Cdn #Oil #NatGas. If production gets effectively capped, how can this not impact future #LNG #Oil export growth? #OOTT.*" Later in the memo, we discuss the Liberals new proposed GHG cap on the oil and gas sector at 35-38% below 2019 levels by 2030. This is a proposal which is means an opening negotiation point. But assuming it doesn't get changed, it will work to be an effective cap on Cdn oil and gas production. There are cap and trade options but that just adds to the cost and there are always limits to cap and trade volumes. One of the obvious questions is what does this mean to any Shell FID of LNG Canada's 1.8 bcf/ Phase 2. We have to believe it would be impossible for this FID to happen until there is some better understanding of what will be the final GHG cap limits and timing, and how that will be determined back to projects.

Natural Gas: Woodside and Mexico Pacific sign 20-yr long term LNG deal

Long-term LNG deal

There was a significant slowdown in long-term LNG deals in since the end of H1/22 compared to the activity seen from July 1, 2021 through June 30, 2022. That's because most, if not all the available long term LNG supply available before 2026 was locked up in the July 1, 2021 through June 30, 2022 rush. Since that first rush, there have been a few new developments. The long-term deals now being done are generally for long-term supply starting in 2026 or later. There have been some very long-term LNG deals even out past 2050. And the big LNG suppliers have been stepping in more to lock up other long-term LNG supply to add to their supply portfolio to be able to use to supply to their customers. (i) On Wednesday, Mexico Pacific Ltd announced they signed a long-term 20-year LNG supply deal with Woodside [LINK], whereby Woodside will purchase 0.17 bcf/d for 20 years expected to begin in 2024 after an FID is made by Mexico Pacific on the proposed third train at their Saguaro LNG Project. Woodside CEO Meg O'Neill, said*: "As we deliver on our strategy, we aim to complement Woodside's produced LNG supply with third parties' volumes, giving us greater scale and portfolio flexibility to serve our customers, while optimising our LNG trading activities. This agreement with Mexico Pacific delivers a new source of LNG into our trading portfolio, expands our geographic diversification in the Pacific Basin and builds on our presence in Mexico. The Saguaro Energia LNG Project is located on Mexico's Pacific coast, providing proximity to key markets in Asia*. Woodside is a major global LNG supplier who is adding the Mexico Pacific LNG supply to its portfolio so it can supply to its customers. This gives them the flexibility to have other LNG supply in the event of outages in their own LNG supply projects. Our supplemental documents package contains the news release.

There have been 19.36 bcf/d of long-term LNG supply deals since July 1, 2021

We first highlighted this abrupt shift to long term LNG supply deals in our July 14, 2021 8-pg "*Asian LNG Buyers Abruptly Change and Lock in Long Term Supply – Validates Supply Gap, Provides Support For Brownfield LNG FIDs".* We included a table of the deals done in that short two week period. We continue to update that table, which now shows 19.19 bcf/d of long-term LNG deals since July 1, 2021. 60% of the deals have been by Asian LNG buyers, but we are now seeing rest of world locking up long term supply deals post Russia/Ukraine. Note in our non-Asian LNG deals will major LNG players (ie. Chevron, Shell, etc) buying for their LNG portfolio supply. China has been particularly active in this space, accounting for 65% of all Asian LNG buyers in long term contracts since July 1, 2021. Below is our updated table of Asian and Europe LNG buyers new long-term supply deals since July 1, 2021. Our Supplemental Documents package includes our July 14, 2021 blog.

Figure 12: Long-Term LNG Buyer Deals Since July 1, 2021

Long-Term LNG Buyer Deals Since July 1, 2021							
Date	Buyer	Seller	Country Buyer / Seller	Volume (bcf/d)	Duration Years	Start	End
Asian LNG Deals							
Jul 7, 2021	CNOOC	Petronas	China / Canada	0.30	10.0	2022	2032
Jul 9, 2021	CPC	QatarEnergy	Taiwan / Qatar	0.16	15.0	2022	2037
Jul 9, 2021	Guangzhou Gas	BP	China / US	0.13	12.0	2022	2034
Jul 12, 2021	Korea Gas	QatarEnergy	Korea / Qatar	0.25	20.0	2025	2045
Sep 29, 2021	CNOOC	QatarEnergy	China / Qatar	0.50	15.0	2022	2037
Oct 7, 2021	Shenzhen	BP	China / US	0.04	10.0	2023	2032
Oct 11, 2021	ENN	Cheniere	China / US	0.12	13.0	2022	2035
Nov 4, 2021	Unipec	Venture Global LNG	China / US	0.46	20.0	2023	2043
Nov 4, 2021	Sinopec	Venture Global LNG	China / US	0.53	20.0	2023	2043
Nov 5, 2021	Sinochem	Cheniere	China / US	0.12	17.5	2022	2040
Nov 22, 2021	Foran	Cheniere	China / US	0.04	20.0	2023	2043
Dec 6, 2021	Guangdong Energy	QatarEnergy	China / Qatar	0.13	10.0	2024	2034
Dec 8, 2021	S&T International	QatarEnergy	China / Qatar	0.13	15.0	2022	2037
Dec 10, 2021	Suntien Green Energy	QatarEnergy	China / Qatar	0.13	15.0	2022	2037
Dec 15, 2021	SPIC Guangdong	BP	China / US	0.03	10.0	2023	2033
Dec 20, 2021	CNOOC Gas & Power	Venture Global LNG	China / US	0.26	20.0	2023	2043
Dec 29, 2021	Foran	BP	China / US	0.01	10.0	2023	2032
Jan 11, 2022	ENN	Novatek	China / Russia	0.08	11.0	2024	2035
Jan 11, 2022	Zhejiang Energy	Novatek	China / Russia	0.13	15.0	2024	2039
Feb 4, 2022	CNPC	Gazprom	China / Russia	0.98	30.0	2023	2053
Mar 24, 2022	Guangdong Energy	NextDecade	China / US	0.20	20.0	2026	2046
Mar 29, 2022	ENN	Energy Transfer	China / US	0.36	20.0	2026	2046
Apr 1, 2022	Guangzhou Gas	Mexico Pacific Ltd	China / Mexico	0.26	20.0	n.a.	n.a.
Apr 6, 2022	ENN	NextDecade	China / US	0.26	20.0	2026	2026
Apr 22, 2022	Kogas	BP	Korea / US	0.20	18.0	2025	2043
May 2, 2022	Gunvor Singapore Pte	Energy Transfer LNG	Singapore / US	0.26	20.0	2026	2046
May 3, 2022	SK Gas Trading LLC	Energy Transfer LNG	Korea / US	0.05	18.0	2026	2042
May 10, 2022	Exxon Asia Pacific	Venture Global LNG	Singapore / US	0.26	n.a.	n.a.	n.a.
May 11, 2022	Petronas LNG	Venture Global LNG	Malaysia / US	0.13	20.0	n.a.	n.a.
May 24, 2022	Hanwha Energy	TotalEnergies	Korea / France	0.08	15.0	2024	2039
May 25, 2022	POSCO International	Cheniere	Korea / US	0.05	20.0	2026	2036
June 5, 2022	China Gas Holdings	Energy Transfer	China / US	0.09	25.0	2026	2051
Jul 5, 2022	China Gas Holdings	NextDecade	China / US	0.13	20.0	2027	2047
Jul 20, 2022	PetroChina	Cheniere	China / US	0.24	24.0	2026	2050
Jul 26, 2022	PTT Global	Cheniere	Thailand / US	0.13	20.0	2026	2046
Jul 27, 2022	Exxon Asia Pacific	NextDecade	Singapore / US	0.13	20.0	2026	2046
Sep 2, 2022	Woodside Singapore	Commonwealth	Singapore / US	0.33	20.0	2026	2046
Nov 21, 2022	Sinopec	QatarEnergy	China / Qatar	0.53	27.0	2026	2053
Dec 26, 2022	INPEX	Venture Global LNG	Japan / US	0.13	20.0	n.a.	n.a.
Dec 27, 2022	JERA	Oman LNG	Japan / Oman	0.11	10.0	2025	2035
Jan 19, 2023	ITOCHU	NextDecade	Japan / US	0.13	15.0	n.a.	n.a.
Feb 7, 2023	Exxon Asia Pacific	Mexico Pacific Ltd	Singapore / Mexico	0.26	20.0	n.a.	n.a.
Feb 23, 2023	China Gas Holdings	Venture Global LNG	China / US	0.26	20.0	n.a.	n.a.
Mar 6, 2023	Gunvor Singapore Pte	Chesapeake Energy	Singapore / US	0.26	15.0	2027	2042
Apr 25, 2023	JERA	Venture Global LNG	Japan / US	0.13	20.0	n.a.	n.a.
May 16, 2023	KOSPO	Cheniere	Korea / US	0.05	19.0	2027	2046
Jun 1, 2023	Bangladesh Oil	QatarEnergy	Bangladesh / Qatar	0.24	15.0	2026	2031
Jun 21, 2023	Petro Bangla	Oman	Bangladesh / Oman	0.20	10.0	2026	2036
Jun 21, 2023	CNPC	QatarEnergy	China / Qatar	0.53	27.0	2027	2054
Jun 26, 2023	ENN LNG	Cheniere	Singapore / US	0.24	20.0	2026	2046
Jul 5, 2023	Zhejiang Energy	Mexico Pacific Ltd	China / Mexico	0.13	20.0	2027	2047
Aug 8, 2023	LNG Japan	Woodside	Japan / Australia	0.12	10.0	2026	2036
Sep 7, 2023	Petrochina	ADNOC	China / UAE	n.a.	n.a.	n.a.	n.a.
Nov 2, 2023	Foran	Cheniere	China / US	0.12	20.0	n.a.	n.a.
Nov 4, 2023	Sinopec	QatarEnergy	China/Qatar	0.39	27.0	2026	2053
Nov 27, 2023	Gunvor Singapore Pte	Delfin Midstream	Singapore / US	0.10	15.0	n.a.	n.a.
Total Asian LNG Buyers New Long Term Contracts Since Jul/21				**11.63**			
Non-Asian LNG Deals							
Jul 26, 2021	PGNiG	Venture Global LNG	Poland / US	0.26	20.0	2023	2043
Nov 12, 2021	Engie	Cheniere	France / US	0.11	20.0	2021	2041
Mar 7, 2022	Shell	Venture Global LNG	US / US	0.26	20.0	2024	2044
Mar 16, 2022	NFE	Venture Global LNG	US / US	0.13	20.0	2023	2043
Mar 16, 2022	NFE	Venture Global LNG	US / US	0.13	20.0	2023	2043
May 2, 2022	Engie	NextDecade	France / US	0.23	15.0	2026	2041
May 17, 2022	PGNiG	Sempra Infrastructure	Poland / US	0.40	20.0	n.a.	n.a.
May 25, 2022	RWE Supply & Trading	Sempra Infrastructure	Germany / US	0.30	15.0	n.a.	n.a.
Jun 9, 2022	Equinor	Cheniere	Norway / US	0.23	15.0	2026	2041
Jun 21, 2022	EnBW	Venture Global LNG	Germany / US	0.20	20.0	2026	2046
Jun 22, 2022	INEOS Energy	Sempra Infrastructure	UK / US	0.21	20.0	2027	2047
Jun 22, 2022	Chevron	Venture Global LNG	US / US	0.26	20.0	n.a.	n.a.
Jun 22, 2022	Chevron	Cheniere	US / US	0.26	15.0	2027	2042
Jul 12, 2022	Shell	Mexico Pacific Ltd	US / Mexico	0.34	20.0	2026	2046
Jul 13, 2022	Vitol	Delfin Midstream	US / US	0.07	15.0	n.a.	n.a.
Aug 9, 2022	Centrica	Delfin Midstream	UK / US	0.13	15.0	2026	2041
Aug 24, 2022	Shell	Energy Transfer	US / US	0.26	20.0	2026	2046
Oct 6, 2022	EnBW	Venture Global LNG	Germany / US	0.26	20.0	2022	2042
Dec 6, 2022	ENGIE	Sempra Infrastructure	France / US	0.12	15.0	n.a.	n.a.
Dec 20, 2022	Galp	NextDecade	Portugal / US	0.13	20.0	n.a.	n.a.
Dec 20, 2022	Shell	Oman LNG	UK/Oman	0.11	10.0	2025	2035
Jan 25, 2023	PKN ORLEN	Sempra Infrastructure	EU/US	0.13	20.0	2027	2047
Jan 30, 2023	BOTAS	Oman	Turkey / Oman	0.13	10.0	2025	2035
Mar 27, 2023	Shell	Mexico Pacific Ltd	UK / Mexico	0.15	20.0	2026	2046
Apr 24, 2023	Hartree Partners LP	Delfin Midstream	US / US	0.08	20.0	n.a.	n.a.
Jun 21, 2023	Equinor	Cheniere	Norway / US	0.23	15.0	2027	2042
Jun 22, 2023	SEFE	Venture Global LNG	EU/US	0.30	20.0	2026	2046
Jul 14, 2023	ONEE (Morocco)	Shell	Africa/US	0.05	12.0	2024	2036
Jul 18, 2023	IOCL	Adnoc	India/UAE	0.16	14.0	2026	2040
Jul 26, 2023	OMV	BP	Austria/UK	0.13	10.0	2026	2036
Aug 4, 2023	ConocoPhillips	Mexico Pacific Ltd	US/Mexico	0.29	20.0	2025	2045
Aug 22, 2023	BASF	Cheniere	Germany / US	0.10	17.0	2026	2043
Aug 30, 2023	Shell	Oman LNG	US / Oman	0.11	10.0	2025	2035
Oct 11, 2023	TotalEnergies	QatarEnergy	France / Qatar	0.46	27.0	2026	2053
Oct 18, 2023	Shell	QatarEnergy	Netherlands / Qatar	0.46	27.0	2026	2053
Oct 23, 2023	ENI	QatarEnergy	Italy / Qatar	0.13	27.0	2026	2053
Oct 31, 2023	Vitol	Chesapeake Energy	Sweden / US	0.13	15.0	2028	2043
Nov 29, 2023	OMV	Cheniere	Netherlands / US	0.11	15.0	2029	2044
Dec 5, 2023	Woodside Energy	Mexico Pacific Ltd	Australia / Mexico	0.17	20.0	2024	2044
Total Non-Asian LNG Buyers New Long Term Contracts Since Jul/21				**7.73**			
Total New Long Term LNG Contracts since Jul/21				**19.36**			

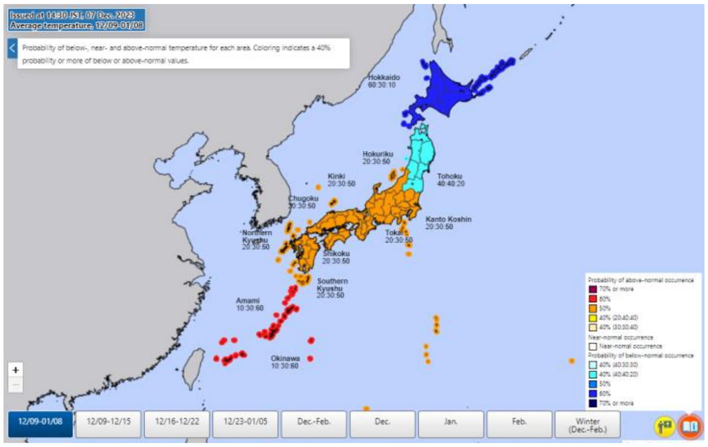
Source: SAF

Natural Gas: Japan forecasts a slightly warmer than normal Dec

Every Thursday, the Japan Meteorological Agency updates its 30-day outlook [LINK]. The Dec 7 update calls for warmer than normal temperatures next week, then colder than normal temps in the week following, and then hotter again to end December. Overall, slightly warmer than normal for the month of December. Below is the JMA's 30-day temperature probability forecast for Dec 9 - Jan 8.

Japan's 30-day temperature forecast

Figure 13: JMA Dec 9 – Jan 8 Temperature Probability Forecast



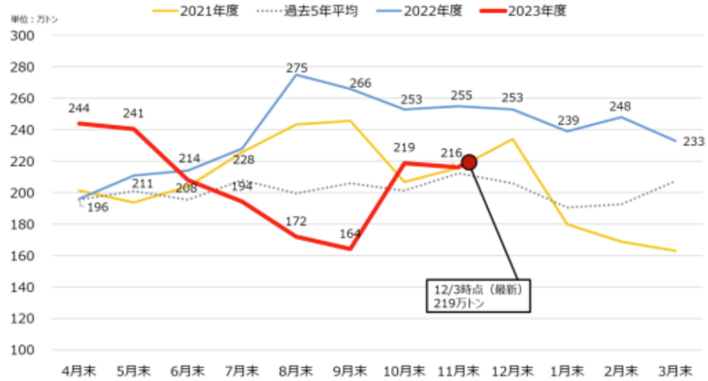
Source: Japan Meteorological Agency

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

Japan LNG stocks fell below year ago and the 5-yr average in Sept. After building back storage in October and much of November, there were draws over the past two weeks. Stocks are still below 2022 levels but the above the 5-year average. On Wednesdays, Japan's METI releases its weekly LNG stocks data [LINK]. LNG stocks on Dec 3 were 105.2 bcf, down -6.81% WoW from Nov 26 of 112.9 bcf, and down -13.40% YoY from 121.5 bcf a year earlier, but above the 5-year average for the end of December of 98.9 bcf. METI did not comment on the WoW decrease. Below is the Japanese LNG stocks graph from the METI weekly report.

Japan LNG stocks down -6.81% WoW

Figure 14: Japan LNG Stocks



Source: METI

Natural Gas: China LNG imports +29.5% YoY, natural gas production +2.6% YoY in Oct

China LNG imports, natural gas production

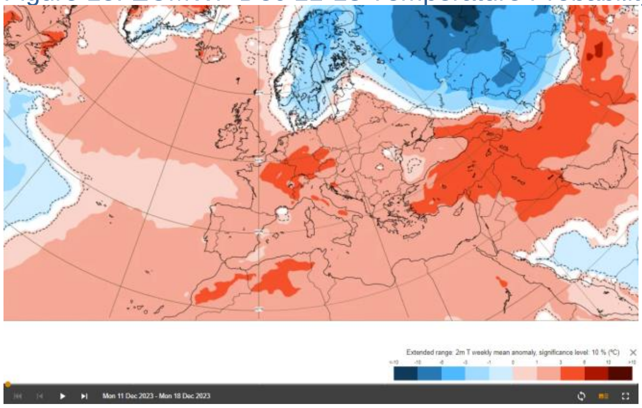
Last month, China reported its October 2023 LNG import data [LINK]. We have been highlighting a big change in China's natural gas and LNG dynamics over the past two years. China has been increasing its domestic natural gas production, which means less need for LNG imports. That has been compounded by China's increasing natural gas pipeline imports of cheaper Russian natural gas. This reduces the need for LNG imports. (i) China's General Administration of Customs released the finalized natural gas import data for October, which provided the split of natural gas imports between pipeline imports and LNG imports. (ii) Natural gas pipeline (gaseous) imports for October were down -21.4% MoM to 5.61 bcf/d and are +1.2% YoY from 5.54 bcf/d in October 2022. We believe the lower MoM was due to pipeline maintenance. (iii) There was a MoM decrease for October LNG imports at -12.1% MoM to 8.01 bcf/d in October, but still up +29.5% from October 2022 of 6.24 bcf/d. LNG imports were consistently above 9.00 bcf/d for a consecutive 4 months before October's lower figures. We expect the pipeline/LNG split for November's numbers to be released next week. (iv) On the production side, China's National Bureau of Statistics released October's natural gas production figures [LINK]. China produced 21.64 bcf/d of natural gas in October. This is up +0.59 bcf/d MoM from 21.07 bcf/d in September, and up +2.6% YoY from 21.10 bcf/d in October 2022.

Natural Gas: Flipping back to warmer than normal temperatures in Europe this week

Europe Dec forecast

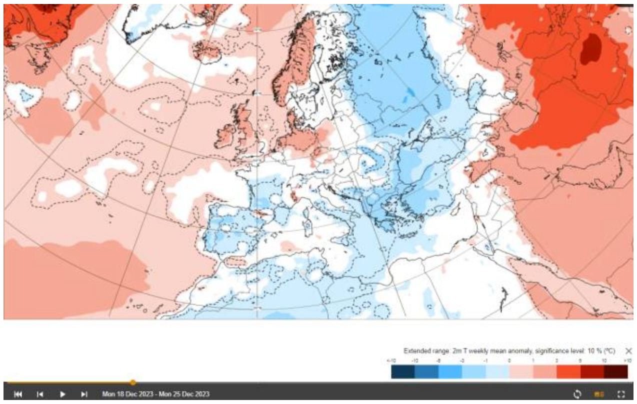
The short-term weather forecasts for Europe have been been pretty good as they called for colder than normal temp to end Nov/start Dec for much of Europe, and then to flip back to warmer than normal temperatures. That is unchanged. It is expected to be warmer than normal this week, then turn a little below normal, before ending Dec with a warmer than normal week. 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 15: ECMWF Dec 11-18 Temperature Probability Forecast



Source: ECMWF

Figure 16: ECMWF Dec 18-25Temperature Probability Forecast

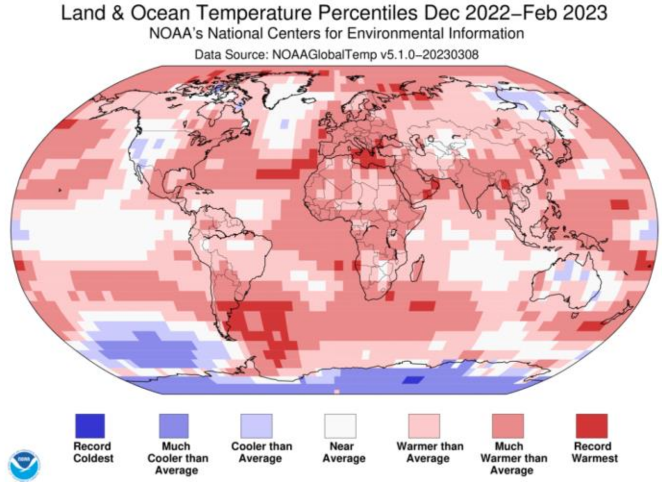


Source: ECMWF

Winter 2022/23 was the 2nd warmest on record in Europe

Europe is a little warmer than normal so far this winter but it doesn't look, at least so far, to be really hot like last winter. NOAA wrote "*Europe recorded its second-warmest winter on record at 2.50°C (4.50°F) above the 20th century average. Meanwhile, Africa's December to February period ranked fourth warmest on record.*" For the world overall, NOAA wrote "*The December 2022–February 2023 global surface temperature was 0.90°C (1.62°F) above the 20th-century average of 12.1°C (53.8°F). This ranks as the fifth-warmest December–February period (tied with 2018 and 2022) in the 174-year record. The past nine December–February periods have ranked among the ten warmest such periods on record*."

Figure 17: DJF 2022/2023 Land & Ocean Temperature Percentiles



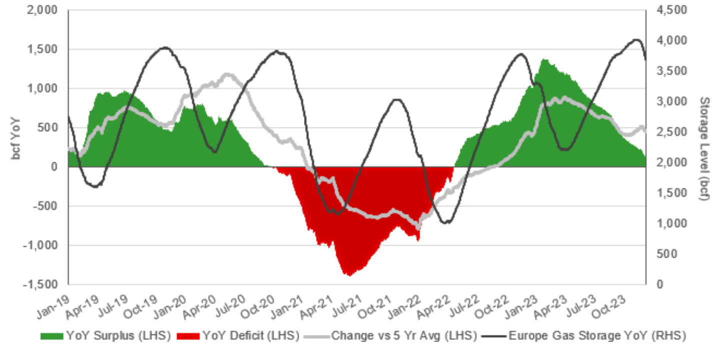
Source: NOAA

Natural Gas: Europe storage drops to 91.65% after cold end to Nov/start to Dec

Europe gas storage

The colder than normal temperatures in most of Europe over the past 10 days or so has finally led to some 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%, it looks like Europe has begun to draw on its gas storage. This week, Europe storage decreased by -3.69% WoW to 91.65% on Dec 7 vs 95.34% on Nov 30. Storage is now +1.73% greater than last year's levels of 89.92% on Dec 1, 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 18: European Gas Storage Level



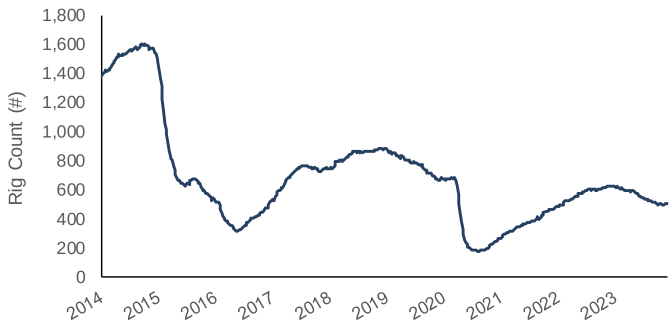
Source: Bloomberg, SAF

Oil: US oil rigs -2 WoW to 503 rigs, US gas rigs up +3 rigs WoW at 119 rigs

US oil rigs down WoW

US rigs didn't go down as they normally do post-thanksgiving, but we expect them to start declining this week or next at latest with Xmas coming and softening oil and natural gas prices. This week may have kicked off this decline with oil rigs at least. On Friday, Baker Hughes released its weekly North American drilling rig data. (i) Total US oil rigs were -2 rigs WoW to 503 rigs at Dec 8. US oil rigs went below 520 rigs on Aug 25 and stayed there for 4 weeks and for the last 13 weeks have been between 494 and 507 oil rigs. (ii) WoW oil rigs changes by basin were Ardmore Woodford at +1 rig to 1 oil rig, Cana Woodford +1 rig to 19 oil rigs, Eagle Ford +2 rigs to 49 oil rigs, Permian -1 rig to 309 oil rigs and Others -5 rigs to 70 oil rigs. (iii) The Permian is at 309 oil rigs, which is above the recent Oct 6 low of 302 oil rigs that was the lowest since Feb 2022. (iv) Gas rigs were up +3 rigs WoW to 119, and are now down -34 gas rigs YoY. The only WoW change to gas rigs per basin was Haynesville which added all +3 rigs WoW to 42 gas rigs. Below is our graph of total US oil rigs.

Figure 19: Baker Hughes Total US Oil Rigs



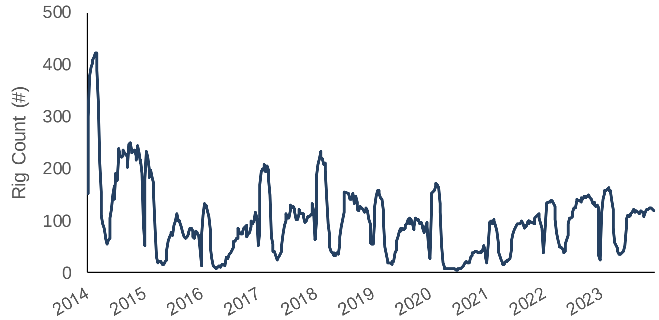
Source: Baker Hughes, SAF

Oil: Total Cdn rigs up +2 rigs to 194 total rigs

Cdn total rigs up WoW

For the week of Dec 8, total Cdn rigs were up +2 WoW to 194 total rigs. On a per province basis, Alberta was down -1 rig WoW to 136 rigs, BC was up +1 rig WoW to 21 rigs, and Saskatchewan was +2 WoW to 32 rigs. The increase was expected since Canadian rigs typically increase slightly in the weeks before Xmas, maybe there's still another modest increase to come next week before the Xmas slowdown. But this year with low AECO, we could see Cdn gas rigs drifting lower instead of increasing to Christmas. Cdn oil rigs were down -2 rigs WoW to 120 oil rigs and are down -11 oil rigs YoY. Cdn gas rigs were up +4 rigs WoW to 74 gas rigs, which is +3 YoY.

Figure 20: Baker Hughes Total Cdn Oil Rigs



Source: Baker Hughes, SAF

Oil: US weekly oil production estimates down -0.100 mmb/d WoW to 13.100 mmb/d

US oil production down WoW

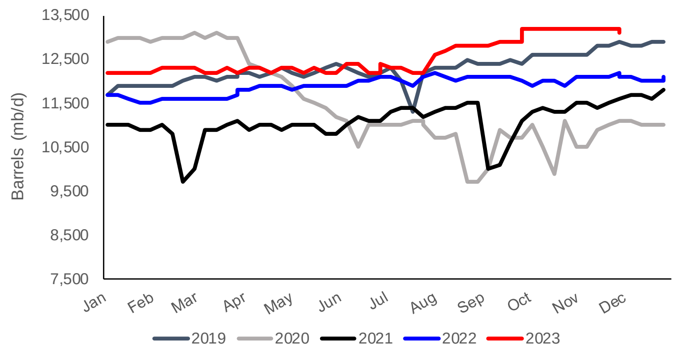
In mid-Oct, there was a second big adjustment to the EIA's weekly oil production estimates. The first was in August, when our Aug 13, 2023 Energy Tidbits memo highlighted the EIA increased their weekly US oil production estimates by +0.4 mmb/d. Our Oct 15th Energy Tidbits memo highlighted the EIA's second big, another +0.4 mmb/d, adjustment to the weekly production estimates. Last month, the EIA wrote *"Crude Oil Production Re-benchmarking Notice: When we release the Short Term Energy Outlook (STEO) each month, the weekly estimates of domestic crude 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 370,000 barrels per day, which is about 2.8% of this week's estimated production total*." This 2nd EIA adjustment was needed to bring the weekly production estimates in line with the EIA's actuals. And as noted in the Form 914 item from last week, the EIA's Oct adjustment basically makes up for the weekly estimates being below the EIA's actuals for Aug. This week, the EIA's production estimates were down -0.100 mmb/d WoW at 13.100 mmb/d for the week ended December 1. Alaska was down -0.008 mmb/d WoW to 0.431 mmb/d. Below is a table of the EIA's weekly oil production estimates.

Figure 21: EIA's Estimated Weekly US Field Oil Production

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	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								

Source: EIA

Figure 22: EIA's Estimated Weekly US Oil Production



Source: EIA, SAF

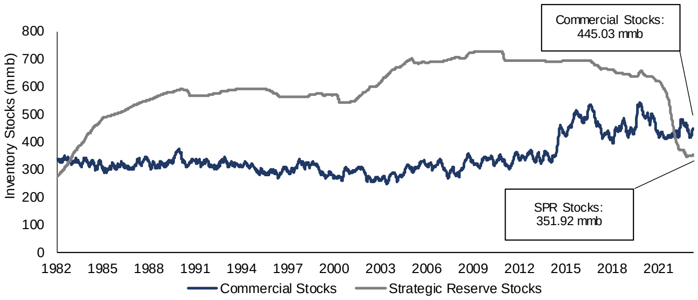
Oil: US SPR reserves now -93.114 mmb lower than commercial crude oil reserves

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. This deficit widened this week after a draw in commercial oil stocks of -4.630 mmb. The EIA's weekly oil data for December 1 [LINK] saw the SPR reserves build +0.330 mmb/d WoW at 351.917 mmb, while commercial crude oil reserves decreased -4.633 mmb to 445.031 mmb. There is now a -93.114 mmb difference between SPR reserves and commercial crude oil reserves. The below graphs highlight the difference between commercial and SPR stockpiles.

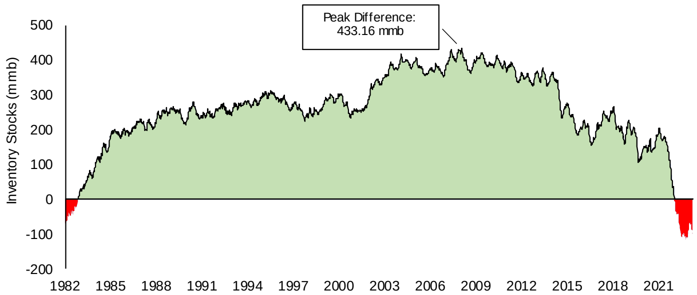
SAF GROUP

Figure 23: US Oil Inventories: Commercial & SPR



Source: EIA, SAF

Figure 24: US Oil Inventories: SPR Less Commercial



Source: EIA, SAF

Oil: US gasoline prices down $0.08 this week to $3.17

US gasoline prices

US gasoline prices were only down $0.08 this week to $3.17. Yesterday, AAA reported that US national average prices were down $0.08 this week to $3.17 on Dec 9, which is also down $0.23 MoM and down $0.15 YoY vs year ago of $3.32. Remember US gasoline prices started to ease below $4 in August 2022 and were helped in Q4/22 by the SPR releases. The big reason for the drop in US gasoline prices over the past three months was the expected big drop in California gasoline prices following the surprise late Sept Gov Newsom move to then immediately switch to cheaper winter blend gasoline. That plus lower oil prices has meant a big cut in California gas prices. Yesterday, AAA reported California average gasoline prices were down $0.10 WoW to $4.72, and are now down $0.33 MoM and up $0.12 YoY.

Oil: Crack spreads up marginally $0.06 WoW to $22.56

Crack spreads basically flat this week

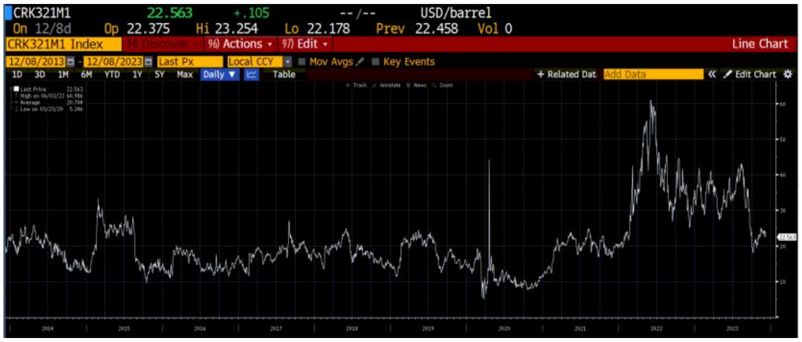
We remind that oil demand is driven by refiners and their ability to make money by processing oil and selling petroleum products. So crack spreads are a good indicator if refiners will be looking to buy more or less oil. This week, crack spreads were down $0l06 WoW to $22.56 on Dec 8, which followed $22.50 on Dec 1, $23.36 on Nov 24, $23.95 on Nov 17, $22.39 on Nov 10, $21.65 on Nov 3, and $20.47 on Oct 27. Crack spreads at

$22.56 are a little above the high end of the more normal pre-Covid that was more like $15-$20, but not high enough to drive any real change in refiner plans.

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 $22.50 as of the Friday Dec 1, 2023 close.

Figure 25: Cushing Crude Oil 321 Crack Spread Dec 8, 2013 to Dec 8, 2023



Source: Bloomberg

Oil: Trans Mountain’s TMX expansion startup to be delayed a couple months

Delay to TMX startup

It looks like the startup of the Trans Mountain expansion (TMX) will be delayed by at least a couple months. We are still waiting to see an estimate from Trans Mountain for the revised startup, which had been expected around the end of Q1/24. On Tuesday, the Canada Energy Regulator denied the Trans Mountain proposal to for a small construction variance. Prior to the ruling, Trans Mountain had indicated a denial of the variance could add two months to the startup time. On Wednesday, Bloomberg reported “*Trans Mountain is waiting to learn why the Canada Energy Regulator denied its variance application, co. says in email. * Construction of expanded Trans Mountain pipeline is 97% complete * Co. didn’t comment on possible delay of project after decision”.*

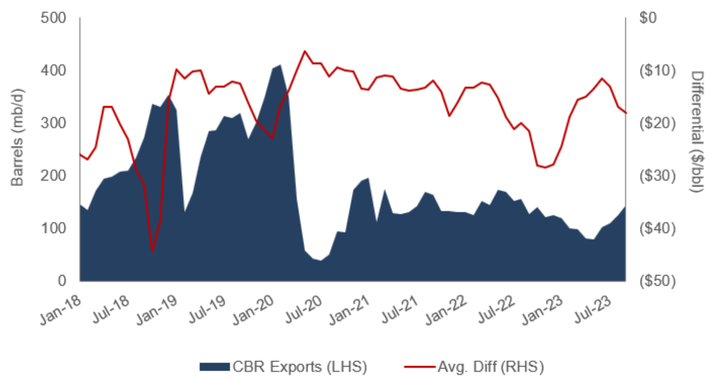
Oil: Cdn crude by rail exports at 144,614 b/d in August, up +13.8% YoY

Cdn crude by rail up YoY in Sept

We have reached out a couple times to the EIA (but never get a response) as to why their crude by rail imports from Canada data are so much lower than the CER data for Cdn crude by rail exports to the US. Our assumption is that the major reason for the difference is likely Cdn crude by rail that goes directly to the Gulf Coast and then onto tankers for export ie. never stay in the US. We saw last week the EIA’s Crude by Rail numbers, and compared to the CER’s data there seems to be again a big difference in the monthly figures: EIA has total Canada imports in Sept at 41,833 b/d while this week the CER reported Cdn crude by rail exports were up +19,495 b/d MoM to 144,614 b/d in September vs the 125,115 b/d in August

[LINK]. This puts export volumes at +17,554 b/d YoY (+13.8%) vs September 2022 of 127,060 b/d. This means the difference between the EIA data and the CER data is 102,781 b/d in September. August's numbers got revised down by -23,533 b/d which narrows the gap against EIA numbers but there's still a big difference. For context, last month there was initially a ~92,000 b/d difference in the August numbers, which got narrowed to ~75,000 b/d on Thursday after the EIA revised its data upwards by ~+17,000 b/d and now it's down to ~51,500 b/d after the CER's downward revision. CBR volumes are +105,747 b/d since the Covid low of 38,867 b/d in July 2020. The WCS–WTI differential still provide the price incentive for crude by rail to the Gulf coast. But May and June and July to a lesser extent were impacted by oil sands maintenance. The CER doesn't provide any explanation for the MoM changes. Below is our graph of Cdn crude by rail exports compared to the WCS–WTI differential.

Figure 26: Cdn Crude By Rail Exports vs WCS Differential



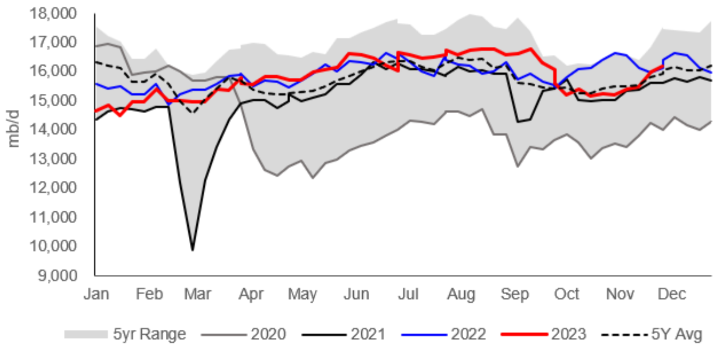
Source: Canadian Energy Regulator, Bloomberg

Oil: Refinery inputs up +0.179 mmb/d WoW to 16.201 mmb/d

Refinery inputs +0.179 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 have mostly come out of turnarounds so we have been seeing a steady increase in crude inputs, including this week's +0.179 mmb/d add. On Wednesday, the EIA released its estimated crude oil input to refinery data for the week ended December 1 [LINK]. The EIA reported crude inputs to refineries were up +0.179 mmb/d this week to 16.201 mmb/d and are down -0.384 mmb/d YoY. Refinery utilization was up +0.7% WoW to 90.5%, which is -5.0% YoY. We likely hit the seasonal peak in refining in September.

Figure 27: US Refinery Crude Oil Inputs



Source: EIA, SAF

Oil: US net oil imports +2.091 mmb/d WoW as oil imports up +1.675 mmb/d WoW

US net oil imports

The EIA reported US "NET" imports were up +2.091 mmb/d to 1.675 mmb/d for the December 1 week. US imports were up +1.675 mmb/d to 7.508 mmb/d. (i) Venezuela weekly imports. We know why the EIA doesn't have any data in the row for Venezuela weekly oil imports but we still don't know if the weekly oil imports are off or if Venezuela is included in the weekly oil imports in the Others number. But we do know that Chevron continues to import >100,000 b/d from Venezuela into the Gulf Coast. Give the EIA credit for putting out weekly oil import estimates, but it's a reminder that we have to be careful about using the weekly oil import estimates. Rather we need to make sure we go to the monthly data for oil imports. ii) The WoW increase in US imports was driven mostly by "Top 10". Top 10 was up +1.832 mmb/d. Some items to note on the country data: (i) Canada was up +0.729 mmb/d to 3.972 mmb/d. (ii) Saudi Arabia was up +0.259 mmb/d to 0.400 mmb/d. (iii) Mexico was up +0.305 mmb/d to 0.876 mmb/d. (iv) Colombia was up +0.146 mmb/d to 0.289 mmb/d. (v) Iraq was down -0.012 mmb/d to 0.166 mmb/d. (vi) Ecuador was up +0.140 mmb/d to 0.252 mmb/d. (vii) Nigeria was up +0.052 mmb/d to 0.226 mmb/d.

Figure 28: US Weekly Preliminary Imports by Major Country

(thousand b/d)	Sep 1/23	Sep 8/23	Sep 15/23	Sep 22/23	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	WoW
Canada	3,679	3,645	3,287	3,880	3,291	3,544	3,723	3,387	3,485	3,873	3,835	3,846	3,243	3,972	729
Saudi Arabia	567	383	383	383	291	67	208	436	294	192	242	224	141	400	259
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	699	1,095	603	844	524	656	609	614	1,004	465	366	971	571	876	305
Colombia	300	211	287	286	143	289	150	146	74	364	316	217	143	289	146
Iraq	100	248	233	280	306	247	127	182	351	187	283	36	178	166	-12
Ecuador	99	0	134	167	125	0	0	92	133	61	36	126	112	252	140
Nigeria	220	219	0	3	0	46	48	89	30	39	70	79	174	226	52
Brazil	68	545	209	240	209	362	63	221	168	234	135	257	148	274	126
Libya	90	0	0	0	89	88	47	86	106	0	86	86	0	87	87
Top 10	5,822	6,346	5,136	6,083	4,978	5,299	4,975	5,253	5,645	5,415	5,369	5,842	4,710	6,542	1,832
Others	948	1,236	1,381	1,146	1,237	1,030	967	760	780	979	1,004	687	1,123	966	-157
Total US	6,770	7,582	6,517	7,229	6,215	6,329	5,942	6,013	6,425	6,394	6,373	6,529	5,833	7,508	1,675

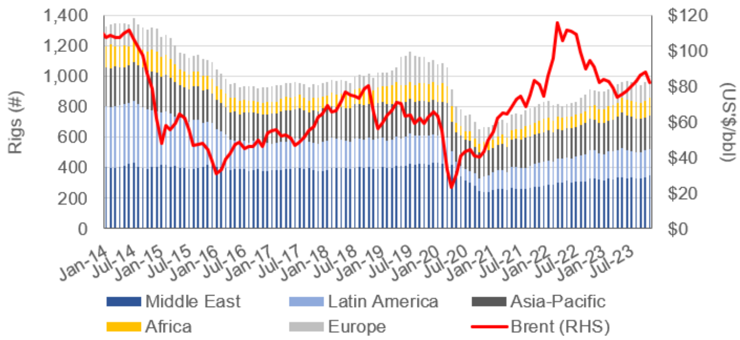
Source: EIA, SAF

Oil: Baker Hughes International rigs +16 MoM to 978 rigs in November

International rigs +16 MoM in November

On Friday, Baker Hughes posted its monthly update to international rigs, in total, that show rigs in November increased MoM. (i) Total international rigs increased by +16 rigs MoM to 978 rigs in November, and total rigs are now up +172 rigs from the recent low of 806 in April 2022. (ii) Algeria and the UAE had the largest MoM increases of +4 rigs to 47 rigs and +3 rigs to 62 rigs, respectively. In November, Ukraine's rigs were flat at 46 rigs and is +19 rigs YoY from 27 rigs in November 2022 post the Russia invasion. In contrast, Norway and Italy had the largest MoM decreases of -5 rigs to 15 rigs and -3 rigs to 1 rig, respectively. (iii) The largest YoY increases came from Algeria, Ukraine, and the UAE at +15 rigs, +19 rigs, and +12 rigs, respectively. The largest YoY decreases were realized by Colombia, Kuwait and Argentina which had declines of -11 rigs, -4 rigs and -4 rigs, respectively. (iv) November's count of 978 rigs was +7% YoY from 910 in November 2022, and down -13% vs pre-Covid November 2019 of 1,096 rigs. The YoY rig count is as follows: Africa +29 rigs, Asia-Pacific +16 rigs, Europe +16 rigs, Latin America -10 rigs, and the Middle East +17 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 +20 rigs to 87 active rigs in November 2023, while UAE (Abu Dhabi) added +28 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 29: Baker Hughes International Rig Count and Brent Price



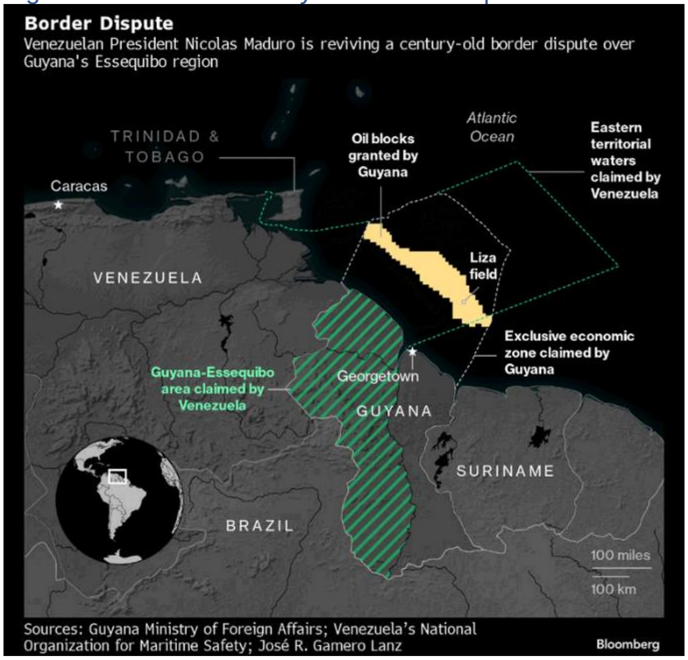
Source: Baker Hughes, Bloomberg, SAF

Maduro on disputed Guyana lands

Oil: Maduro orders state companies to move on disputed lands in Guyana

Following the Venezuelans overwhelming vote on the referendum, last week, we tweeted [LINK] "*What is "opposing by all legal means"? Venezuelans vote YES "Do you agree in opposing, by all legal means, Guyana's pretension to use unilaterally a sea whose borders haven't been defined, illegally and in violation of international law?" Thx @inaitriago @zerpius #OOTT.* This week, we saw some of what Maduro sees as legal. It's not waiting for international courts to decide. Rather it's items like AP reported, "*Venezuelan President Nicolás Maduro on Tuesday ordered the country's state-owned companies to "immediately" begin to explore and exploit the oil, gas and mines in Guyana's Essequibo region, a territory larger than Greece and rich in oil and minerals that Venezuela claims as its own. The announcement came a day a day after Maduro got the victory he sought in a weekend referendum on whether to claim sovereignty over the region. Maduro said he would "immediately" proceed "to grant operating licenses for the exploration and exploitation of oil, gas and mines in the entire area of our Essequibo." He also ordered the creation of local subsidiaries of* Venezuelan *public companies, including oil giant PDVSA and mining conglomerate."* The other side of that was the Argus Wednesday report [LINK] "*Venezuela has given ExxonMobil and other offshore oil producers 90 days to stop operations in disputed waters off the coast of Guyana. The threat, part of President Nicholas Maduro's effort to seize western Guyana's Essequibo province that has been in dispute for more than a century,* *follows a stepped up Venezuelan military presence on the border. Maduro this week also named Venezuelan army major general Alexis Rodriguez as head of the region, published a new map featuring Guayana Esequiba as a new Venezuelan state, and plans to print Venezuelan identification cards for current residents there."* Maduro is basically saying, they are our lands so we will move on them to exploit the resources.

Figure 30: Venezuela/Guyana border dispute



Source: Bloomberg

Oil: Maduro & Guyana President reported to meet on Dec 14

Venezuela and Guyana to meet

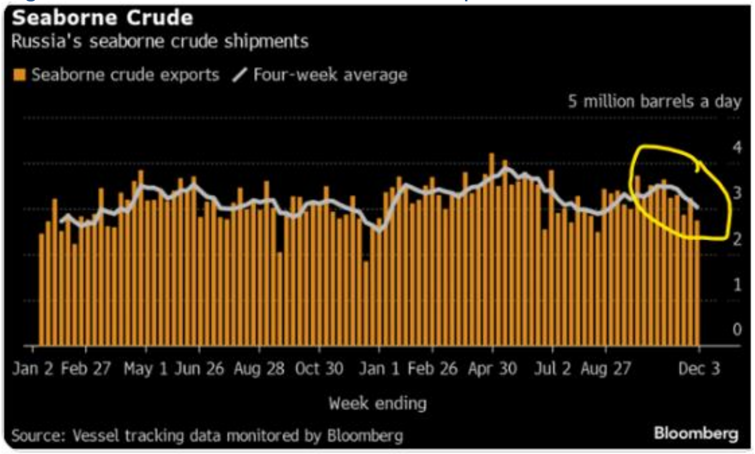
Earlier this morning, we tweeted [LINK] "*Does this give Maduro more enthusiasm to keep pressing on his claim for Guyana offshore oil? Guyana has previously said nothing to negotiate. Thx @busines for map. #OOTT."* We were a little surprised to see the TASS report yesterday that "S*aint Vincent and the Grenadines will serve as a venue for talks between Presidents Nicolas Maduro of Venezuela and Mohamed Irfaan Ali of Guyana on settling the territorial dispute between the two countries on December 14, the country's government announced. "The presidents will meet in [the island nation of] Saint Vincent and the Grenadines on Thursday, December 14, 2023, under the auspices of CELAC (the Community of Latin American and Caribbean States - TASS) and CARICOM (the Caribbean Community - TASS), on matters related to the border dispute between Guyana and Venezuela,"* *the country's government said in a communique. Venezuela's Foreign Ministry said earlier that Maduro had telephone conversations with his Brazilian counterpart Luiz Inacio Lula da Silva and Prime Minister of Saint Vincent and the Grenadines Ralph Gonsalves, during which "he received an offer to hold a summit with the Co-operative Republic of Guyana."* Guyana's position has been that there is no negotiations with Venezuela and any changes would have to come from international courts. So we are a little surprised to see this reported meeting. At a minimum, it would seem to give more support for Maduro to keep pressing on trying to get something from Guyana. Our Supplemental Documents package includes the TASS report.

Oil: Russia crude oil shipments down Black Sea storms impacting loadings

Russia oil shipments less than commitment

On Tuesday, we tweeted [LINK] "*Storms in Black Sea = big drop in Russia #Oil shipments. So should see some post storm increase.Dec 3 wk was -0.5 mmb/d WoW to 2.74 mmb/d. 4-wk ave to Dec 3 was ~3.04 mmb/d, well below 3.28 mmb/d commitment. Thx @JLeeEnergy #OOTT."* There was a big -0.5 mmb/d decline in Russia oil shipments due to the storms in the Black Sea that disrupted oil loadings. And we would expect that loadings will be made up, to some degree, with the storms impact ending. But with the big WoW decrease the 4-week average fell to 3.04 mmb/d, which is well before the Russia commitment to cut crude oil shipments by 300,000 b/d to ~3.28 mmb/d. Bloomberg wrote "*Russia's four-week average seaborne crude exports fell to the lowest in three months, with storms in the Black Sea disrupting shipments for a third week. Loading activities remained sluggish at the port of Novorossiysk even after they restarted on Nov. 30. About 3.04 million barrels a day of crude were shipped from Russian ports in the four weeks to Dec. 3, tanker-tracking data monitored by Bloomberg show. That was down by 125,000 barrels a day from the revised figure for the period to Nov. 26. The more volatile weekly average also fell." "The figure for weekly flows fell sharply. Using this measure, shipments dropped to 2.74 million barrels a day, down by about 500,000 barrels a day from the revised figure for the period to Nov. 26. Weekly shipments were the lowest in 15 weeks. Russia's oil processing in the last week of November showed the deepest weekly decline since late August amid lower processing at several refineries. One of the hardest hit was Rosneft PJSC's Tuapse refinery on the Black Sea coast. The plant, which sends the bulk of its oil-products abroad, lowered processing rates amid a halt in operations at region's ports last week due to the storms.".* Our Supplemental Documents package includes the Bloomberg report.

Figure 31: Russia's seaborne crude shipments thru Dec 3 week

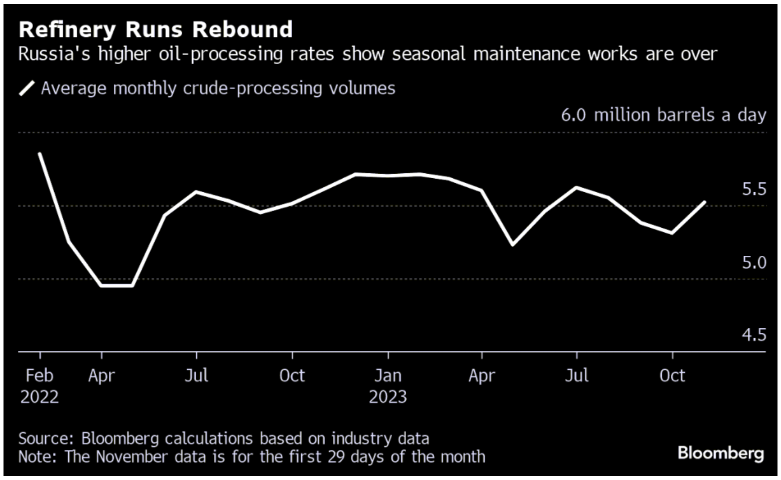


Source: Bloomberg

Russia refineries processed less oil with refinery downtime

Normally when Russian oil refineries processing less oil frees up more oil for exports but that wasn't the case over the last week as storms disrupted crude oil loadings. As a reminder Bloomberg normally posts a weekly recap of Russian oil refinery processing but that data is for an earlier period, some about half overlap, vs the data for its weekly reporting on Russia crude oil shipments. The storms in the Black Sea also disrupted loadings of petroleum products, which led to some refineries reducing crude oil as they couldn't ship the petroleum products. Bloomberg wrote "*Russia's oil refining in the last week of November showed the deepest weekly decline since late August amid lower processing at a range of refineries. The nation's refineries processed 5.41 million barrels a day of crude between Nov. 23-29, down some 233,000 barrels a day from the average for the previous week, according to a person with knowledge of the industry. The decline was driven mainly by lower runs at Rosneft PJSC's Tuapse refinery in Russia's south, Gazprom PJSC's Astrakhan condensate-processing plant, and a range of small independent facilities, the person said. The Tuapse refinery, that sends the bulk of its oil-products abroad, lowered processing rates amid a halt in operations at Russia's Black Sea ports last week due to storms, the person pointed out. Astrakhan's runs were cut because of an incident at the facility, the person said, without giving details."* Our Supplemental Documents package includes the Bloomberg Russian refinery report.

Figure 32: Russia refinery crude oil processing volumes thru Nov 29



Source: Bloomberg

Putin to run for re-election

Oil: Putin to run for re-election process

There was a surprise to see Putin plans to run for re-election in the March 17, 2024 election. On Frdiday, TASS reported [LINK]." *Vladimir Putin will run for president in the 2024 election, he said in the Kremlin while talking to participants at a Heroes of the Fatherland Day ceremony. "I am going to run for president of the Russian Federation," Putin said. Artem Zhoga, speaker of the parliament of the Donetsk People's Republic and the father of a fallen hero of the special military operation, asked him to run for re-election. Putin admitted that he thought long and hard about his future presidency. "Well, as for now, you are right. It is time to decide," he told Zhoga. President Vladimir Putin's current term in office expires on May 7, 2024. Russia's next presidential election is scheduled for March 17."*

Putin/MBS meeting

Oil: No big surprises from Putin's MBS meeting in Saudi Arabia

Putin made a rare trip out of Russia this week for separate stops to meet with UAE and Sadui Arabia. It seemed like the trip was more symbolic in nature to reinforce the importance of relations with these two countries. The big meeting was with MBS in Saudi Arabia. We reviewed teh joint Saudi Arabia/Russia statement post the Putin/MBS meeting and we didn't see anything of a surprise with respect to energy. The joint statement said "*In the field of energy, the two sides commended the close cooperation between them and the successful efforts of the OPEC+ countries in enhancing the stability of global oil markets. They stressed the importance of continuing this cooperation, and the need for all participating countries to adhere to the OPEC+ agreement, in a way that serves the interests of producers and consumers and supports the growth of the global economy.´"The two sides agreed on the importance of enhancing cooperation in the following areas: (1) oil and gas, such as procurement, supplying and standardizing equipment in the field of oil and gas, research and development services in oil , gas, and petrochemicals, evaluating the use of modern technologies in this field between companies in the two countries, the peaceful uses of nuclear energy, electricity and renewable energy including solar, wind, and geothermal energy, developing its projects and technologies, developing supply chains for the energy* *sectors and their sustainability, and enabling cooperation between companies to maximize the use of local resources in a way that both countries contribute to achieving flexibility and effectiveness of energy supplies, energy efficiency, rationalization of its consumption, and raising awareness of its importance*." Our Supplemetnal Documents package includes the joint Saudi/Russia statement.

Oil: Saudi say Russia agrees to monthly shipments transparency process

Russia to provide transparency on shipments

There was a surprise disclosure on Russia in the Saudi Energy Minister Abdulaziz long interview with Bloomberg on Monday. Russia has agreed to what looks like a monthly monitoring with the Secondary Sources for OPEC's oil numbers and five of the major tanker trackers to provide transparency to the Russia oil and products exports data. We tweeted [LINK] "*WOW! Russia, OPEC Secretariat meeting with 5 Secondary Sources & 5 tanker trackers agree to a template & mthly meetings for transparency in RUS #Oil & products exports. It's why Saudi Energy Minister is The Man! See 👇SAF Group transcript. Great @wenkennedy interview! #OOTT."* We created a transcript of Abdulaziz's comments. At 2:15 min mark, Abdulaziz ".. *in that extended period that we have taken, Russian ministry went with the Secretariat to the Secondary Sources, those who can attended wanted to attend because two of them could not do it because of the embargo issue and five of the more known, we aren't naming names, of the tanker trackers, in one collective meeting preceded by a compilation of what is their requirements for Russia to become much more transparent in their data. Especially that it is done on exports. We wanted to convince our friends in Russia that they have separate out what is crude and what is product. And the meeting was made on Monday, And this is one of the reasons we had to ask for the timing, the additional time. And that had that meeting collectively with five of the Secondary Sources and, if I am not mistaken, five of the tanker trackers. They have agreed with them on answering, answers on so many of the questions. They have agreed to put a meeting in a monthly basis on the 5th of each month to engage with more transparent information on a month-to-month basis. In fact there was a template that was agreed and the exercise will be continuous*. "

Oil: Saudi Abdulaziz, 2.2 mmbd cut to offset normal Q1 stock builds, could extend cuts

Saudi Abdulaziz on OPEC+ cuts

Saudi Arabia Energy Minister Abdulaziz had a lengthy interview with Bloomberg on Monday that had a wide range of insights. (i) One of his priorities was to tell markets they are overlooking the positives of the OPEC+ 2.2 mmb/d cut, in particular that they wanted to have cuts large enough to more than offset even the most conservative of forecasts for the normal Q1 seasonal build in global oil stocks. We tweeted [LINK] ""*i honestly believe that 2.2 million will overcome the usual inventory build that usually happen in the 1st QT". "Absolutely" cuts could be extended. Saudi Energy Minister Abdulaziz. Much more in this great @wenkennedy interview. [LINK] #OOTT."* We created a transcript of his comments. At 6:45 min mark, Abdulaziz ""*I honestly believe the delivery of the 2.2 will happen. I honestly believe that 2.2 million will overcome even the usual inventory build that usually happen in the 1st quarter. I also believe that we wanted, it's almost like we were working with a checklist and that last item on that checklist, apart from the volume and commitment and what have you, was to give the market a signal that thee 2.2 million are not going to come the first of April. Simply because, we wanted the market to know that there would be a phased-in approach. And since we don't know what will be the market situation, be it in January, February or March, we wanted to be careful about what language we used by saying, it will also be phased out or* *gradually and based on market condition*". (ii) Could extend cuts. His other key highlight was that OPEC+ could extend the cuts. We created a transcript. At 25:35 min mark. Bloomberg's Will Kennedy "*let's talk about next year. The cut was designed to overcome the surplus in the 1st quarter. The economic situation is very uncertain. And the language in the agreement suggests you will be willing to carry on these cuts past the 1st quarter, if the market situation demand it, is this correct*?" Abdulaziz "*Absolutely. Take it each of the individual statements, including the aggregated statement that came out of OPEC Secretariat, which is like a news item, expressed in detail each and everybody's commitment to do that. Which is that we should phase it out and we all subjugated it to market conditions*."

Figure 33: OPEC+ Voluntary Cuts from Nov 30, 2023 Meeting

OPEC+ cuts to production and exports post 11/30 meeting			
Updated 11:30am MT post OPEC Secretariat release			
Production Cuts	Before 11/30 meetiung	Added at 11/30 meeting	increased cut thru q1/24
	b/d	b/d	b/d
Algeria	0	51,000	51,000
Iraq	0	223,000	223,000
Kazakhstan	0	82,000	82,000
Kuwait	0	135,000	135,000
Oman	0	42,000	42,000
Saudi Arabia	1,000,000	1,000,000	0
UAE	0	163,000	163,000
	1,000,000	1,696,000	696,000
Cuts to exports		b/d	b/d
Russia - oil	300,000	300,000	0
Russia - fuel oil	0	200,000	200,000
	300,000	500,000	200,000
Total cuts	1,300,000	2,196,000	896,000
Source: OPEC, Energy Intelligence, Platts, UBS			
Preppared by SAF Group https://safgroup.ca/news-insights/			

Source: OPEC, Energy Intelligence, Platts, UBS, SAF Group

Oil: Aramco CEO global conventional + unconventional oil decline rate is 7%

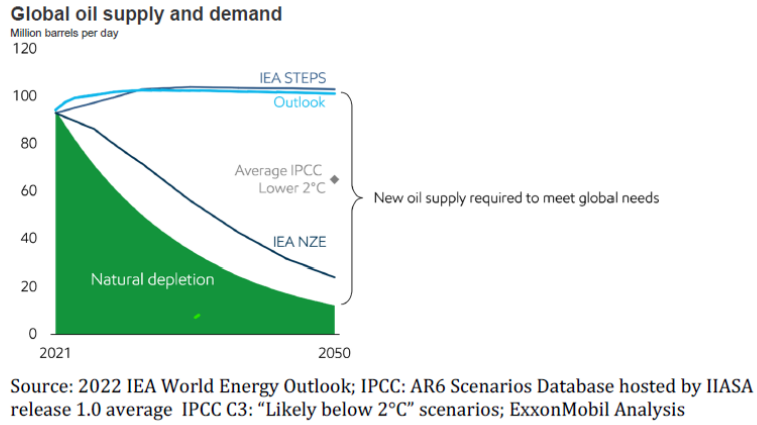
Aramco CEO, global decline rate of 7%

We recognize that no one is really thinking about mid-term oil outlook given the oil price weakness now going into Q1/24. For months, we have been warning that the key factor driving why Saud would continue its voluntary 1 mmb/d cuts thru Q1/24 was that global oil demand is always seasonally down in Q1 every year vs the preceding Q4. That is the big problem, the normal seasonal decrease in oil demand in Q1 vs Q4 that is approx. 1.5 mmb/d. So no one is focused beyond 2024 but, for those that care, on Thursday, we tweeted [LINK] "*For anyone looking at #Oil in 2025+. #Aramco CEO "If you look at existing fields today & the level of maturity that we're seeing in conventional and unconventional resources, you're looking at a 7% decline" ie. 7 mmbd has to be replaced each yr to stay flat. Thx @jcgnana #OOTT.*" The headlines on the Platts story were "*COP28: Saudi Aramco CEO says fossil fuel investment more viable than renewables to meet demand. HIGHLIGHTS Fossil fuel investment down 40% from 2014 levels: Nasser. Q4 2023 oil demand set to be higher than Q4 2019. Renewables, hydrogen not viable in the short term, he says.*" [LINK]. But what caught our eye were Nasser's comments on global oil declines. Platts wrote "*Saudi Aramco's chief called for more investment in fossil fuels while dismissing the short-term viability of renewables due to what he suggested were higher costs and low demand for clean energy.*

"I think we need more investment," Nasser said citing a 40% decline in investment in fossil fuels from 2014 levels. "If you look at existing fields today and the level of maturity that we're seeing in conventional and unconventional resources, you're looking at a 7% decline," he added." Nasser is reminding the combined global conventional + unconventional oil decline rate is 7%, which means that, on a combined global basis, if spending were to stop oil production would be down 7 mmb/d. The reminder is that the first challenge for the global oil industry is to do the work to replace 7 mmb/d just so global oil production can stay flat. That is why there is the first capital every year to basic production maintenance, development drilling, field extensions, etc to replace the 7% decline. The 7% is an average decline rate across the world, which takes into account the way higher decline rates in the 13 mmb/d of US production. Our Supplemental Documents package includes the Platts report.

08/28/23: Exxon "*natural decline rate of existing oil is approx. 7% per year*"
Saudi Aramco's estimate of a 7% decline rate in global oil is the same as what Exxon uses in its planning. Here is what we wrote in our Sept 3, 2023 Energy Tidbits memo. "On Monday Exxon issued its "*Global Outlook – Our view to 2050*", which is their annual long-term outlook for energy. There is something for everyone on energy. The first thing we checked was if Exxon has changed its view on global oil decline rates as we consider global oil decline rate one of the most important fundamentals to shape oil prices thru the 2020s. (i) On Monday, we tweeted [LINK] "*Key factor why #Oil looks good for 2020s. #Exxon today "natural decline rate of existing oil production is approx 7% per yr." WTI was $52 on 06/17/19, when Exxon warned on 7% decline. See 👇SAF 06/20/19 blog. "Exxon's Math Calls For Overall Global Oil Decline Rate of ~7%, A Very Bullish Argument For Post 2020 Oil Prices" #OOTT."* (ii) In the new outlook to 2050, Exxon said "Today's new outlook to 2050 is "*The natural decline rate of existing oil production is approximately 7% per year. Significant investment is needed to offset this decline and meet the projected demand growth."* (iii) Exxon first highlighted global oil decline rates at a sellside conference on June 18, 2019. WTI had closed at ~$52 prior to that presentation that also used a global oil decline rate of ~7%. So their assumption on a 7% decline rate is unchanged. (iv) Our tweet included an excerpt from our June 20, 2019 blog "*Exxon's Math Calls For Overall Global Oil Decline Rate of ~7%, A Very Bullish Argument For Post 2020 Oil Prices".* This was prior to Russia/Ukraine. We thought the 7% was a very bullish argument for oil prices, which were $52 at that time. Below is Exxon's graph from the new view to 2050.

Figure 34: Global oil supply and demand



Source: Exxon, August 28, 2023

06/01/23: Exxon CEO "*people continue to forget about the depletion curve*"
Here is what we wrote in our June 4, 2023 Energy Tidbits memo. "The focus of investor attention on the Exxon sell-side presentation on Thursday was on their shale oil potential. So overlooked was their regular and, at least annual, reminder that there is a 7% annual depletion/decline rate in global oil production. This is on a global basis so would work in the very high decline rates in US shale oil and essentially zero decline rate in oil sands mining. It means that, on average, the world has to add another 7 mmb/d of oil production to stay offset decline and stay flat. This is the challenge for growing global oil supply especially in the face of the well understood underinvestment in the oil and gas upstream. And Exxon says that if you're not investing, the market will be short at some point in time. Exxon CEO Darren Woods said "*So you can call it being stubborn. Our focus on it is a disciplined approach to understanding what the business required and sticking to it, because the facts didn't change. And with time, the facts were proven right. And it's not, wasn't that we were somehow magical in understanding it. It's basic math and understanding depletion curves and where the rest of the industry is. I'll tell you something else that's happening right now. If you look at, people continue to forget about the depletion curve and that every barrel of crude that you produce, or every ton of LNG that you produce is that much less supply available to the world. And you have to replace that, even if demand is flat So think about a 7% depletion curve. Maintaining volumes flat means you have to grow production by 7% to offset the decline. That's huge growth. People don't appreciate that. And the bigger the demand, that 7% becomes bigger, the bigger the hole that you're digging every year. If you look at where the demand for oil and gas is today, you look at a depletion and then you look at the investment going into the industry, the industry as a whole is under-investing in those resources. So whatever your view of demand is, and I said before, if we go back in time, what we typically miss is supply. No matter what your view of demand and where that's going to be at, that depletion curve eventually catches up to that demand equation. And if you're not investing, you will find the market gets short at some point in time. And my view is we're in that point in time today. The industry is under-investing. You*

hear that coming out of OPEC in Saudi Arabia, they're making that point. I think many people can see that maybe thinking it's self-serving, but the reality is that's an Issue."

Oil: Houthis expand targets in Red Sea to any ship of any nationality heading to Israel

Houthi targeting any ship heading to Israel

The big Houthis news was yesterday with the Houthis saying they will now target any ship of any nationality that is heading to Israel. We tweeted [LINK] *"#Houthis expand target list. warn it will target any ship of any nationality in Red Sea/Bab el Mandeb IF it is heading to Israel. Suez Canal 101: Every ship thru the Suez has to go thru Red Sea & Bab El Mandeb. @EIAgov: 8.8 mmbd #Oil #Products & 4.1 bcfd #LNG thru Bab el Mandeb."* Our tweet attached the Saba (Yemen, Houthi news) report [LINK] that "*The Yemeni Armed Forces explained in a statement issued today that, after its success in imposing its decision to prevent Israeli ships from navigating in the Red and Arab Seas, and as a result of the Zionist enemy's continued commitment of horrific massacres, genocidal war, and siege against the brothers in Gaza, they announce a ban on the passage of ships heading to the Zionist entity of any nationality, it will become a legitimate ta rget for it if the food and medicine it needs does not enter the Gaza Strip. It warned all ships and companies against dealing with Israeli ports in order to ensure the safety of maritime navigation, stressing its full concern for the continuation of global trade movement through the Red and Arab seas for all ships and countries except for ships linked to Israel or that will transport goods to Israeli ports. The Yemeni Armed Forces also confirmed that they will implement this decision from the moment this statement is announced."*

Houthis to include Israeli targets "*that it may not expect on land or at sea*"

Reminder that last week, the Houthis warned Israel that it was going to escalate its attacks. Here is what we wrote in last week's (Dec 3, 2023) Energy Tidbits memo. "*It looks like earlier Thursday, Saba, Yemen news, reported that the Houthis leader warned Israel that it would continue to go after Israeli ships in the Red Sea and also land targets. But the Houthis added an expansion to say this could "include targets that it may not expect on land or at sea." Saba wrote [LINK] "Yemeni Armed Forces confirmed their full readiness to resume their military operations against the Israeli enemy if it decides to resume its aggression against Gaza. The armed forces stated in a statement issued by them that, in implementation of the directives of Commander Abdul-Malik Badr al-Din al-Houthi, in response to the demands of the great Yemeni people, the calls of Arab free people and Islamic nation to stand fully with the choices of the Palestinians and their proud resistance, they confirm their full readiness to resume their military operations against the Israeli enemy in the event that it decides to resume its aggression against Gaza. They also confirmed that it would not hesitate to expand its military operations against the Israeli entity to include targets that it may not expect on land or at sea. The Armed Forces indicated that they continue to prevent Israeli ships in the Red Sea and will take further measures to ensure the full implementation of this decision, stressing that their military operations will stop as soon as the Israeli aggression against the Palestinians in the Gaza Strip stops."*

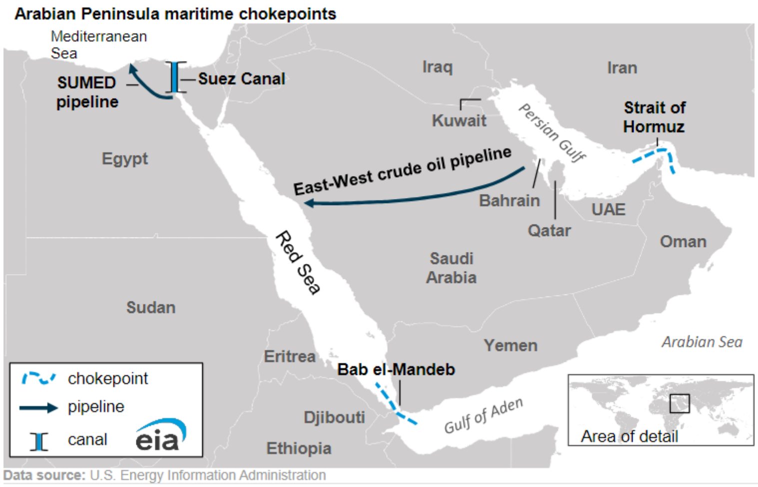
Saudi reportedly asks US to show restraint in responding to Houthi attacks
We continue to believe Saudi Arabia will be doing all it can to try to stop the Israel/Hamas war from expanding into a regional war and, in particular, want to try to find a way to stop the Houthis missile/drone attacks on Israel and not escalate Houthis drone/rocket attacks on shipping in the Red Sea and Bab el Mandeb. That last part looks like it won't happen given the Houthis announcement yesterday on now targeting any ship that is heading to Israel. But on Wednesday, Reuters reported [LINK] "*Exclusive-On edge over Red Sea attacks, Riyadh seeks to contain fall-out Saudi Arabia has asked the United States to show restraint in responding to attacks by Yemen's Houthis against ships in the Red Sea, two sources familiar with Saudi thinking said, as Riyadh seeks to contain spillover from the Hamas-Israel war." "Their role has added to the conflict's regional risks, threatening sea lanes through which much of the world's oil shipped, and worrying states on the Red Sea as Houthi rockets and drones fly towards Israel. Riyadh, the world's top oil exporter, has watched with alarm as Houthi missiles have been fired over its territory. With the Houthis stepping up attacks on shipping over the past weeks, two sources familiar with Saudi thinking said Riyadh's message of restraint to Washington aimed to avoid further escalation. Riyadh was so far pleased with the way the United States was handling the situation, the sources added."* Our Supplemental Documents package includes the Reuters report.

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

Bab el Mandeb chokepoint.

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



Source: EIA

Figure 36: 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

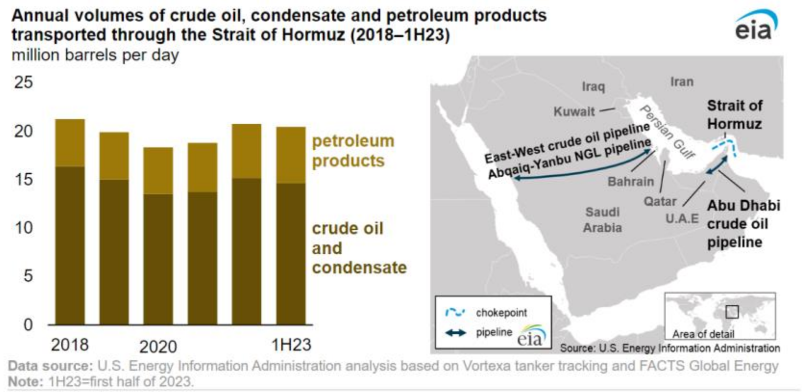
Source: EIA

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



Source: EIA

Figure 38: 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: Libya oil production at 1.3 mmb/d, to hit 1.4 mmb/d in 2024

Libya oil up to 1.3 mmb/d

Libya oil production has been stable for the last several months at ~1.2 mmb/d and been moving up closer to 1.25 mmb/d but, on Tuesday, Libya said oil production was now at 1.3 mmb/d. On Tuesday, Bloomberg reported on its interview with Libya National Oil Corporation Chairman Bengdara. Blomberg wrote "*Libya is currently producing 1.3m b/d of oil, and is targeting at least 1.4m a day by the end of next year, Farhat Bengdara, chairman of the National Oil Corporation, said in an interview. * Oil exports are likely to rise to 1.1m b/d by end-2024 from 1m b/d*." Libya at 1.3 mmb/d is exactly what Bengdara targeted in May.

05/19/23: Libya NOC Chair forecast production about 1.3 mmb/d by yr-end

Here is what we wrote in our May 21, 2023 Energy Tidbits memo. *"For the past few months, we have been expecting to see some indication from the Libya National Oil Corporation of where they see oil production growth in 2023, especially since we are almost at the end of May. Libya oil production has been steady right around 1.2 mmb/d. On Friday, Bloomberg reported that Libya NOC Chair Farhat Bengdara expects production to reach ~1.3 mmb/d by yr-end 2023 and, with $17b, could reach 2 mmb/d within five years. We have been expecting a higher 2023 exit production rate given the Feb comments from one of the Libya NOC operating companies (see following item) that production to reach 1.5 mmb/d by yr-end 2023. Bloomberg wrote "Libya is aiming to boost oil production by about 8% by December, a level that would catapult it to the highest in a over a decade. North Africa's biggest producer should be able to pump about 1.3 million barrels a day by the end of the year, Farhat Bengdara, chairman of the National Oil Company, said in an interview. Avoiding field closures and steps like improving oil workers' pay already helped boost output by nearly a quarter since January 2022 to 1.2 million barrels a day now, he said. Libya has been dogged by political turmoil ever since the overthrow and killing of leader Moammar Al Qaddafi in 2011, with a political stalemate pitting rival governments and factions against each other." And "Bengdara said that $17 billion of investment across 45 projects would allow the National Oil Corp. to raise production to 2 million barrels a day within five years. If sustained, that would far exceed anything achieved during Qaddafi's rule."*

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

China scheduled domestic flights

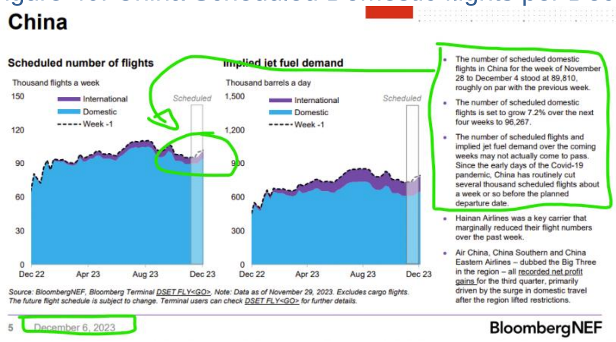
On Wednesday, we tweeted [LINK] "*Stalled China recovery. China scheduled domestic flights +0.1% WoW to 89,810. 4th consecutive wk <90,000, back to Mar 21-27 level. Will increasing respiratory questions hold back scheduled increase in flights? Thx @BloombergNEF Claudio Lubis #OOTT."* (i) BloombergNEF posted its Aviation Indicators Weekly Dec 6 early Wednesday morning. (ii) Negative. Similar message for the last four weeks, We think the takeaway is negative for China's scheduled domestic flights. The message from the "actuals" for China domestic scheduled flights is that the number of domestic flights continues to be back to Mar 21-27 levels. This is even less than the pre-summer early June levels when China was then calling for a peak in Covid wave at the end of June, before the wave of China stimulus and before international flights began to ramp up. Plus we worry about the new factor – increasing respiratory cases and we still believe this has to impact Chinese views on travel until there is clarity on what is going on. China scheduled domestic flights for the Nov 28-Dec 4 week were -0.1% WoW to 89,810 flights, which was the 4th consecutive week below 90,000 flights and to March 21-27 levels. The next 4-week lookahead is to grow 7.2% over next four weeks to 96,267, which is driven by the increasing international flights that lead to more domestic feeder flights. (iii) China scheduled domestic flights were -0.1% WoW to 89,810 flights for the Nov 28-Dec 4 week - basically flat for past 4 weeks at less than 90,000 flights and back to March 21-27 levels. This followed 89,916 flights for Nov 21-27 week, 89,562 flights for the Nov 14-20 week and, 89,776 flights for the Nov 6-13 week. Prior to that, flights were stuck for three weeks just over 92,000 flights after falling post the big Golden Week travel that saw flights at 99,490 flights for the Oct 10-16 week, 101,120 flights for the Oct 3-9 week, 97,009 flights for Sept 26-Oct 2 week and start of Golden Week travel. And below 90,000 flights is well below month ago 4-week scheduled flights where the Nov 6 report said ""*The number of scheduled domestic flights is set to grow by 4.7% over the next four weeks to 96,51*0." And that report was well below the Oct 23 report that said "*the number of scheduled domestic flights is set to grow by 39.3% over the next four weeks to 129,038*". Instead domestic flights for the past four weeks has been stuck below 90,000 flights at March 21-27 levels. (iv) The look ahead to the next four weeks is up vs last week. Today's report says "the number of scheduled domestic flights is set to grow 7.2% over the next four weeks to 96,267." This is up vs the Nov 27 report that called for "the number of scheduled domestic flights is set to grow by 6.6% over the next four weeks to 95,980.". And the prior two weeks' look ahead to the then next 4-weeks were also in that same range at 96,104 for the Nov 20 report and 96,920 for the Nov 14 report. But these are all hugely below the Oct 23 report that said "*the number of scheduled domestic flights is set to grow by 39.3% over the next four weeks to 129,038*". The increasing domestic flights in the look ahead is likely mostly due to the increasing international flights as more international flights means more need for domestic feeder flights. Today's report says the combined number of international flights out of China for the seven major airlines "*will rise by more than 325 a week to around 3,340 by the third week of Decembe*r". This is relatively unchanged vs the prior two reports. The Nov 27 report was "*will rise by more than 355 a week to around 3,370 by the third week of December*." And the Nov 20 report ""*will rise by more than 370 a week to around 3,315 by the second week of December*." All three are higher than the Nov 6 report that had 3,160 international flights by the 1st week of Dec.. The increasing international flights is the key factor for increasing domestic flights..Below is our running WoW changes from the prior BloombergNEF reports and the BloombergNEF charts from the Dec 6 report.

Figure 39: China scheduled domestic flights from BNEF Aviation Indicators Weekly reports

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

Source: BloombergNEF

Figure 40: China Scheduled Domestic flights per Dec 6 report



Source: BloombergNEF

Figure 41: China Scheduled International flights per dec 6 report

Source: BloombergNEF

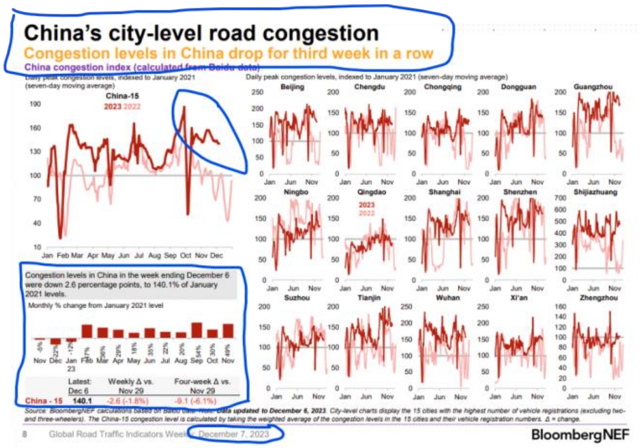
Oil: Baidu China city-level road congestion down for 3rd consecutive week

China city-level traffic congestion

On Thursday, we tweeted [LINK] "*Are increasing respiratory infections in China why traffic is dropping? 3rd consecutive WoW drop in Baidu city-level road congestion -1.8% WoW for*

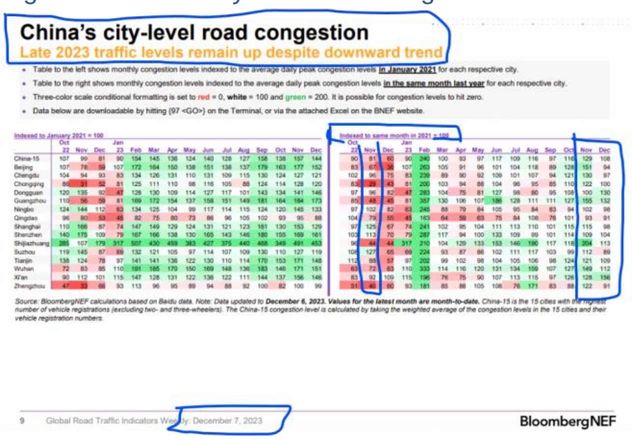
12/6 wk,-3.5% WoW for 11/29 wk, -5.9% WoW for 11/22 wk. 13 of top 15 cities down MoM. Thx @BloombergNEF. #OOTT". (i) BloombergNEF posted its Global Road Traffic Indicators Dec 7, which includes the China Baidu city-level road congestion data for week ended Dec 6. (ii) BNEF's headlines were "*Congestion levels in China drop for third week in a row*" and "*Late 2023 traffic levels remain up despite downward trend*". (iii) Negative. The Baidu China city-level road congestion data is down for 3rd consecutive week, which means a noticeable drop off vs Nov 2023. we don't know if the stalled China economy has got worse over the past few weeks, but we still have to believe the increasing respiratory issue has to be at play here in the declining road congestion. A couple weeks ago, we saw the warnings from Beijing and one of the big provinces to keep your kids at home if they are showing any impacts. Positive momentum in road congestion in Oct and Nov and reversed in Dec. It's only the first six days of Dec for the Baidu data but, compared to Nov 2023, 13 of the top 15 cities are down MoM vs 2021 levels. Nov was the best month relative to 2021 this year other than Feb 2023, which was the first Chinese New Year without Covid restrictions. Less driving is a good indicator that less people out and about and spending money. (iv) For the week ended Dec 6, Baidu data for China city-level road congestion was -1.8% WoW 140.1 of Jan 2021 level. This is the 3rd consecutive weekly decline following a -3.5% Wow for the Nov 29 week and the -5.5% WoW for the Nov 22 week. 21 level. The Baidu data is only up to Dec 6 so basically only one week, but there is a noticeable drop off vs Nov. Nov was the best road congestion month relative to 2021 other than Feb 2023 that was the first Chinese New Year without Covid restrictions. For the 1st six days of Dec, the top 15 cities, in aggregate, were 108% of Dec 2021 levels vs Dec 2022 that was only 60% of Dec 2021 levels. The big increase was expected as China was still in some sort of Covid restrictions prior to 2023. But Dec 2023 relative to Dec 2021 is well below Nov 2023 vs Nov 2021 where the top 15 cities, in aggregate, were 129% of Nov 2021 levels. (v) As noted above, the Baidu data is only for six days of Dec. Remember China was still under Covid restrictions a year ago. For the Top 15 cities in aggregate, MTD to Dec 6 was 108% of Dec 2021 levels vs Dec 2022 that was only 60% of Dec 2021 levels. For Dec 2023, all of the top 15 cities are higher vs Dec 2023. Note the big drop MoM vs Nov 2023. Nov 2023 was for full month data and 14 of the top 15 cities were up vs Nov 2021. Whereas for the first six days of Dec, only 8 of the top 15 cities are up vs Dec 2021. And note that only 2 of the top 15 cities, relative to 2021, are higher in Dec vs Nov ie. 13 of top 15 cities are down MoM vs 2021 levels. Our tweet included the below two charts from the BloombergNEF Road Traffic Indicators Dec 7 weekly report.

Figure 42: China city-level road congestion for the week ended Dec 6



Source: BloombergNEF

Figure 43: China city-level road congestion for the week ended Dec 6



China's city-level road congestion

Late 2023 traffic levels remain up despite downward trend

- 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	144
Beijing	107	78	59	107	172	164	150	138	151	138	137	179	163	177	152
Chengdu	104	94	93	83	134	126	131	110	131	109	115	130	124	127	121
Chongqing	86	31	52	81	125	111	110	98	116	105	88	124	114	128	120
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	173
Ningbo	124	144	112	63	134	125	104	99	117	114	115	124	120	145	133
Qingdao	96	80	53	45	82	75	80	73	86	96	105	102	93	95	88
Shanghai	110	166	87	74	147	149	129	124	131	121	123	161	130	153	129
Shenzhen	140	175	109	79	167	166	138	130	165	143	146	180	155	169	161
Shijiazhuang	285	107	179	317	507	430	459	383	427	375	440	468	349	491	453
Suzhou	119	145	87	69	132	121	105	97	114	107	109	130	110	127	119
Tianjin	138	124	78	97	141	141	136	122	130	110	114	170	153	171	148
Wuhan	72	83	85	110	191	185	170	150	169	148	136	183	146	171	151
Xi'an	90	112	101	115	147	128	131	122	136	122	111	144	137	156	146
Zhengzhou	47	33	66	93	113	96	95	89	94	88	92	100	82	100	99

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	108
Beijing	83	67	36	107	263	105	91	96	101	104	118	89	128	151	94
Chengdu	102	96	75	83	239	89	90	92	109	101	107	94	121	130	97
Chongqing	83	29	43	81	200	103	94	88	104	96	95	85	110	122	100
Dongguan	97	96	82	47	283	104	75	81	127	96	80	95	108	100	130
Guangzhou	85	48	45	81	357	130	106	107	186	128	111	111	127	155	132
Ningbo	97	102	82	63	245	88	79	84	105	95	84	83	94	102	98
Qingdao	104	79	55	45	163	64	59	63	75	84	108	76	101	93	91
Shanghai	97	125	67	74	241	102	95	104	111	113	110	101	115	115	98
Shenzhen	103	113	70	79	287	117	94	100	133	109	99	101	114	109	104
Shijiazhuang	96	44	44	317	210	104	129	133	153	146	190	117	118	204	113
Suzhou	108	127	65	69	224	93	87	86	102	111	117	103	99	112	89
Tianjin	112	88	57	97	202	99	102	98	104	105	106	98	124	121	109
Wuhan	63	72	63	110	333	114	116	120	131	134	159	107	127	149	112
Xi'an	83	92	109	115	196	76	75	90	107	113	115	97	126	128	156
Zhengzhou	51	40	60	93	181	85	88	105	106	76	171	83	88	122	91

Source: BloombergNEF calculations based on Baidu data. Note: Data updated to ***December 6, 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.*

9 Global Road Traffic Indicators Weekly: December 7, 2023 BloombergNEF

Source: BloombergNEF

Oil: China Covid testing at some international airports

China Covid testing

No one in the west knows if the increasing respiratory cases in China is a huge issue or not. But we look at the Chinese state media reports on increasing hospitalizations and National Health Commission suggestions from the perspective do we think it will impact Chinese mobility and getting out and about. Our focus is there a risk to energy consumption. And we do not suggest that the increasing respiratory cases are another Covid. For us, it's all about will people's behaviour change on mobility. It's tough to get credible information so when we see someone like CNBC's Eunice Yoon (Beijing desk but in the US this week) give some insight, we listen. Yoon was on CNBC's Last Call on Monday with host Brian Sullivan. We tweeted [LINK] "*#Oil markets will want/need more clarity on respiratory in China @SullyCNBC with @onlyyoontv on Xpeng boss deleted post on return of Covid testing all on his flight back to Shanghai. Also reports Covid testing at Beijing, Tianjin, etc.* #OOTT." Yoon reported on a post by Xpeng boss on his return to China landing at Shanghai airport, how he was told it was a random spot Covid test but all the passengers on that plane were tested. Yoon said the post was subsequently deleted and raised the question if he deleted the post as it could be viewed as negative to Xpeng business or if someone deleted the post for him. Yoon then noted how there has been a restart of Covid testing at other international airports such as Tianjin. We would have thought this CNBC story would have raised more questions but we really didn't see many look at this report this week. We certainly don't know what is going on but maybe the lack of interest is an indicator that not a big deal. Regardless, our concern is whether the increasing cases, increasing hospitalizations, etc impacts mobility, which impacts the economy and gasoline consumption. Our tweet included a video clip of the Eunice Yoon comments.

12/02/23, China NHC "suggested reducing large gatherings in public places"
Here is what we wrote in last week's (Dec 3, 2023) Energy Tidbits memo. "*Please note we look at the Chinese increasing hospitalizations and National Health Commission suggestions from the perspective do we think it will impact Chinese mobility and getting out and about. Our focus is there a risk to energy consumption. And we do not suggest that the increasing respiratory cases are another Covid. For us, it's all about will people's behaviour change on mobility. Last night, we tweeted [LINK] 'Negative to China recovery - Looks like less Chinese will be out and about. China National Health Commission briefing "In addition, the NHC suggested reducing large gatherings in public places." "high incidence of respiratory diseases in children and the significant increase in visits to medical institution" China state media. #OOTT." Our tweet included the Global Times (China communist party media reporting of yesterday's briefing by China's National Health Commission. No one but the Chinese know the situation, but we look at Chinese communist party media as putting the best possible spin. They continue to confirm the high incidence of respiratory diseases in children and the "significant increase" in hospital visits. But what was different in this briefing was the NHC "suggested reducing large gatherings in public places". No one knows the situation and we certainly aren't suggesting this is like Covid. Rather we look at it from a mobility perspective and will people be less inclined to get out and about? We think it would be yes for us and also for them, especially for families with kids. Recall what happened as Covid was recovering and how it was the young single group that were first to get out and about but older people and families with young kids were waiting to be cautious. So when we see a NHC recommendation to reduce large gatherings in public places as something that has to lead to less people getting out and about they see how this plays out in the short term. And certainly families with children have to be wary. So we may not know the true story, but we don't think we need to know that to expect less Chinese getting out and about*."

Global Times "hospitals across China grapple with respiratory illnesses surge"
Here is another item from last week's (Dec 3, 2023) Energy Tidbits memo. "*On Wednesday, Global Times report "Hospitals across China grapple with respiratory illnesses surge" [LINK] noted "hospitals across China grapple with respiratory illnesses surge" Note this is for respiratory illnesses, not just the spike in mycoplasma pneumonia. "Zhou's hospital has opened pediatric wards previously used for treating COVID-19 patients to accommodate the surge in cases". Re-*

opening wards not used since Covid. "with a decrease in the number of children seeking treatment for mycoplasma pneumonia infection and an increase in cases of influenza, an expert from Shanghai Children's Medical Center" ie. flu cases increasing. Also note that it's not just Beijing that is advising students/teachers to stay home if sick. It's also "East China's Shandong Province", which is the 2nd most populous province in China with over 100 million people. "Both educational and health authorities in provinces including East China's Shandong Province as well as Beijing have also advised students not to take classes or do their homework when they are sick. Personal health always comes first." But China reassures world, its fine to travel to China. "Hypes are biased. Amid a surge in respiratory illnesses in China, which the country's health authorities have already attributed to known pathogens, certain overseas media reports have been sensationalizing the severity of the diseases and even raising doubts about China's transparency in dealing with respiratory illnesses. These reports have hyped concerns about whether travel restrictions should be imposed on China." "On Tuesday, when a reporter from Antara asked the spokesperson of China's Foreign Ministry about rising concerns among the international public about the safety of traveling to China as well as people who travel from China, Wang Wenbin, the spokesperson, said, "Let me assure you that it is safe to travel and do business here in China and there's no need to worry." Our Supplemental Documents package includes the Global Times report."

Oil: China oil imports 10.37 mmb/d in Nov, down 10% MoM and lowest in 4 months

China oil imports 10.37 mmb/d in Nov

On Friday, S&P Global reported on the summary data of China's oil and natural gas imports for November based on China's General Administration of Customs website. It is only summary data and it did not include China's oil production for November, which we expect the National Bureau of Statistics to release next week. But on the summary data, S&P Reported reported "*A month-on-month reduction of 1.21 million b/d in crude inflows was primarily attributed to tight crude import quota availability for China's independent refineries, while the volume is more unlikely to fall further in December as they are keen to take arrivals in late December".* The report also points out that utilization rates of China's independent refineries fell to 81.3%, the lowest in 5 months, citing weak domestic demand. The GAC data showed that during the Jan-Nov period, inflows of crude oil to China averaged 11.32 mmb/d.

Oil: Trafigura warns on non-OPEC supply growth. peak oil demand ~2030, then plateau

Trafigura's oil and gas outlook

The big Trafigura news on Friday was their annual results and how they tripled their payouts to staff to a record $5.9 billion. What a year! We always look to their results for their recap and outlook on commodities including oil and natural gas. The headline to their commodities recap was "*Demand for commodities might have been expected to wane. In fact, we have seen consumption climb to record highs across several markets."* Oil was one of these commodities. But, Trafigura was cautious on their outlook for both oil and natural gas in 2024. We tweeted [LINK] "*Record #Oil consumption in 2024 but @Trafigura @saadrahim warns "oil markets should see further non-OPEC supply growth in 2024, as Guyana, Brazil, Canada and the US all continue to add barrels as well as incremental supplies elsewhere" ".. gas markets might also struggle". #OOTT."* (i) 2024 oil. Trafigura noted "*Oil demand is expected to record growth of over 2.3 million barrels a day according to the International Energy Agency, reaching a new all-time high of approximately 102 million barrels a day in*

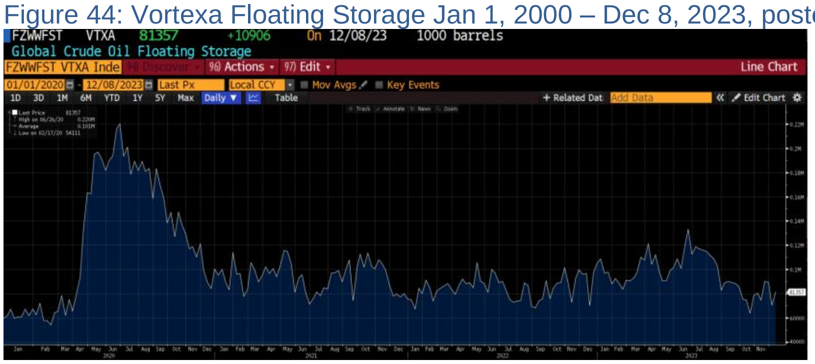
2023." "The flip side is that unless we see unexpectedly strong demand growth next year, prices might struggle to absorb increased supplies in some commodity markets. For example, oil markets should see further non-OPEC supply growth in 2024, as Guyana, Brazil, Canada and the US all continue to add barrels as well as incremental supplies elsewhere." (ii) Peak demand in 2030 & then plateau. We tweeted "*Peak oil demand & then plateau. "we also expect #oil demand to continue to grow until around 2030, when we should see demand peak and plateau, reflecting reduced demand for mobilty and energy, but continued pull from the petrochemicals sector" @Trafigura @saadrahim #OOTT."* (iii) Natural gas. Mild winter saved the day for Europe gas in 2023, warns on might struggle again in 2024. "*As it became clear that Europe would avoid a winter gas crisis, prices continued to retreat and by the spring were at the lowest level since the build up to the war in Ukraine." "Higher production, new terminals, ample inventories, structurally warmer weather and lower industrial demand mean gas markets might also struggle."* Our Supplemental Documents package includes Trafigura's commodity recap and outlook.

Oil: Vortexa crude oil floating storage est 81.36 mmb at Dec 8, +10.91 mmb WoW

Vortexa floating storage

We are referencing the Vortexa crude oil floating storage data posted on the Bloomberg terminal as of 9am MT yesterday. Note that these estimates get revised over the course of the week and the revisions can go back months. We do not check daily for the revisions, so our comments on the new estimates are compared to the prior week's Vortexa estimates posted on Bloomberg on Dec 2 at 9am MT. (i) Yesterday, we tweeted [LINK]. "*Floating #Oil storage at okay levels but creeping higher with more wks in 80s than in 70s. 12/08 is 81.36 mmb, +10.91 WoW vs revised up 12/01 of 70.45. Last 7-wk ave 80.85 mmb, vs last wk's 7-wk ave 77.73. Thx @Vortexa @business #OOTT."* (ii) As of 9am MT yesterday, Bloomberg posted Vortexa crude oil floating storage estimate for Dec 8 at 81.36 mmb, which is +10.91 mmb WoW vs revised up Dec 1 of 70.45 mmb. Note Dec 1 was revised +5.93 mmb vs 64.52 mmb originally posted at 9am on Dec 2. (iii) 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 2 are as follows: Dec 1 revised +5.93 mmb. Nov 24 revised -0.51 mmb. Nov 17 revised -4.31 mmb. Nov 10 revised +1.86 mmb. Nov 3 revised +0.86 mmb. Oct 27 revised +0.13 mmb. Oct 20 revised -1.18 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 80.65 mmb vs last week's then seven-week average of 77.73. The increase is primarily due to the dropping of the very low 63.67 mmb for Oct 20 from the seven week average. (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) Dec 8 estimate of 81.36 mmb is -15.42 mmb YoY vs Dec 9, 2022 of 96.78 mmb. (ixi) Dec 9 estimate of 81.36 mmb is -138.95 mmb vs the Covid peak of 220.31 mmb on June 26, 2020. (viii) Dec 8 estimate of 81.36 mmb is +15.75 mmb vs pre-Covid Feb 28, 2020 of 65.61 mmb. (xi) Below are the last several weeks of estimates posted on Bloomberg as of 9am MT Dec 9, 9am MT Dec 2, and 9am MT Nov 25.

Figure 44: Vortexa Floating Storage Jan 1, 2000 – Dec 8, 2023, posted Dec 9 at 9am MT



Source: Bloomberg, Vortexa

Figure 45: Vortexa Estimates Posted 9am MT on Dec 9, Dec 2, and Nov 25

Posted Dec 9, 9am MT

Date	Last Px
Fr 12/08/2023	81357
Fr 12/01/2023	70451
Fr 11/24/2023	89211
Fr 11/17/2023	89888
Fr 11/10/2023	74585
Fr 11/03/2023	80390
Fr 10/27/2023	78680
Fr 10/20/2023	63674
Fr 10/13/2023	74746
Fr 10/06/2023	75022
Fr 09/29/2023	85261

Dec 2, 9am MT

Date	Last Px
Fr 12/01/2023	64522
Fr 11/24/2023	89720
Fr 11/17/2023	94198
Fr 11/10/2023	72726
Fr 11/03/2023	79527
Fr 10/27/2023	78547
Fr 10/20/2023	64853
Fr 10/13/2023	75093
Fr 10/06/2023	74243
Fr 09/29/2023	83049
Fr 09/22/2023	89151

Nov 25, 9am MT

Date	Last Px
Fr 11/24/2023	86969
Fr 11/17/2023	89557
Fr 11/10/2023	69970
Fr 11/03/2023	78780
Fr 10/27/2023	77387
Fr 10/20/2023	63318
Fr 10/13/2023	74512
Fr 10/06/2023	71912
Fr 09/29/2023	86287
Fr 09/22/2023	90733
Fr 09/15/2023	90608

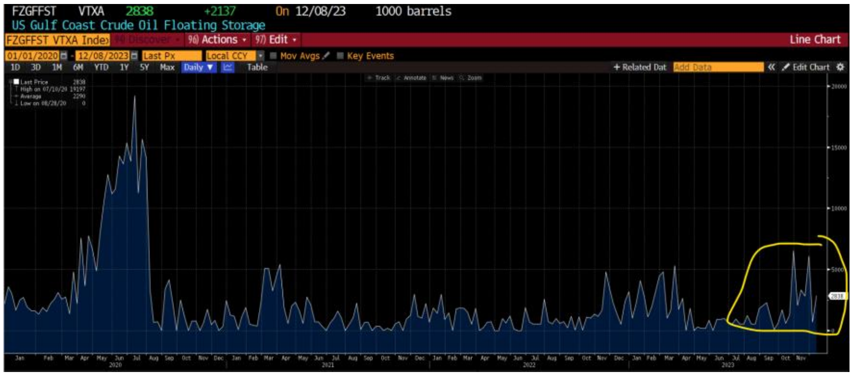
Source: Bloomberg, Vortexa

Oil: Is Panama Canal leading to volatility in Gulf Coast floating oil storage

Vortexa Gulf Coast floating storage

We have to believe Panama Canal backup is a factor in the volatility in crude oil floating storage in the US Gulf Coast. And we have to wonder if the lack of visibility for Panama Canal to get back to reasonable levels is forcing smaller oil tankers that use the Panama Canal to move onto a long route like we are seeing in LNG tankers from the US Gulf Coast. If so, it should lead to continued volatility in US Gulf Coast floating storage and not likely to see a return on a consistent basis to prior levels that were, to the most part, less than 1.5 mmb. This week, Gulf Coast floating storage was estimated at 2.84 mmb, which is +2.14 mmb WoW vs last week's Dec 1 of 0.70 mmb. The Dec 1 of 0.70 mmb was -5.37 mmb WoW vs Nov 24 of 6.07. The other prior weeks were Nov 17 of 2.80 mmb, Nov 10 of 3.30 mmb, Nov 3 of 2.05 mmb, Oct 27 of 6.54 mmb, Oct 20 of 1.25 mmb and Oct 13 of 0.57 mmb. Normally Gulf Coast floating storage has been much smaller, normally closer to 1 than 2 mmb. But crude oil tankers that are small enough to get thru the Panama Canal do not have the luxury of being able to pre-book slots, like cargo ships, for Panama Canal slots so we have to believe the recent spike up to Nov 24 at 6.07 mmb and Oct 27 at 6.54 mmb are linked to the Panama Canal. And we would expect that we could see more weekly volatility.

Figure 46: Vortexa crude oil floating for Gulf Coast



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 1, in total, was revised up 5.93 mmb. The main revisions in a region vs the originally posted (as of 9am Dec 2) floating oil storage for Dec 1 were Asia revised +4.57 mmb and Other revised +2.54 mmb.. (iii) The major WoW changes by region were Other -10.23 mmb WoW, Asia +9.10 mmb WoW, Europe +5.95 mmb WoW. US Gulf Coast +2.14 mmb WoW. (iv) Dec 8 of 81.36 mmb is down a huge 52.02 mmb vs the recent June 23, 2023 peak of 133.38 mmb. Recall Saudi Arabia started its voluntary 1 mmb/d production cuts on July 1, 2023. The major changes by region vs the recent June 23 peak are Asia -32.14 mmb and Other -26.71 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 1 that was posted on Bloomberg at 9am MT on Dec 2.

Figure 47: Vortexa crude oil floating by region

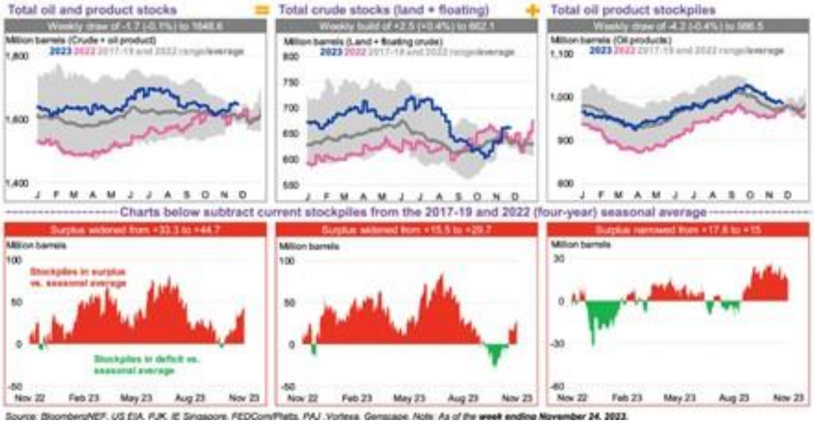
Vortexa Crude Oil Floating Storage by Region (mmb)				Original Posted	Recent Peak	
Region	Dec 8/23	Dec 1/23	WoW	Dec 1/23	Jun 23/23	Dec 8 vs Jun 23
Asia	41.44	32.34	9.10	27.77	73.58	-32.14
Europe	10.64	4.69	5.95	4.97	6.47	4.17
Middle East	9.04	7.17	1.87	8.17	7.17	1.87
West Africa	6.54	4.46	2.08	4.54	7.62	-1.08
US Gulf Coast	2.84	0.70	2.14	0.52	0.97	1.87
Other	10.86	21.09	-10.23	18.55	37.57	-26.71
Global Total	81.36	70.45	10.91	64.52	133.38	-52.02
Vortexa crude oil floating storage posted on Bloomberg 9am MT on Dec 9						
Source: Vortexa, Bloomberg						

Source: Bloomberg, Vortexa

Oil: BNEF – global oil and product stocks surplus widens WoW to 44.7 mmb

Please note that the BloombergNEF global oil and products stocks estimate are for the week ending Nov 24, which is a week earlier than the normal EIA US oil inventory data that is for the week ending Dec 1 which was a draw of -4.63 mmb/d. On Tuesday, BloombergNEF posted its "Oil Price Indicators" weekly, which provides good charts depicting near-term global oil demand and supply indicators. (i) Note BloombergNEF uses different periods to determine the surplus/deficit, sometimes using a four-year average for 2017-2019 + 2022, and other times using a five-year average 2016-2019 + 2022. In both cases they do not include 2020 and 2021 in the averages. (ii) The global stockpile for crude oil and products surplus widened from 33.3 mmb to 44.7 mmb for the week ending Nov 24. (iii) Total crude inventories (incl. floating) increased by +0.4% WoW to 662.1 mmb, while the stockpile surplus widened from 15.5 mmb to +29.7 mmb. (iv) Land crude oil inventories increased by +1.1 % WoW to 571.8 mmb, narrowing the deficit to -13.9 mmb against the five-year average (2016-2019 + 2022). (v) The gas, oil, and middle distillate stocks increased by +2.3% WoW to 143.8 mmb, with the deficit against the four-year average staying flat at -15.2 mmb. Jet fuel consumption by international departures for the week of December 11 is set to increase by +73,800 b/d WoW, while consumption by domestic passenger departures is forecast to increase by +35,000 b/d WoW. Below is a snapshot of aggregate global stockpiles.

Figure 48: Aggregate Global Oil and Product Stockpiles



Source: BloombergNEF

Oil: IATA, air passenger data, travel now 94.4 % of pre-Covid levels but Asia lagging

Air travel up in October

On Monday, the International Air Transport Association (IATA) released air passenger data for October 2023 [LINK] and the October data showed the continued recovery from Covid-19 in air passenger trends. Domestic air travel around the world was above pre-Covid levels for the 7th consecutive month, 4.8% above October 2019 levels. International air travel keeps recovering but is still below pre-Covid levels at 94.4% of October 2019 levels. (i) Total traffic in October, measured in revenue passenger kilometers (RPK), rose +31.2% YoY. Please note the IATA splits out total market air travel into International travel vs Domestic travel. (ii) For October 2023, total global RPKs were -1.8% vs October 2019 levels, but that was split between International RPKs -5.8% vs October 2019 and Domestic RPKs +4.8% vs October 2019 levels. (iii) Willie Walsh, IATA's Director General, commented "*October's strong result brings the industry ever closer to completing the post-pandemic traffic recovery. Domestic markets remain above pre-COVID levels. International demand is recovering, but more slowly. In particular, Asia Pacific carriers' international demand is 19.5% behind 2019. This could reflect the late lifting of COVID restrictions in parts of the region as well as commercial* *developments and political tensions".* Our Supplemental Documents package includes the IATA release.

Oil: IATA, global air cargo October "cargo volumes expand amid stabilized trade"

Air cargo up YoY in October

We look at international air cargo as the data that affirms the level of export orders and trade. On Monday, the International Air Transport Association (IATA) announced cargo data for the month of October [LINK]. The IATA's Director General, Willie Walsh, noted that *"Demand for air cargo was up 3.8% in October. That marks three consecutive months of year-on-year growth, placing air cargo on course to end 2023 on a much stronger footing than it began the year. Recovering demand, slightly stronger yields and the uptick in trade are all good news. But with demand still 2.4% below pre-pandemic levels, and much uncertainty remaining over the trajectory of the global economy, optimism must be balanced with caution. Nonetheless, a continued strong peak year-end season will certainly help the sector to manage through whatever turns the global economy might take in 2024".* Overall, mostly positive news, with only a few spots of YoY declines in CTKs and CLFs. Our Supplemental Documents package includes the IATA release.

Figure 49: October 2023 Air Cargo Market

	World share [1]	October 2023 (% year-on-year)		
		CTK	ACTK	CLF (%-pt)
TOTAL MARKET	***100.0%***	**3.8%**	**13.1%**	**-4.0%**
Africa	*2.0%*	2.9%	9.8%	-2.8%
Asia Pacific	*32.4%*	7.6%	30.0%	-9.8%
Europe	*21.8%*	1.0%	7.0%	-3.2%
Latin America	*2.7%*	4.0%	8.3%	-1.5%
Middle East	*13.0%*	10.9%	15.0%	-1.7%
North America	*28.1%*	-1.8%	2.4%	-1.7%

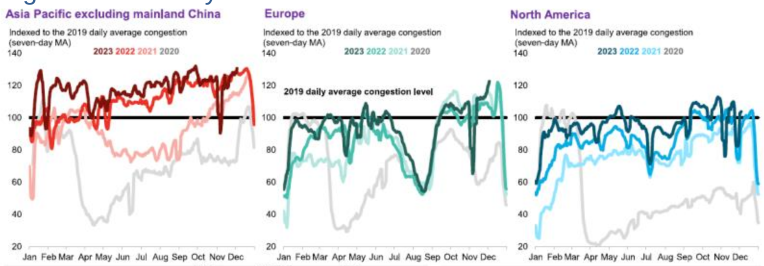
Source: IATA

Oil: TomTom mobility indicators: EU, NA and Asia-Pacific all increase WoW

Global road traffic indicators

On Thursday, BloombergNEF posted its Global Road Traffic Indicators Weekly report, which recaps traffic indicators in all the major economic regions of the world i.e. mobility indicators like TomTom. For the week ending Dec 3, Asia Pacific (ex-China), Europe and North American traffic levels all increased +1.9%, +8.7% and +25.8% WoW, respectively. Traffic levels in Asia Pacific (ex-China), Europe and North America are +30.6%, +22.5% and +3.7% compared to the 2019 average and are +1.9%, +15.1% and +9.9% YoY, respectively. All regions are above the 2019 daily average. It is worth noting that TomTom data on congestion levels now reflects daily average congestion compared to peak congestion previously. The change in methodology took effect from January 19.

Figure 50: Mobility Indicators



	Week-on-week (2019 average = 100)				Year-on-year (same week last year = 100)			
	Latest week: Dec 3	Δ vs. Nov 26	4-week MA	Δ vs. Nov 26	Latest week: Dec 3	Δ vs. Nov 26	4-week MA	Δ vs. Nov 26
Asia Pacific ex-China	130.6	+2.4 (1.9%)	123.9	+7.2 (6.1%)	101.9	+0.7 (0.7%)	98.4	+3.9 (+4.2%)
Europe	122.5	+9.8 (8.7%)	111.0	+10.6 (10.6%)	115.1	+11.3 (10.9%)	103.6	+7.9 (+8.2%)
North America	103.7	+21.3 (25.8%)	98.1	+4.5 (4.8%)	109.9	-0.1 (-0.1%)	105.6	+6.1 (+6.1%)

Source: BloombergNEF calculations based on TomTom data. Note: ***Data updated to December 3, 2023****. Δ = change. MA = moving average.*

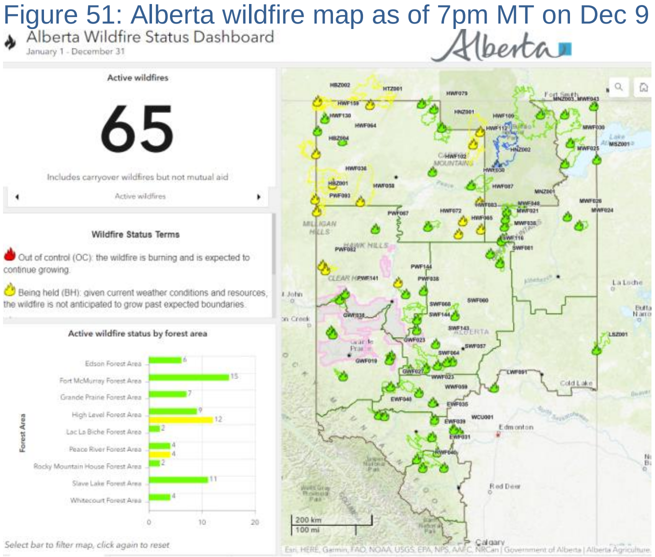
Source: BloombergNEF

Oil & Natural Gas: Minor drop in BC wildfires, no change to Alberta wildfires

BC and Alberta Wildfires

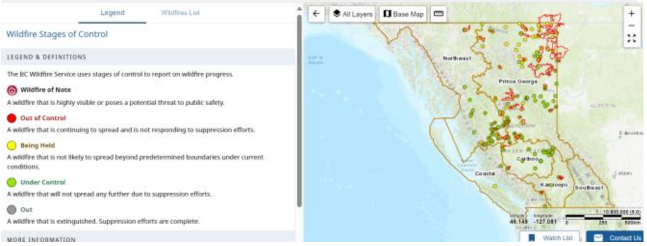
The wildfire risk is finally slowing down and we would hope so as it's Dec. This will be the last weekly reporting on wildfires until Q2/24. It is crazy that there are still this many wildfires, even if smaller and under control, as of Dec 9. As of 7pm MT last night, there were 65 Albera wildfires and zero Out of Control, which is unchanged vs a week ago. As of 7pm MT last night, there were 150 BC wildfires including zero Out of control, which compares to a week ago at 154 wildfires including zero Out of Control.   Below are the Alberta Wildfire Status interactive map [LINK] and the BC Active Wildfires interactive map [LINK] as of 7pm MT last night.

Figure 51: Alberta wildfire map as of 7pm MT on Dec 9



Source: Alberta Wildfire Status Dashboard

Figure 52: BC wildfire map as of 7pm MT on Dec 3



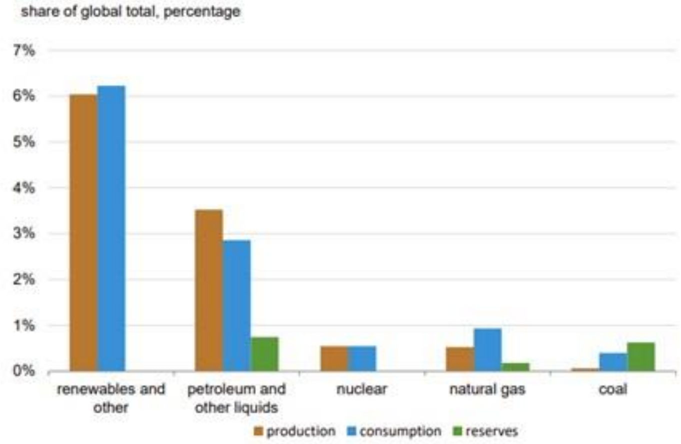
Source: BC Wildfire Service

Oil & Natural Gas: Brazil Country Brief

EIA's country brief on Brazil

We continue to recommend adding the EIA's country analysis briefs to reference libraries as good quick references, in this case its new EIA country executive summary [LINK] on Brazil. Brazil is the largest oil and gas producer in South America and is the 9th largest producer in the world. Behind Venezuela, Brazil has the 2nd biggest oil reserves in South America with an estimated 13.24 billion barrels. Crude production in 2022 averaged 3.2 mmb/d and Brazil produced an estimated 839 bcf of natural gas in 2021. Crude production has been growing steadily in Brazil (1.5% per year annualized since 2011) due to the continued development of pre-salt reserves. Pre-salt reserves are oil deposits found under a geological layer of salt in the offshore Santos Basin near Rio De Janeiro and Sao Paulo. Brazil's domestic oil consumption was approximately 2.5 mmboe/d. Approximately 44% of Brazil's total energy consumption is crude oil, while ~22% is Hydro. One of the reasons why natural gas consumption is a lot lower (~11% of total energy consumption) in domestic consumption figures is because most gas is reinjected into wells rather than sold domestically. That said, Brazil has been building more gas-fired power plants recently, largely because while hydro is a huge contributor to the grid, they still need an efficient backup power source for periods of high demand (you can't easily make a dam produce more electricity, but you can always fire up a furnace). Brazil's main market for oil and gas exports is Asia; 41% of crude oil was destined for China alone in 2022. Brazil has been a net exporter of crude oil since 2006, but they need to import refined petroleum products to meet domestic demand (14% of all Brazilian imports in 2022, the largest of any product category). 53% of these refined petroleum imports come from the US. This reliance on foreign imports is something Brazil is trying to change, and the government wants to build more refineries to improve their self-sufficiency. Brazil has 2.4 mmb/d of crude oil refining capacity from 19 refineries; Petrobras is the largest refiner operator with approximately 1.895 mmb/d of refining capacity. Brazil is also a net importer of natural gas and LNG. Almost all natural gas (gaseous) imports comes from Bolivia, while 76% of LNG cargos come from the US. Brazil has two big regasification terminals in Guanabara Bay and the Pecem Port. Our Supplemental Documents package includes the EIA brief.

Figure 53: Brazil's energy production, consumption and reserves by type



Source: EIA

Energy Transition: COP28, hard to see final day is Dec 12

UAE's COP President al Jaber declared that COP28 will end at 11am on Dec 12. The reality is that most COPs tend drag on a day or two. Clearly Al Jaber is trying to use the pressure of a deadline to get drafting signed off. But, for anyone tracking the posts over the weekend on detailed drafting, it seems hard to see how Dec 12 is the final day. .

COP28 final day is Dec 12

Energy Transition: COP28 sounding like a lot of soft language and outs

We spent a couple hours yesterday and an hour this morning looking at the posts of detailed texts being drafted at COP28. It seems like there will be even more qualifiers than normal on any final language. Items such as "*with a view to*" or "*will guide*". And, of course, the one we see every time different national circumstances. On Tuesday, we tweeted [LINK] ""*taking into account different national circumstances" will be the key words that will get countries to sign on to final COP28 declaration. ie. gives an out to countries that want an out. #Oil #NatGas will be needed for longer. #OOTT."* Just like we have seen at prior COPs, we expect to see many statements that, will on the surface, look to be big successes. However, just like we noted posted COP26, we expect to see these statements with the big qualifier "*taking into account different national circumstances*:" This is the caveat that allows countries to sign onto a commitment or promise or objective but what countries will use to remind that they will go on emissions at their pace and cost. Also linked to that will be taking into account different starting points. The other big theme that we expect to see woven thru the document is references to energy security. There will be a document that allows everyone to point to the qualifiers or the ambition.

COP28 final day is Dec 12

Energy Transition: Saudi Abdulaziz challenges those who want to phase out oil

It sounds like one of the big COP28 holdups is the question of fossil fuels phase out or phase down. We still haven't seen the final wording on phasing out or phasing down fossil fuels including hydrocarbons. But it was interesting to see Saudi Energy Minister Abdulaziz, in his Bloomberg interview on Monday, challenge those governments who are wanting to phase out hydrocarbons. He said if this is the highest moral ground issue that they say it is, they should start to do it right away and see how it goes. We tweeted [LINK] "*Legitimate question. "Call*

Saudi challenges phasing out oil

them & ask them how they are going to execute that effective January 24. They are, if they believe this is the highest moral ground issue, fantastic. Let them do that themselves & we will see how much they can deliver, if they can deliver" Saudi Energy Minister Abdulaziz on call to phase down hydrocarbons. @wenkennedy #OOTT." And [LINK] "*ICYMI Saudi Energy Minister's challenge to governments who want to phase down hydrocarbons. See 👇SAF Group transcript. #OOTT #COP28".* Here is the transcript we made of his comments. "At 31:20 min mark, Abdulaziz *".. So a thriving oil hydrocarbon industry is something we believe is the right thing for the world. Now, if others don't like that at all, so I'd ask these countries. I'm not naming names, but it's their choice. If they see that we should phase out or phase hydrocarbons, or hydrocarbons, I don't care about fossil fuel. I care about hydrocarbon. If they do, please, I did once in the FII, the last FII, I said please those countries that really believe on phasing out hydrocarbons, you should come out and put together a plan for how, starting the 1st of January 2024, when are they going to freeze, they should at least freeze their production by January 24, and also put together a plan for when that descendance or phasing out will happen."* Bloomberg's Will Kennedy *"you mentioned that phase out. 500 miles from here in Dubai, many thousands of people are doing the annual climate summit and one of the issues there is this language, which we discussed actually last year, about whether that text agreed to by most every country in the world should say fossil fuels should be phased down. Are you happy to have that language in the text?"* Abdulaziz *"Absolutely not. And I assure you not a single person in that, well I'm talking about government, do believe in that. But if they believe in it, I would like to put that challenge for all of those who believe, who think, comes out publicly by saying we have to do that. Please give me the name, their numbers and look at. Well, I'll give you're their name and number. Call them and ask them how they are going to execute that effective January 24. They are, if they believe this is the highest moral ground issue, fantastic. Let them do that themselves and we will see how much they can deliver, if they can deliver."* Kennedy *"Should the world ever stop using oil?"* Abdulaziz *"No. I think the whole purpose of the UNFCC, the Paris Agreement, it talks about mitigation. And mitigation, we know we have to do a lot of mitigation. We know we have issues, today the Saudi Green Initiative is being there in Expo. What else? The biggest and the most beautiful, not only beautiful building but, you will see activities, be it in the pavilion n the blue zone or in the Green Initiative. We are leading, we believe we are leading many producers by example, which is doing all of the above. Being the cheapest producer of clean energy. Designing to export hydrogen. Eesigning to export green electricity. Ensuring that we will have the biggest, one of the biggest hubs when it comes to carbon sequestration. Even in the western side of the country, we are capturing and sequestering CO2, but we will recycle. We're doing it for a million tonne, aside from the 44 million tonnes on the eastern part of the country. We are doing all of the above. We believe that this is our belief. We can't cheat ourself by agreeing to things that we know, actually, it would bring about a much worse situation, which is energy security. "*

Energy Transition: UAE COP President "*Phase-down of fossil fuels is inevitable*"

UAE COP President on phase-down of fossil fuels

The big advantage of being COP President is that UAE COP President Al Jaber controls the agenda and narrative and will inevitably have to sign off on any final document. Al Jaber has been taking criticism from the climate change side, but he hasn't wavered in his views, in particular that he has always been "practical, realistic, pragmatic and results-driven. There was a well viewed clip of Al Jaber saying the "*phase-down of fossil fuels is inevitable*". He doesn't not agree to a phase-out of fossil fuels and he doesn't say how fast a phase-down.

No one, even the staunchest fossil fuel supporter, will disagree with a phase-down over some long period that would be realistic in the case of oil. So Al Jaber saying a phase-down is in line with any oil thinking. We made a transcript of his comments. [LINK] Items in "*italics*" are SAF Group created transcript. Al Jaber "*Phase-down of Fossil Fuels is inevitable, it is essential, and a decline of fossil fuels consumption is going to happen for sure, over time. While I also say this, I must remind you that we have, all along, embraced the energy transition like no other. Having said that, we have always been practical, realistic, pragmatic, and results-driven. We must be fair, we must be just, we must be equitable, we must be orderly, and responsible when it comes to the energy transition. So, in short, I have promised that I will facilitate and enable the maximum and most ambitious outcome, and I will help all parties achieve the consensus required*."

Energy Transition: OPEC's statement to COP28 yesterday

OPEC says focus on emissions

Earlier this morning, we tweeted [LINK] *"#OPEC to #COP28 We need an all-energies approach. Otherwise, the world cannot meet rising energy demand, maintain energy security & ensure affordable universal energy access. The Paris Agreement also focuses on reducing emissions, rather than choosing certain energy sources #OOTT."* Yesterday, OPEC spoke at COP28 with a short statement that included the above punch line. No one was surprised to see OPEC stress the focus should be on emissions and not any particular fuel. And OPEC stressing energy security. OPEC also said "*The interwoven nature of reducing emissions and energy security is now 'rightfully' at the forefront of global discussions about energy transition pathways*." Our Supplemental Documents package includes the OPEC address.

Energy Transition: OPEC to reject COP28 focus on fossil fuels rather than emissions

OPEC says focus on emissions

Earlier this week, the big OPEC story was a reported letter to OPEC+ members to reject any COP28 text that talks about fossil fuels. No one should be surprised to see the reports that OPEC Secretary General Haitham Al Ghais urged OPEC+ countries at COP28 to reject any COP28 drafting that calls for moving against fossil fuels instead of focusing on reducing emissions. Reuters and others reported on a letter sent to OPEC+ members "*to reject proposals for any text under negotiation at the COP28 climate summit that targeted fossil fuels rather than emissions, a letter dated Wednesday and seen by Reuters on Friday showed. The language used to describe the future of fossil fuels in a final agreement is the most contentious issue at the U.N. summit hosted this year by the United Arab Emirates. Three sources confirmed the letter's authenticity to Reuters. OPEC said in a statement to Reuters it did not comment on official communication with member countries but that it continues to advise them and its partners. The letter referred to a draft of the COP28 text under negotiation that was published by the U.N. climate body on Tuesday. A different draft was published on Friday. The new draft deal includes a range of options from agreeing to a "phase out of fossil fuels in line with best available science", to phasing out "unabated fossil fuels", to including no language on them at all."It seems that the undue and disproportionate pressure against fossil fuels may reach a tipping point with irreversible consequences, as the draft decision still contains options on fossil fuels phase out," the letter said. The letter urged delegations at COP28 to "proactively reject any text or formula that targets energy i.e. fossil fuels rather than emissions."*

Energy Transition: Canada, oil & gas GHG cap 35-38% less than 2019 BY 2030

Canada to cap GHG from oil and gas

Earlier this morning, we tweeted [LINK] "*Many big questions to be answered. 2030 is only 6 year away! Liberals "proposes to cap [GHG] 2030 emissions at 35 to 38 percent below 2019 levels" on Cdn #Oil #NatGas. If production gets effectively capped, how can this not impact future #LNG #Oil export growth? #OOTT.*" This was a huge announcement this week and one that is leading to a number of big questions. We think it I fair to say the Liberal's Thursday introduction of their framework to cap GHG from the oil and gas sector is a major competitive blow vs oil and gas everywhere in the world. It's not just that there is an GHG cap, it is to be done by 2030. That is very little time. And that the Liberals are doing all they can to reduce oil and gas production in Canada. It is far too early to tell the exact ramifications of this framework but, investors and capital allocators, don't like uncertainty and the most immediate impact of this framework will be capital staying or moving to the sidelines especially for any capital that is long term directed. Especially with having to reduce GHG by 35-38% by 2030. That is a huge task. 2030 is very little time. Like him or not, it's looks like a good strategy for Liberal environment minister, "propose" something impossible and back off to something that will still be a huge win for him. On Thursday, Canada released its "*The proposed Regulatory Framework for an Oil and Gas Sector Greenhouse Gas Emissions Cap was developed following extensive engagement with industry, Indigenous groups, provinces and territories, and stakeholders. It proposes to cap 2030 emissions at 35 to 38 percent below 2019 levels, while providing compliance flexibilities to emit up to a level about 20 to 23 percent below 2019 levels. The greenhouse gas pollution cap puts a limit on the amount that the sector can pollute and will be key to making sure we reduce our emissions as a country, on the road to reaching net zero by 2050. The greenhouse gas pollution cap will spur reductions over time at a pace and scale needed to ensure the sector achieves net-zero emissions by 2050, which aligns with provincial and industry commitments. This framework comes at a critical time for Canada, with many Canadians having seen firsthand the impacts of the climate crisis—from floods, heatwaves, and wildfires to economic loss and health impacts.*" This is their proposal so the question is what will be ultimately resolved as to amount and timing and application. There is cap and trade potential that will add to cost but the reality is that there are always limits to how much real cap and trade opportunities there are. But assuming no changes to the proposal, this will be THE question to be resolved for the Cdn oil and gas sector. How will they comply with this and what will it mean to their future production and value of oil and gas in the ground? This is an effective cap on production and has to bring question on the value of future reserves. We have to believe companies will have to try to figure out what this means before they commit long term capital. Earlier in the memo, we noted one specific question will be what impact will this have on Shell's upcoming FID decision on LNG Canada 1.8 bcf/d Phase 2? But there are many more questions on how this framework gets implemented on a company basis. And most of all, the one immediate reaction will be capital allocators inevitably sitting on the sidelines or pulling back any long term capital to Canada's oil and gas sector until it is understood how much this will impact oil and gas. This will be THE issue for the Cdn oil and gas sector. Our Supplemental Documents package includes the Canada announcement.

CAPP says proposed GHG emissions cap is an effective cap on production

On Thursday, the Canadian Association of Petroleum Producers (CAPP) posted their response. Their key points were "*Despite the federal government's stated objective that the emission cap should not put a limit on Canadian oil and natural gas*

production, the unintended consequences of the draft framework announced today of a cap-and-trade system with an interim target of a 35% to 38% emissions reductions below 2019 by 2030 could result in significant curtailments – making this draft framework effectively a cap on production. At a time when the country's citizens are experiencing a substantial affordability crisis, coincident with record budget deficits, the federal government risks curtailing the energy Canadians rely on, along with jobs and government revenues the energy sector contributes to Canada. An emissions cap on the upstream oil and natural gas industry is unnecessary, given the longstanding carbon policies which already have Canada well on its way to meet or exceed emission targets. The added complexity of yet another layer of carbon policy is potentially detrimental to established carbon markets that fund clean energy projects. Canada is a major exporter of hydrocarbons to its western allies who value our commitment to energy security while operating under one of the most stringent environmental regulatory regimes in the world."
'

Good thing Canada is an exporter of oil, natural gas and soon to be LNG
The Liberals are fortunate that Canada is an exporter of oil and natural gas, and soon to be LNG. It gives them the flexibility to put an effective cap on oil and gas without having to be like an oil and gas importing country and see the impact of increasing cost of imports ie. like seen in Europe even before Russia/Ukraine. Recall the massive hit to Europe industry in the summer before Russia invaded Ukraine as natural gas prices hit record highs. So for Canada, if the GHG emissions cap to 35-38% of 2019 levels is an effective cut on production, we would assume that the it will be to Canada's exports.

Energy Transition: IATA reminds airfares gong higher under transition to Net Zero

Higher airfares ahead

On Wednesday, we tweeted [LINK] "*""Airfares have to go up. There is just no way of avoiding that" "there is no way the industry can absorb the additional costs that are coming our way as we transition to #NetZero" says @IATA head to @GuyJohnsonTV Higher prices = energy conservation #OOTT."* No one should have been surprised to see IATA Director General Willie Walsh's comments on Bloomberg on Wednesday that the airlines added cost to transition to Net Zero will lead to higher airfares. Walsh noted how airline margins are wafer thin and concluded "*So whatever way you look at this, consumers will have to pay more for their tickets as the cost of transitioning to net zero is reflected in the airlines cost base."* Our tweet included the video clip we made of this Q&A.

Energy Transition: IATA sustainable aviation fuel SAF costs 2.8x jet fuel

SAF costs 2.8x regular jet fuel

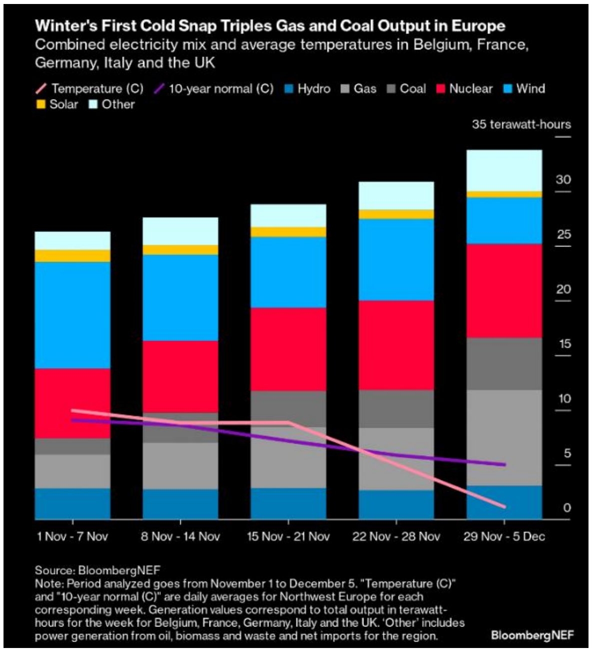
This should not surprise anyone who follows sustainable aviation fuel – it is hugely more expensive than jet fuel. The IATA estimates SAF cost 2.8x the cost of jet fuel in 2023. On Thursday, we tweeted [LINK] "*Sustainable Aviation Fuel is not cheap. #IATA aviation will consume between 450k and 500k tonnes of sustainable aviation fuel (SAF) at USD 2500 per tonne (or 2.8x jet fuel), which will add USD 756 million to the industry fuel bill in 2023". Thx @IATA Nicolas Jammes #OOTT."* Our tweet included an excerpt from the IATA's just released 24-pg report "*Global Outlook for Air Transport*". The IATA wrote "*According to our estimates, the aviation industry will consume between 450k and 500k tonnes of sustainable aviation fuel (SAF) at USD 2500 per tonne (or 2.8x jet fuel), which will add USD 756 million to the industry fuel bill in 2023."* We think the reality about cost and availability of SAF will lead to delays in how fast SAF can be incorporated into the global jet fuel mix on any significant amount, which means conventional jet fuel will be needed for way longer than per Net Zero aspirations. Our Supplemental Documents package include an excerpt from the IATA report on SAF.

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

Low winds in EU when its cold

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



Source: BloombergNEF

Natural gas saved the day for UK power with low wind generation

We saw this low wind/natural gas came to rescue in UK last week. Here is what we wrote in last week's (Dec 3, 2023) Energy Tidbits memo. "*It was still Nov 30 and the UK had to give its first winter warning on electricity supply might not be at risk. It's been colder than normal to end Nov but not as cold as it can get in the Dec and Jan. Even still, on Thursday, UK National Grid warned they were "activating a Live Demand Flexibility Service event between 16:30-18.00 tomorrow" due to "our forecasts show electricity supply margins are expected to be tighter than normal on Friday evening. " They didn't say why the tight markets so we went to their live grid data showing energy sources and tweeted [LINK] "UK needs #NatGas for longer. Yes, National Grid is warning on #Electricity supply tomorrow. Fortunately, it's only Dec 1 in UK so not full winter cold. And more importantly, UK still has #NatGas to fill in when #Wind power is low. "#OOTT." The reason the tight supply is very low wind generation, it shows up clearly in the National Grid data we attached to our tweet. Wind generation is low so the UK has to call on natural gas to fill in. At that time, wind was down to ~10% and natural gas was ~70% of the power generation. The UK better hope for the warmer than normal winter being forecast by ECMWF*."

Figure 55: UK National Gird Power supply for past week as of Nov 30

Source: UK National Grid

Energy Transition: 77% of UK EV Nov sales were to fleets/business

77% of UK EVs in Nov went to business

One of the EV sales headlines on Tuesday was like Bloomberg "*For the first time since zero-emission cars went mainstream, the number of registrations of new electric cars fell 17 per cent last month. Private buyers — who thought they were getting ahead of the game with the government plan to ban new cars with internal combustion engines in 2030 — are deserting the market.*" Bloomberg also wrote "*Monthly data show that 24,300 battery electric cars were sold in November. That compares to 29,300 in the same month last year. The last time electric car sales fell was during the huge industry dislocation and closure of dealerships in April 2020, the first full month after Covid-19 lockdowns were enforced. The latest figures show that battery electric cars are now making up 15 per cent of new sales. That compares to 20 per cent a year ago.*" Bloomberg also noted how 77% of the EVs were "*acquired as company cars or went into business fleets*", whereas only 5,500 EVs were bought by individuals. Even though the EV sales were down, there is likely a reason for that in Nov and Dec. Cleantechnica wrote [LINK]. "*As for the BEV outlook, the market faces disjunctions. The new ZEV mandate, starting in 2024, requires auto manufacturers to sell roughly 22% ZEVs (i.e. BEVs) in the UK, or face stiff fines. The actual numerical requirement is a bit more complicated — a politically fudged formula, designed to keep laggards like Ford, Honda and Toyota from following through on their threats to pull out of their UK factories and related investments. Holding back what should be late-2023 customer deliveries of BEVs, and delaying those deliveries until January 2024, gives manufacturers a head start on meeting this new 2024 requirement.*" Our Supplemental Documents package includes the Bloomberg report.

Capital Markets: Bank of America CEO, US consumer is still spending

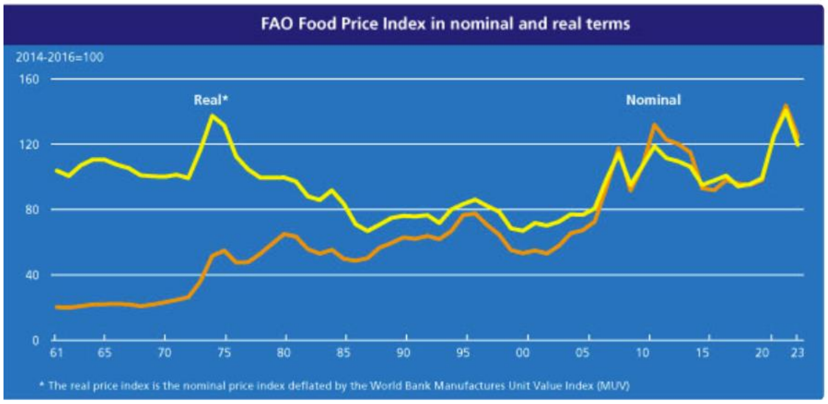
BOA CEO on US consumer

All the surveys say how inflation and the cost of things is right up there as the #1 or #2 worry for Americans. And we see the earnings calls from the consumer companies talk about Americans trading down and starting to spend less. On Tuesday, Bank of America CEO Moynihan was interviewed on CNBC and he reminded that the American consumer may feel bad about inflation but is going out and spending. Ie. it's not the big post Covid rush, aren't spending goods as they did a lot of that in Covid but are out and about spending. We tweeted [LINK] "*US consumer still spending! $BAC CEO "what you're seeing in the tension between how I feel versus what I do. And how I feel is I feel inflation, I'm reading about everything is more expensive. What I'm doing, I'm going to concerts, I'm spending money on entertainment" @LesliePicker #OOTT.*" We made a transcript of his answer "*for the primed American consumer, they're employed, they're earning more money. Is inflation tough on certain segments of the economy? Absolutely. And that's what you're seeing in the tension between how I feel versus what I do. And how I feel is I feel inflation, I'm reading about everything is more expensive. What I'm doing, I'm going to concerts, I'm spending money on entertainment, 7% higher in November vs last November to give you a sense. I'm spending a little less money on goods because I bought all that stuff in the pandemic, I don't need to buy it again. But I am doing entertainment. I am travelling more. So the way consumers are spending money is leveling out but all and all, in pretty decent shape*".

UN food price index flat MoM

Capital Markets: UN FAO Food Price Index flat MoM in November, down -10.7% YoY
Other than two small blips in April and August 2023, the UN Food Price Index had declined for about a year prior to October 2023. But a decline in commodity food prices really hasn't translated into a proportional decline in grocery food prices, or anywhere near that as the UN FAO Food Price index is a commodities measure and not a grocery store price measure. But it's good news that food commodity prices continue to ease and hopefully these will ultimately work their way thru the added costs in the supply chain before they get to grocery stores prices. The UN global food price index was flat in November 2023. On Friday, the UN posted its monthly update of its FAO Food Price Index [LINK] titled "*FAO Food Price Index overall unchanged in November*". Note that the index is calculated on a Real Price basis. The FFPI averaged 120.4 points in November, essentially unchanged from 120.6 points in October, and down -10.7% YoY. The FFPI reported mixed movements for most of its sub-indices in November. The Vegetable Oil Index was up +3.4% MoM after decreases for the past 3 months. The Dairy Price Index was also up +2.2% MoM but is down -16.9% YoY. The Cereal Price Index was down -3.0% MoM which is -19.4% YoY. The Meat Price Index was flat MoM and is down -2.4% YoY.

Figure 56: UN FAO Food Price Index



Source: UN Food and Agricultural Organization

Q3/23 call, Loblaw says "*grocers are not the reason for high food prices*"

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

Capital Markets – Sen. Warren frames her wealth tax as a two cent wealth tax

Warren's wealth tax is only 2 cents

We shouldn't be surprised that, with the US elections 11 months away, politicians are trying to get their preferred policy positions as par to the platform. In this case, it's Elizabeth Warren, known as a progressive, setting the stage for one of her favorite items to enact – a wealth tax. On Thursday, we tweeted [LINK] "*Fan or not, got to appreciate how @ewarren messages. a 2 cent wealth tax, doesn't sound like big deal, but 2% on assets >$50mm is a huge pot of $$, listen 👇 to all the items it can fund. is wealth tax likely in Biden 2024 election? Trudeau 2025 election? @andrewrsorkin #OOTT."* Elizabeth Warren was on CNBC Squawk Box on Thursday and mentioned her wealth tax idea from a few years ago. Our comment is much like we wrote on this in our Jan 31, 2021 wealth tax comments. Whether you are an Elizabeth Warren fan or not, you have to at least admire how she can frame her position to make the other side look unreasonable. Framing her wealth tax as a 2 cent tax makes it sound like a nothing. However, she is talking about a 2% tax per year on assets/wealth over $50 million. So it the wealth is $50mm, it's a tax of $1mm for that year, or $2mm for assets at $100mm and so forth. So it sounds like no big deal, but then when you listen to what she says it could fund, you realize it's a huge pot of money per year. Our tweet include the video clip of her comments ""*If we just said if you've got more than $50 million in assets and we put in place a two cent tax on wealth. And by the way, people pay taxes, pay property taxes all the time on unrealized gains. You pay your property taxes on your home.*

But a two cent wealth tax, think what that would mean in this country right now. it would mean that we could provide universal child care for every one of our babies, we could put much more money into our public school system, we could provide free post high school technical school, 2-year college, 4-year college, we could cancel all student loan debt and we could still have a lot of money left over."

Will Trudeau introduce a wealth tax for the next election campaign?

Our Warren tweet asked "*is wealth tax likely in Biden 2024 election? Trudeau 2025 election?*"" We don't know about Biden but we think there is a real risk for Trudeau to introduce her version of a wealth tax for the 2025 election unless there is a massive turnaround in the polls. The next election has to be no later than October 2025. If he is still behind in the polls, we have to believe it has a good chance to be part of his platform as a key way to present Poilievre as a person for the rich. Trudeau's reported wealth tax idea were different – they hit much lower wealth levels and supposed were a one-time hit. Here is what we wrote in our May 15, 2022 Energy Tidbits memo on the potential for a Trudeau wealth tax. "*Will Trudeau put in a wealth tax now? or maybe wait for an election? No one would put it past him, but we are still in the camp that doesn't expect Trudeau to put in a wealth tax, or certainly not at this time. If anything, we think his timing would be ahead of an election. However, the National Post reported [LINK] "Jay Goldberg: Ottawa looking at a wealth tax to pay for soaring spending A wealth tax would inflict economic pain on rich Canadians, poor Canadians and everyone in between." "Prime Minister Justin Trudeau has been eyeing a wealth tax to pay for his government's spending spree. Heavily redacted documents obtained by the Canadian Taxpayers Federation under an access to information request show the prime minister asked for analysis of a $60-billion wealth tax. With deficits looming to the far horizon, it must be a tempting cash grab." And "According to the report, which was written at the request of a Liberal member of parliament, a one-time three per cent tax on people with more than $10 million in assets, coupled with a one-time five per cent tax on people with more than $20 million in assets, would rake in $60 billion." It would be interesting as $10 million would seem to be a low level for this "wealth" tax. And it would probably include a lot of oil executives that would have loaded up on options in 2020 and seem stocks prices up multiples. The National Post report notes how France quickly backtracked on a wealth tax."*

Demographics: Signet Jewelers says engagements ramping up

US engagements on the rise

We were watching CNBC Mad Money on Tuesday when Jim Cramer had on Signet Jewelers CEO Gina Drosos. Signet had reported Q3 earlier on Tuesday. Drosos said engagements had seen the trough and were on the rise based on what they are seeing from their 45 proprietary milestones they track on couples. They don't disclose the 45 milestones and called them trackable milestones. She used the example of going on a trip together or moving into together are late stage milestones. And she also noted how Google searches on engagement rings are up over 10% vs previous period, she said first time up in over 2 years. Here are some of her quotes from the Q3 call earlier on Tuesday. "*Second, the multiyear engagement recovery has begun as we predicted with engagement ring units beginning to rebound in recent weeks. While we still expect a gradual recovery over the next three years of the 45 proprietary relationship milestones that we track, we have seen the expected* *progressions to late-stage milestones over the past few months. This progression is highly correlated with engagement ring purchases, which we have also seen increase over the last several weeks. Importantly, engagement rings are the catalyst to lifetime value, which makes them a competitive advantage for establishing sustainable, long-term growth." "As I highlighted above, we've crossed the trough, and the engagement recovery has begun. For example, couples moving in together, a late-stage milestone, was up 9 points from early 2022, and Google searches for engagement rings are now 10% higher than last year, the first time they've exceeded the prior year in nearly two years. The percentage of couples moving to the engagement phase has improved by 5 points, a statistically significant movement over the last 18 months. Beyond the COVID-driven engagement recovery, we are also seeing more positive attitudes among younger, unmarried consumers toward getting engaged and married. In our most recent survey, nearly 80% of non-married millennial and Gen Z adults say they want to eventually get engaged and married, which is a notable improvement to younger adults from a 2018 survey. That's encouraging, as are the multicultural changes we're seeing in engagements moving forward. The majority of engagements in the U.S. will be multicultural, led by growth in Hispanic Americans."*

Demographics: WHO says raise taxes on alcohol on regular basis & adj for inflation

WHO says raise taxes on alcohol

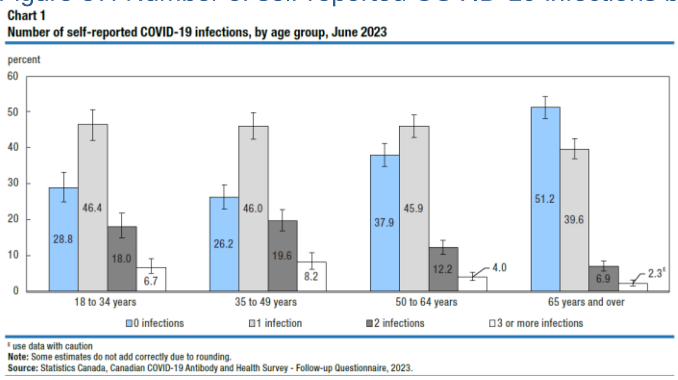
We can't help look at the WHO's suggestions on what countries should do on alcohol taxes and think that governments and organizations have the same playbook – introduce some sort of tax and increase it regularly to get to a big number over time. If they didn't have this playbook, WHO would be telling governments hit alcohol with a big tax hit so alcohol gets so expensive that people really cut back drinking to more quickly deal with the WHO health concerns. On Tuesday, the World Health Organisation posted its "*WHO calls on countries to increase taxes on alcohol and sugary sweetened beverages*" [LINK] and its 300-pg "*WHO Technical Manual on Alcohol Tax Policy and Administration*" [LINK]. WHO's data "*show a low global rate of taxes being applied to unhealthy products such as alcohol and sugary sweetened beverages (SSBs). The findings highlight that the majority of countries are not using taxes to incentivize healthier behaviours. To help support countries WHO is also releasing a technical manual on alcohol tax policy and administration*." WHO says "*Globally 2.6 million people die from drinking alcohol every year and over 8 million from an unhealthy diet, implementing tax on alcohol and SSBs will reduce these deaths*." WHO sees a win if government increase taxes that make the higher cost reduce alcohol consumption, which provides health benefits. We looked thru the 300-pg technical manual and WHO's suggestion reminded us of all taxes ie. get a tax in place and just keep increasing it on a steady basis instead of making one big tax increase. Although, we believe that if WHO really wanted to hammer alcohol consumption, they should be suggesting one big tax increase. On pg 265, WHO wrote "*Alcohol taxes should be increased regularly to reduce affordability over time. Governments should raise taxes regularly to increase prices and reduce the affordability of alcoholic beverages, to optimize the public health impact of tax policies while simultaneously generating higher revenues."* Also on pg 265, WHO recommends "*Specific alcohol taxes should be adjusted automatically for inflation and income growth. If governments implement specific alcohol excise taxes, their real value and effectiveness in reducing alcohol demand will fall over time as inflation or general income levels increase. To ensure that the effectiveness of alcohol taxes is maintained, governments should establish a mechanism for automatically adjusting specific taxes to keep pace with inflation and income growth."* Our Supplemental Documents package includes the WHO release.

Demographics: 64.5% of Cdn adults caught Covid, 11.7% are having long Covid impact

64.5% of Cdn adults had Covid

On Friday, Statistics Canada released its report "*Experiences of Canadians with long-term symptoms following COVID-19".* [LINK] There were some good stats on Covid in Canada. (i) "*As of June 2023, about two-thirds of Canadian adults reported at least one confirmed or suspected COVID-19 infection, with many reporting more than one infection since the beginning of the pandemic*". The actual number was 64.4% by June 2023. Interestingly, it increased from 38.7% in summer 2022 up to 64.4% by June 2023. (ii) Long Covid. " *About 3.5 million Canadian adults reported experiencing long-term symptoms following a COVID-19 infection; 2.1 million reported they were still experiencing those symptoms as of June 2023. Almost half of those still experiencing symptoms reported they have not seen any improvement in symptoms over time."* Our Supplemental Documents package includes the Statistics Canada report.

Figure 57: Number of self-reported COVID-19 infections by age group, June 2023



Source: Statistics Canada

Twitter: Look for our first comments on energy items on Twitter every day

@Energy_Tidbits on Twitter

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.

Arnold Palmer "*I can be better tomorrow than I was today*"

We had Golf Channel on Wed listening to the views on the roll back of the golf ball in 2028 for the pros and 2030 for the recreational golfers. Seth Waugh is CEO of PGA of America and was talking about how all golfers like to improve. He talked about the opportunity he had to play a round with Arnold Palmer when Arnie was 80 yrs old. He passed away at the age of 87 in 2016. After the round, he see Arnie go to the practice round to hit some balls. Waugh decides to go and hit some balls besides Arnie. He asks Arnie if he was working on anything. Arnie said "*I will never be as good as I was or remotely as good as I was, but I can be better tomorrow than I was today"*. That is the beauty of golf, no matter how good or bad you are, you can always be better tomorrow. And it's a good reminder to hit some balls after the round while your misses are still fresh in your mind.

Shinkflation, McDonalds new Big Mac

Last week, there were TV and on line reports of McDonald's new Big Mac that is being rolled out in the US. McDonalds has highlighted its new "juicier" cooked all-beef patties, more special sauce, fresher lettuce and new buttery brioche bun. Apparently the new juicier burgers are because the will only six grills at a time instead of eight. But one other factor for the new Big Mac is the patties are smaller ie. shrinkflation.

Patriots lost three straight games will allowing 10 points or less

We didn't watch the full game but did tune in for some of last weekend's Chargers shutting out the Patriots 6-0. Patriots/Chargers game to see if there was anything happening. And there wasn't. The Patriots fell to 2-10 on the season and only trail the Panthers at 1-11 for the worst record in the NFL. The amazing stat from the Chargers game is that the Patriots have lost their last three games 10-6, 10-7 and 6-0. And that make the Patriots team the first time since the 1938 Chicago Cardinals to lose three straight games while only allowing 10 or more points against. The Chicago Cardinals were one of the two founding members, along with the Chicago Bears, of the NFL. They ultimately became the St. Louis Cardinals and then today's Arizona Cardinals. This is also the 2nd time the Patriots have been shut out at home, after losing 34-0 to the Saints on Oct 8. Prior to that, the Patriots were shut out during the Tom Brady era, on Oct 2, 2016 losing 16-0 to the Bills. However, Brady was still sitting out his 4-game suspension for deflategate. We did watch the Patriots score three TDs in the first half on Thursday Night Football to beat the Steelers 21-28.