Energy Tidbits

October 15, 2023

Produced by: Dan Tsubouchi

Exxon's Shale Advancement on 4-mile Permian Wells with Heel-to-Toe Completion Success = Increased Value in Contiguous Land

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. Exxon buys Pioneer and highlights how its contiguous land blocks allow it to take advantage of its well advancement on long 4-mile wells with heel-to-toe completion success. [click here]

2. North Dakota says success at 3-mile Bakken wells means Tier 2 lands now delivering results comparable to Tier 1 lands. [click here]

3. We don't see how an escalation of the war to involve Iran doesn't bring huge risk to oil, petroleum products and LNG supply. [click here]

4. 2nd consecutive week of very low Vortexa crude oil in floating storage at 71.79 mmb. [click here]

5. First time US has applied sanctions related to violations of Russian price cap. [click here]

6. We did not get to numerous items being glued to news given the critical days right now in Israel/Hamas war.

7. 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.

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

Dan Tsubouchi
Chief Market Strategist
dtsubouchi@safgroup.ca

Ryan Dunfield
CEO
rdunfield@safgroup.ca

Aaron Bunting
COO, CFO
abunting@safgroup.ca

Ryan Haughn
Managing Director
rhaughn@safgroup.ca

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Natural Gas: +84 bcf build in US gas storage; now +316 bcf YoY surplus

US gas storage +316 bcf YoY surplus

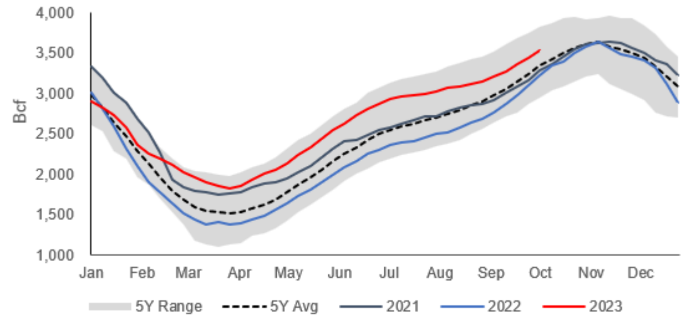
For the week of October 6, the EIA reported a +84 bcf build (below with expectations of a +86 bcf build), and a YoY decrease compared to the +125 bcf build reported for the week of October 6, 2022. Total storage is now 3.529 tcf, representing a surplus of +316 bcf YoY compared to a surplus of +357 bcf last week. Total storage is +185 bcf above the 5-year average, down from the +202 bcf surplus last week. Below is the EIA's storage table from its Weekly Natural Gas Storage report [LINK].

Figure 1: US Natural Gas Storage

	Stocks billion cubic feet (Bcf)				Historical Comparisons: Year ago (10/06/22)		Historical Comparisons: 5-year average (2018-22)	
Region	10/06/23	09/29/23	net change	implied flow	Bcf	% change	Bcf	% change
East	874	847	27	27	778	12.3	832	5.0
Midwest	1,021	991	30	30	947	7.8	981	4.1
Mountain	244	239	5	5	189	29.1	204	19.6
Pacific	278	278	0	0	249	11.6	275	1.1
South Central	1,112	1,090	22	22	1,050	5.9	1,074	3.5
Salt	267	259	8	8	249	7.2	262	1.9
Nonsalt	845	830	15	15	800	5.6	812	4.1
Total	**3,529**	**3,445**	**84**	**84**	**3,213**	**9.8**	**3,366**	**4.8**

Source: EIA

Figure 2: US Natural Gas Storage – Historical vs Current



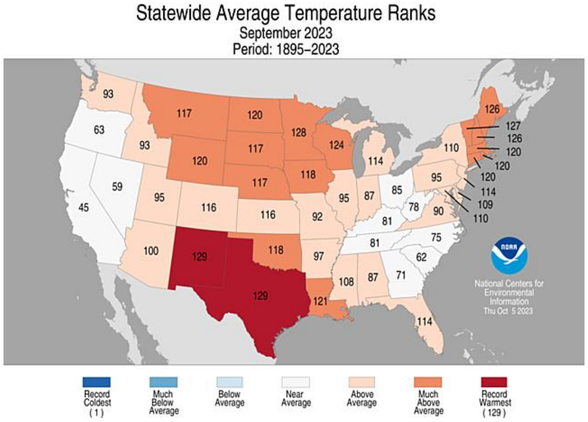
Source: EIA, SAF

Natural Gas: NOAA, Sept was the 7th hottest, JAS the 3rd hottest in the last 129 yrs,

NOAA JAS temperature recap

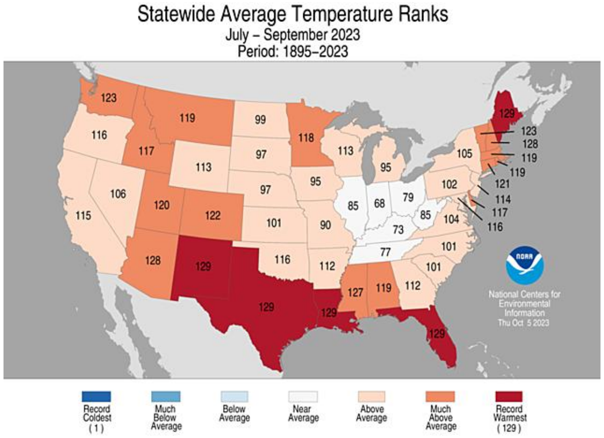
It was a great hot summer for natural gas demand, which reminds that hot summer temperatures don't have anywhere near the impact on natural gas prices as cold winter temperature. It was near record heat this summer and HH prices never really took off this summer. On Wednesday, NOAA posted its National Climate Recap for September [[LINK]. September was the 7th hottest in the last 129 yerars. It was record heat in Texas and New Mexico, and really hot in Plains, Midwest, Great Lakes NE and south. NOAA also posted its recap of summer July/Aug/Sept [LINK] and it was near record heat as the 3rd hottest in the last 129 years. It was record heat in a number of states and near record in many others. Below is NOAA's by state ranking for September and July/Aug/Sept temperatures.

Figure 3: NOAA Statewide Average Temperature Ranks – Sept 2023



Source: NOAA

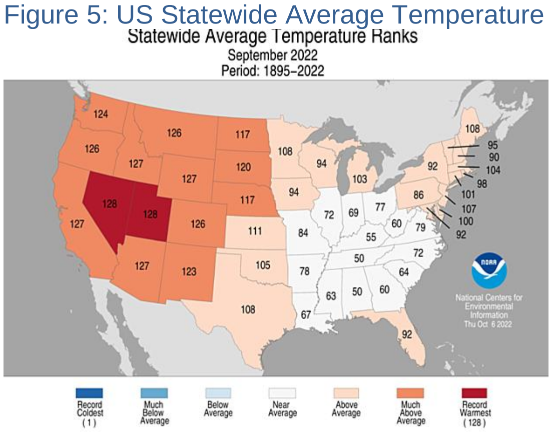
Figure 4: NOAA Statewide Average Temperature Ranks – July/Aug/Sept 2023



Source: NOAA

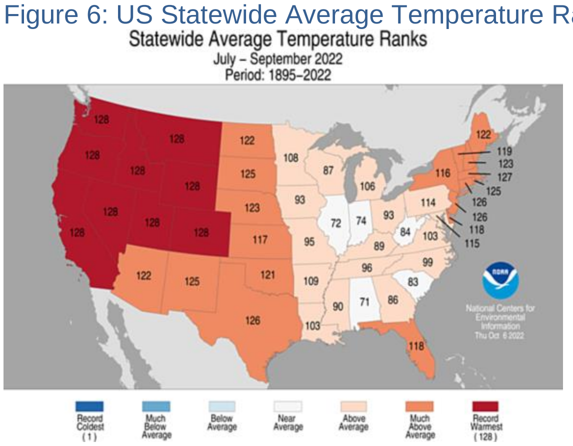
Sept 2022 was 5th hottest, JAS 2022 the #1 hottest in last 128 years
As hot as it has been in July, Aug and Sept 2023, it was still not as hot as last summer. NOAA ranked Sept 2022 as the 5th hottest in the last 128 years. And July/Aug/Sept as the hottest on record in the last 128 years. Below are the NOAA average temperature maps for Sept 2022 and July/Aug/Sept 2022.

Figure 5: US Statewide Average Temperature Ranks September 2022



Source: NOAA

Figure 6: US Statewide Average Temperature Ranks July/Aug/Sept 2022



Source: NOAA

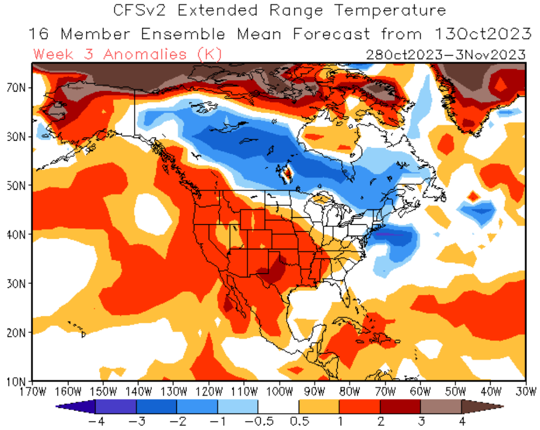
Natural Gas: NOAA expects above normal temp to end Oct & start Nov

Forecast for a warm start to Nov

The start of what markets the US and Canada call winter natural gas withdraw season, Nov 1, is now just over three weeks away. And we continue to expect the key holdback to near term natural gas and LNG prices is that forecasts are calling for a warm start to winter, including in the US. A warm start to winter will bring a weaker tone to prices and make it essential for a cold Jan/Feb/March or else it points to another year of soft prices. As seen in 2023, a warm start to winter and a warm winter overall has kept natural gas and LNG prices held back all year in 2023. Yesterday, we tweeted [LINK] "*Weather forecasts aren't always right, but 👇@NOAA latest update still sees warm start to Nov. Dec/Jan/Feb are the key months to be cold but a warm Nov can keep a lid on tone & price for #NatGas until there is some colder weather. #OOTT [LINK].*" Yesterday, NOAA posted its daily update for its temperature probability outlook for November, and the temperature probability outlook is still for above normal normal temperatures across most of the US. We recognize that weather forecasts are far from 100% certainty, but near-term forecasts tend to have a better accuracy.

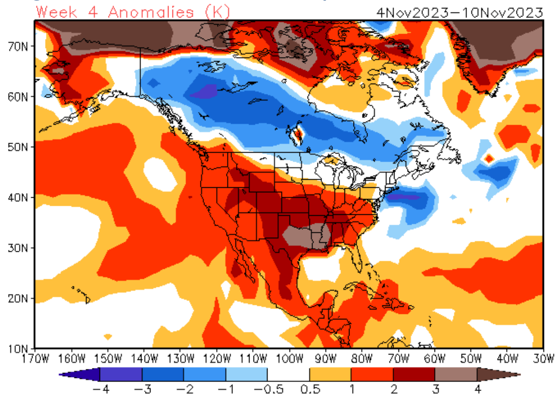
Below is the NOAA temperature probability outlook forecast from Oct 13 for Oct 28-Nov 3, and Nov 4-10.

Figure 7: NOAA mean temperature forecast for Oct 28-Nov 3



Source: NOAA

Figure 8: NOAA mean temperature forecast for Nov 4-10



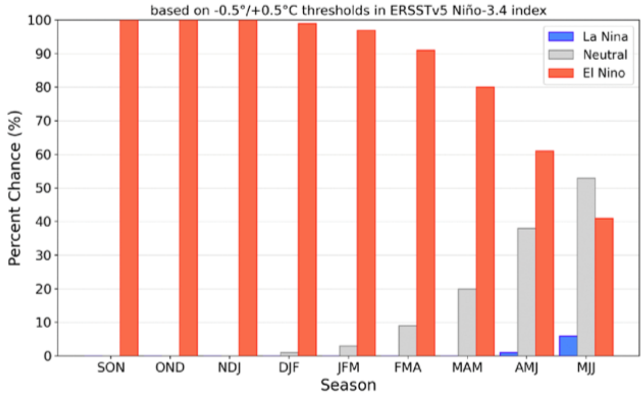
Source: NOAA

Natural Gas: NOAA sees El Nino conditions for Dec/Jan/Feb

The focus for El Nino conditions is for the winter. On Thursday, NOAA posted the updated monthly El Nino/La Nina outlook, which is issued on the 2nd Thurs of every month [LINK]. NOAA continues to forecast El Nino conditions in the Northern Hemisphere Winter and Spring 2023-24. NOAA provided a probabilistic forecast for meeting El Nino thresholds for Dec/Jan/Feb is 99%.

El Nino forecast for Dec/Jan/Feb

Figure 9: El Nino Probability Oct 2023



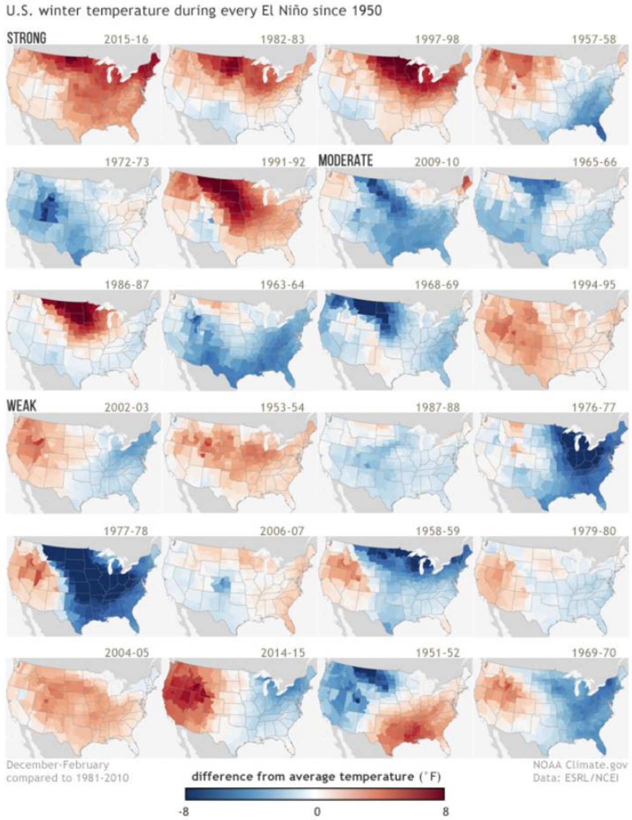
Source: NOAA

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

El Nino can bring cold winters

El Nino winters are typically warmer than normal in the northern US. But we remind of a Oct 24, 2018 NOAA brief "*U.S. winter temperatures for every El Niño since 1950"* where NOAA looked at all El Ninos since 1950, classified them as strong, moderate or weak El Ninos and then showed the average winter (Dec thru Feb) temperature map. We checked this weekend and the link still works [LINK]. NOAA wrote *"The tropical Pacific climate pattern known as "ENSO," which is short for El Niño-Southern Oscillation, has its strongest influence on the U.S. climate during winter (December-February). El Niño in general acts to tilt the odds toward wetter- and cooler-than-average conditions across much of the South, and toward drier and warmer conditions in many of the northern regions. El Niño's influence on temperature is less reliable than its influence on precipitation. The collection of maps at right show the difference from average (1981-2010) winter temperature (December-February) in each U.S. climate division during all El Niño events since 1950. Years are ranked from strongest El Niño (top left) to weakest (bottom right), based on the December–February Oceanic Niño Index value. There is no universal way to define the strength of El Niño events, but for this graphic, events with ONI values above 1.5 are ranked as strong, events with ONI values between 1 and 1.5 are ranked as moderate, and events with ONI values between 0.5 and 1 are ranked as weak." "Four of the six strong events have a warm signal that is nearly nationwide, but even among them, the geographic details—the location of the biggest anomalies, where the few cool spots are—vary from one event to another. Looking at both strong and moderate events, the patterns become even less consistent. Eight of the twelve events have a warm signal in the Northern Plains (a much smaller area than is affected in the strong events), but 4 are colder than normal."* Below are the Nino maps from the NOAA brief.

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



Source: NOAA

EIA US natural gas production forecast

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

The EIA increased its forecast of US natural gas production +1.0 bcf/d for 2023 and +0.2 bcf/d for 2024. The EIA's actuals for oil production have been running ahead of the forecast and we have been expecting to see an increase as a bit of a catch-up adjustment especially as we are seeing the EIA make catch-up adjustments to its forecast for oil production. As a reminder the key oil plays produce associated natural gas and NGLs, any increase in US oil production lead to increases in associated natural gas production from these oil plays. (i) On Wednesday, the EIA released its monthly Short Term Energy Outlook for October 2023 [LINK]. The EIA increased its 2023 US natural gas production to 103.7 bcf/d (was 102.7), which, on a full year average basis, gives solid YoY growth of +4.1 bcf/d from 2022. The EIA's increased 2023 forecast increases estimates for H2/23. The revisions by quarter were Q1/23 +0.3 bcf/d to 102.4 bcf/d, Q2/23 +0.4 bcf/d to 103.2 bcf/d, Q3/23 +1.7 bcf/d to 104.4 bcf/d, and Q4/23 exit +1.8 bcfb/d to 104.9 bcf/d. (ii) The EIA increased its 2024 forecast to 105.1 bcf/d (was 104.9), which, on a full year average basis, is up vs 2023 forecast of 103.7 bcf/d. The EIA did not comment on the changes in their natural gas consumption forecast. (iii) The EIA increased its HH natural gas price expectations to $2.61 in 2023 and decreased the

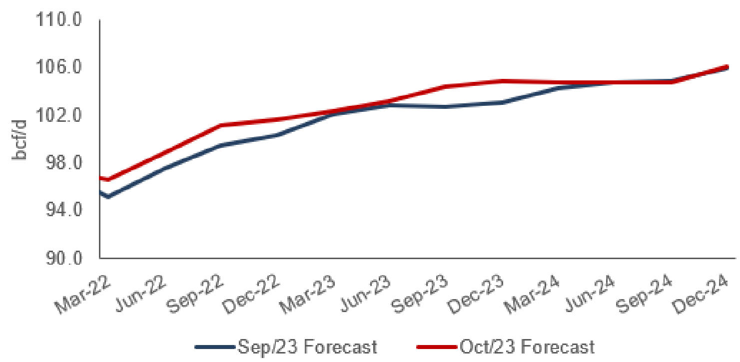
2024 expectation to $3.23 (was $3.24). The EIA did not comment on the change in HH gas prices. (iv) Our Supplemental Documents package includes excerpts from the STEO.

Figure 11: EIA STEO Natural Gas Production Forecasts

bcf/d	2021	Q1/22	Q2/22	Q3/22	Q4/22	2022	Q1/23	Q2/23	Q3/23	Q4/23	2023	Q1/24	Q2/24	Q3/24	Q4/24	2024
Oct-2023	94.6	96.6	98.9	101.2	101.6	99.6	102.4	103.2	104.4	104.9	103.7	104.7	104.8	104.8	106.1	105.1
Sep-2023	94.6	95.1	97.6	99.5	100.3	98.1	102.1	102.8	102.7	103.1	102.7	104.3	104.7	104.9	105.9	104.9
Aug-2023	94.6	95.1	97.6	99.5	100.3	98.1	102.1	102.8	103.4	103.6	103.0	104.0	103.9	104.0	104.6	104.1
July-2023	94.6	95.1	97.6	99.5	100.3	98.1	102.0	102.2	103.0	102.2	102.4	101.8	101.5	102.5	103.7	102.4
June-2023	94.6	95.1	97.6	99.5	100.3	98.1	102.0	103.7	103.4	101.9	102.7	102.8	102.8	103.0	103.6	103.0
May-2023	94.5	95.1	97.6	99.5	100.3	98.1	102.1	101.9	99.9	100.4	101.1	100.7	101.1	101.4	101.8	101.2
Apr-2023	94.5	95.1	97.6	99.5	100.2	98.1	101.6	100.5	100.5	100.9	100.9	101.2	101.5	101.8	101.8	101.6
Mar-2023	94.5	95.1	97.6	99.5	100.2	98.1	101.0	100.2	100.6	101.0	100.7	101.4	101.4	102.0	102.0	101.7
Feb-2023	94.6	95.1	97.6	99.5	100.1	98.1	99.9	100.0	100.3	100.9	100.3	101.2	101.6	102.0	101.9	101.7
Jan-2023	94.6	95.1	97.6	99.4	99.9	98.0	100.8	99.9	100.1	100.6	100.3	101.1	101.8	102.7	103.6	102.3
Dec-2022	93.6	95.1	97.6	99.2	100.5	98.1	99.9	99.5	100.5	101.6	100.4					
Nov-2022	93.6	95.1	97.6	99.4	100.1	98.1	99.0	99.4	100.0	100.3	99.7					
Oct-2022	93.6	95.1	97.6	98.5	99.1	97.5	99.2	99.6	99.7	100.0	99.6					
Sep-2022	93.6	94.6	96.9	97.9	99.0	97.1	99.7	100.5	100.6	100.7	100.4					
Aug-2022	93.6	94.6	96.6	97.0	98.1	96.6	98.9	100.1	100.5	100.5	100.0					

Source: EIA, STEO

Figure 12: EIA STEO Natural Gas Production Forecasts by Month



Source: EIA, STEO

Natural Gas: EIA STEO forecasts Apr 1/24 storage 1.982 tcf, +0.08 vs Sep STEO

EIA October STEO storage forecast

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 refill season, the EIA forecasts storage on Nov 1, 2023 at 3.854 tcf, which is +0.285 tcf YoY but down vs Sep STEO of 3.882 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 1.982 bcf, which would be +0.133 tcf YoY and up vs Sep STEO of 1.904 tcf. Below is a table tracking the working gas inventory forecasts and actuals since 2016.

Figure 13: 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	3,854.4	3,236.3	4,012.7	776.4	3,624.5	6.3%
Mar 2024	1,982.3	1,184.9	2,486.3	1,301.4	1,835.6	8.0%
Oct 2024	4,005.9	3,236.3	4,012.7	776.4	3,624.5	10.5%

Source: EIA, STEO

Natural Gas: Big contiguous land blocks in great rock are also in the Montney

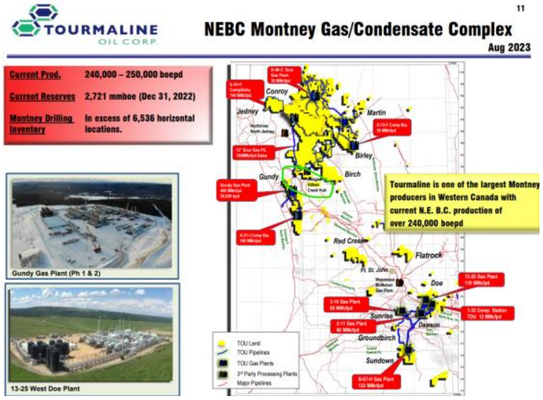
Big contiguous land blocks in Montney

We were asked by the Canadian Press if there are takeaways from the Exxon/Pioneer deal relevant to Canada. We noted how Exxon highlighted the contiguous land blocks were the key for Exxon to take advantage of their development and technology. We said the analogous situation was the Montney where there are big contiguous land blocks in great rock. The Montney is certainly the obvious candidate, with its contiguous land blocks, for companies to move to longer horizontals especially if they can be like Exxon and get good completions from heel to toe. The real question for the Montney will be do they need to do this given some of the outstanding well results seen in the Montney such as we noted in our Aug 13, 2023 Energy Tidbits memo on Tourmaline.

Tourmaline's 6-well Aitken Montney pad has huge returns

Here is what we wrote in our Aug 13, 2023 Energy Tidbits memo. "*We rarely note specific well results and only do so if there are potential big picture implications beyond the company drilling the wells. And that was the case when we saw Tourmaline's Q2 call last Thursday as their 6-well Aitken Montney pad's huge returns would seem to point to the Montney have much more potential than expected for other Montney players even if the other players Montney are not quite as good as Tourmaline. (i) On Monday, we tweeted [LINK] "Here's why #Montney is likely #1 #NatGas play in CAN/US, maybe in the world! $TOU Q2 call: 6-well 10b Aitken Creek Montney pad. Drill/complete/onstream in Q4/21, cost $30.6mm, payout of 3 months, income to date >$130 mm, forecast IRR is >1,000%. #OOTT." These returns are huge and even if other Montney isn't quite as good, we have to believe other Montney will still be excellent. (ii) Here is what Tourmaline said on the Q2 call. "The b-10-B pad at Aitken underscores the very strong economic returns that we realize in the North Montney complex. This was a six-well pad that we drilled, completed and brought on stream very late in the fourth quarter of 2021. Average per well IP 365 from the six wells was 5.3 million cubic feet per day of natural gas and 224 barrels per day of condensate. Estimated average 2P reserves per well bore or 12.6 BCF of gas and 260,000 barrels of condensate. Just looking at the economic investment, total capital for construction, drilling, completions, equipping and pipeline tie-in for the whole pad and all six-well was $30.6 million. The income we've earned to date on the six-well pad is in excess of $130 million. And that results in a payout* *period of only three months and the forecast internal rate of return of the pad is well in excess of 1,000%. And actually in all of our complexes, our development will continue to seek that balance between initial deliverability, ultimate reserve recovery, and most importantly, economic return."*

Figure 14: Tourmaline NEBC Montney Gas/Condensate Complex



Source:Tourmaline

Natural Gas: TotalEnergies and QatarEnergy sign 27-year LNG deal for ~0.46 bcf/d

Long-term LNG deal

On Wednesday, QatarEnergy announced they have entered a 27-year LNG supply deal.with TotalEnergies [LINK]. The deal is set to begin in 2026, with TotalEnergies purchasing ~0.46 bcf/d. It's a 27-year deal and the term of the SPA extends through 2053. Minister of State for Energy Affairs and CEO of QatarEnergy, His Excellency Mr. Saad Sherida Al-Kaabi, said "*These two new agreements we have signed with our partner TotalEnergies, demonstrate our continued commitment to the European markets in general, and to the French market in particular, thus contributing to France's energy security. The State of Qatar has been supplying the French market with LNG since 2009, and the new agreements reflect the joint effort of two trusted partners, QatarEnergy and TotalEnergies, to provide reliable and credible LNG supply solutions to customers across the globe".* Our supplement document package contains the QatarEnergy news release.

There have been 17.75 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 17.75 bcf/d of long-term LNG deals since July 1, 2021. 62% of the deals have been by Asian LNG buyers, but we are now seeing rest of world locking up long term supply deals post Russia/Ukraine. Note in our non-Asian LNG deals will major LNG players (ie. Chevron, Shell, etc) buying for their LNG portfolio supply. China has been particularly active in this space, accounting for 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 15: Long-Term LNG Buyer Deals Since July 1, 2021

Long-Term LNG Buyer Deals Since July 1, 2021							
Date	**Buyer**	**Seller**	**Country**	**Volume**	**Duration**	**Start**	**End**
			Buyer / Seller	**(bcf/d)**	**Years**		
Asian LNG Deals							
Jul 7, 2021	CNOOC	Petronas	China / Canada	0.30	10.0	2022	2032
Jul 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 28, 2023	JERA	Venture Global LNG	Japan/US	0.13	20.0	n.a.	n.a.
May 16, 2023	KOSPO	Cheniere	Korea/US	0.05	19.0	2027	2046
Jun 1, 2023	Bangladesh Oil	QatarEnergy	Bangladesh/Qatar	0.24	15.0	2026	2031
Jun 21, 2023	Petro Bangle	Oman	Bangledesh/Oman	0.20	10.0	2026	2036
Jun 21, 2023	CNPC	QatarEnergy	China/Quatar	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.
Total Asian LNG Buyers New Long Term Contracts Since Jul/21				**11.02**			
Non-Asian LNG Deals							
Jul 28, 2021	PGNiG	Venture Global LNG	Poland / US	0.26	20.0	2023	2043
Nov 12, 2021	Engie	Cheniere	France / US	0.11	20.0	2021	2041
Mar 7, 2022	Shell	Venture Global LNG	US / US	0.26	20.0	2024	2044
Mar 16, 2022	NFE	Venture Global LNG	US / US	0.13	20.0	2023	2043
Mar 16, 2022	NFE	Venture Global LNG	US / US	0.13	20.0	2023	2043
May 2, 2022	Engie	NextDecade	France / US	0.23	15.0	2026	2041
May 17, 2022	PGNiG	Sempra Infrastructure	Poland / US	0.40	20.0	n.a.	n.a.
May 25, 2022	RWE Supply & Trading	Sempra Infrastructure	Germany / US	0.30	15.0	n.a.	n.a.
Jun 9, 2022	Equinor	Cheniere	Norway / US	0.23	15.0	2026	2041
Jun 21, 2022	EnBW	Venture Global LNG	Germany / US	0.20	20.0	2026	2046
Jun 22, 2022	INEOS Energy	Sempra Infrastructure	UK / US	0.21	20.0	2027	2047
Jun 22, 2022	Chevron	Venture Global LNG	US / US	0.26	20.0	n.a.	n.a.
Jun 22, 2022	Chevron	Cheniere	US / US	0.26	15.0	2027	2042
Jul 12, 2022	Shell	Mexico Pacific Ltd	US / Mexico	0.34	20.0	2026	2046
Jul 13, 2022	Vitol	Delfin Midstream	US / US	0.07	15.0	n.a.	n.a.
Aug 9, 2022	Centrica	Delfin Midstream	UK / US	0.13	15.0	2026	2041
Aug 24, 2022	Shell	Energy Transfer	US / US	0.28	20.0	2026	2046
Oct 6, 2022	EnBW	Venture Global LNG	Germany / US	0.26	20.0	2022	2042
Dec 6, 2022	ENGIE	Sempra Infrastructure	France / US	0.12	15.0	n.a.	n.a.
Dec 20, 2022	Galp	NextDecade	Portugal / US	0.13	20.0	n.a.	n.a.
Dec 20, 2022	Shell	Oman LNG	UK/Oman	0.11	10.0	2025	2035
Jan 25, 2023	PKN ORLEN	Sempra Infrastructure	EU//US	0.13	20.0	2027	2047
Jan 30, 2023	BOTAS	Oman	Turkey / Oman	0.13	10.0	2025	2035
Mar 27, 2023	Shell	Mexico Pacific Ltd	UK / Mexico	0.15	20.0	2026	2046
Apr 24, 2023	Hartree Partners LP	Delfin Midstream	US / US	0.08	20.0	n.a.	n.a.
Jun 21, 2023	Equinor	Cheniere	Norway / US	0.23	15.0	2027	2042
Jun 22, 2023	SEFE	Venture Global LNG	EU//US	0.30	20.0	2026	2046
Jul 14, 2023	ONEE (Morocco)	Shell	Africa/US	0.05	12.0	2024	2036
Jul 18, 2023	IOCL	Adnoc	India/UAE	0.16	14.0	2026	2040
Jul 28, 2023	OMV	BP	Austira/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
Total Non-Asian LNG Buyers New Long Term Contracts Since Jul/21				**6.73**			
Total New Long Term LNG Contracts since Jul/21				**17.75**			

Source: SAF

Natural Gas: On track for return to strike action at Chevron Gorgon & Wheatstone LNG

Potential strike action at Chevron LNG

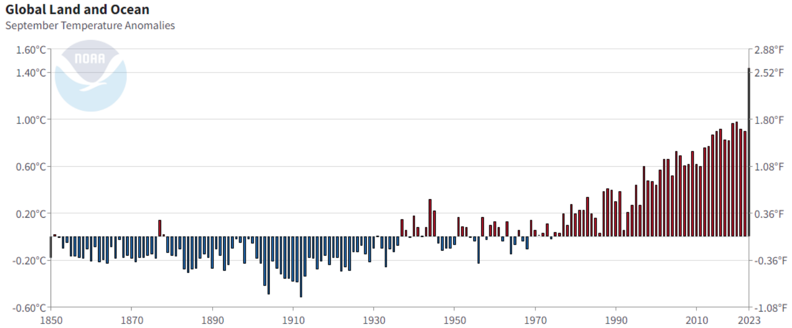
Earlier this morning, we tweeted [LINK] "*Still on track for strike actions starting Thurs at Chevron 2.1 bcfd Gorgon & 1.2 bcfd Wheatstone #LNG. Chevron & union agreed to FWC terms to end strike But haven't been able to paper deal in >3 wks. See 👇Offshore Alliance today's update. #OOTT #NatGas.*" It's hard to believe that the union is still on track to strike starting Thursday at Chevron's Gorgon and Wheatstone LNG in Australia. Chevron and the union agreed to accept the Fair Work Commission terms to end the strike over three weeks ago. But they have been unable to paper the agreed deal terms. The union's Facebook posting this morning says 91% of the members voted this weekend to kick off the strike action on Thursday. Last week, we said it's hard to believe Chevron will let a strike happen when all the big deal terms are agreed. But who knows. We still believe that and we have to wonder if this is the last public shot across the bow to get Chevron to move the last little bit to avoid the strike. But who knows. Our Supplemental Documents package includes the Offshore Union Facebook posting today.

Natural Gas: NOAA says Sept was hottest on record

Warmest Sept on record

Just like last week's Copernicus (Europe) recap of global climate for Sept, NOAA also said Sept 2023 was the hottest average global surface temperature on record. NOAA [LINK] wrote "*The September global surface temperature was 1.44°C (2.59°F) above the 20th-century average of 15.0°C (59.0°F), making it the warmest September on record. September 2023 marked the 49th-consecutive September and the 535th-consecutive month with temperatures at least nominally above the 20th-century average. September 2023 was 0.46°C (0.83°F) above the previous record from September 2020, and marks the largest positive monthly global temperature anomaly of any month on record*."

Figure 16: Global Land and Ocean: September Temperature Anomalies



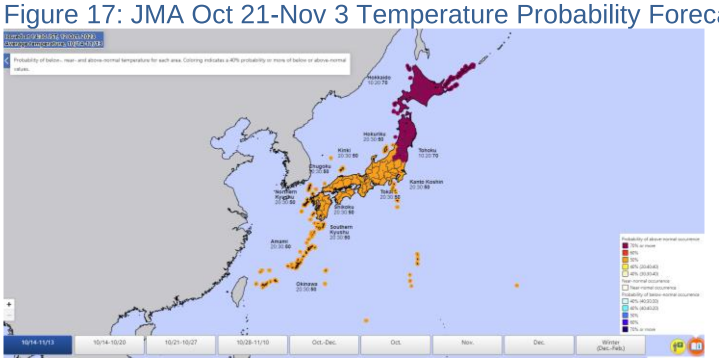
Source: NOAA

Natural Gas: Forecast above normal temperatures to start November

Japan's 30-day temperature forecast

It was really hot in Japan this summer and it looks like the warmer than normal weather will continue through the rest of October and to begin November. Every Thursday, the Japan Meteorological Agency updates its 30-day outlook [LINK]. The October 12 update calls for a much warmer than normal start to November which means, for Tokyo, daily highs around 20C and nighttime lows of around 12C. This shouldn't generate much natural gas demand for air conditioning. Rather it's what we call "leave the windows open" weather. Below is the JMA's 30-day temperature probability forecast for Oct 14 – Nov 13.

Figure 17: JMA Oct 21-Nov 3 Temperature Probability Forecast



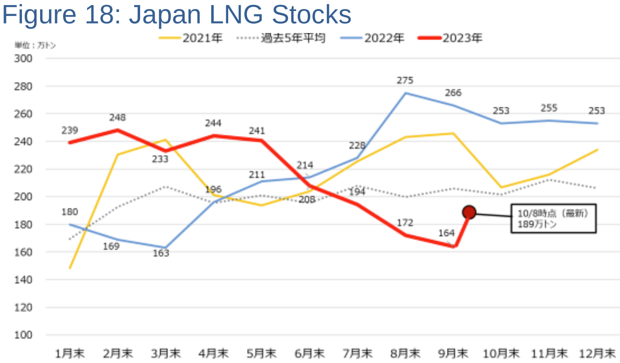
Source: Japan Meteorological Agency

Natural Gas: Japan's LNG stocks below 2022 and 5-year average levels, builds WoW

Japan LNG stocks up +16.7% WoW

It's was hot in Japan through September and we saw Japan was drawing on its LNG stock in Sept for power generation, which took LNG stocks below year ago and the 5-yr average. We have been expecting Japan to build back LNG stocks in Oct for the winter and that was the case this week with a large build, although still below 2022 levels and the 5-year average. On Wednesdays, Japan's METI releases its weekly LNG stocks data [LINK]. LNG stocks on Oct 8 were 90.77 bcf and are up +16.7% WoW from Oct 1 of 77.8 bcf, and below the 5-year average of 98.9 bcf. METI did not comment on the MoM increase. Below is the Japanese LNG stocks graph from the METI weekly report.

Figure 18: Japan LNG Stocks



Source: METI

Natural Gas: China natural gas imports -2.96% YoY in Sep

China natural gas imports

On Thursday, Bloomberg reported on the summary data of China's oil and natural gas imports for Aug based on China's General Administration of Customs website. It is only summary data so, as of our 7am MT news cut off, we have seen any detailed splits for natural gas imports between LNG and pipeline imports. And we haven't yet seen the China natural gtas production data. But on the summary data, China's natural gas imports (LNG and pipeline gas) was -2.96% YoY to 10.145 tons in Sep 2023, and was +8.2% YoY to 87.767 tons for YTD Sep 30, 2023. We should see the Sep data for domestic natural gas production and a split between natural gas imports via pipeline vs LNG.

Natural Gas: Israel orders temporary shuts down of Chevron Tamar platform

Chevron Tamar shut in

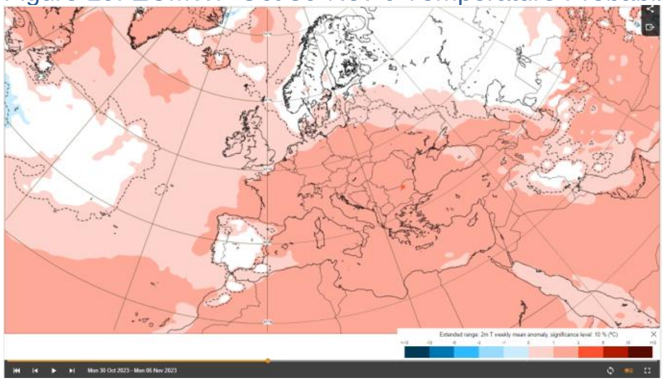
Europe natural gas prices were up when Israel ordered the temporary shut down of Chevron's Tamar gas platform and that the electricity sector was to prepare to use other fuels.On Monday, Israel Ministry of Energy and Infrastructure Facebook post [LINK] wrote "*The Director General of the Ministry of Energy and Infrastructure, Kobi Blitstein, conducted a situation assessment this morning regarding the preparation of the energy sector for the state of emergency declared in the State of Israel. The CEO reiterated the importance of maintaining the functional continuity of the energy sector and made sure that all the factors are prepared and working for this purpose. Due to the situation, the security establishment ordered to temporarily stop the supply of natural gas from the Tamar reservoir, and the economy's energy needs will be met with other fuels. The electricity sector is prepared to operate the stations with alternative fuels whenever necessary.*" Our tweet included the Chevron website on their Israel assets including Tamara. Chevron wrote [LINK] "*Six production wells at Tamar produce volumes of natural gas ranging from 7.1 to 8.5 million cubic meters per day each.*" This is a total of 1.5 to 1.8 bcf/d for the six wells. Our Supplemental Documents package includes the Israel posting and the Chevron Israel assets overview.

Natural Gas: No major weather demand for natural gas in early Nov in Europe

Europe early Nov forecast

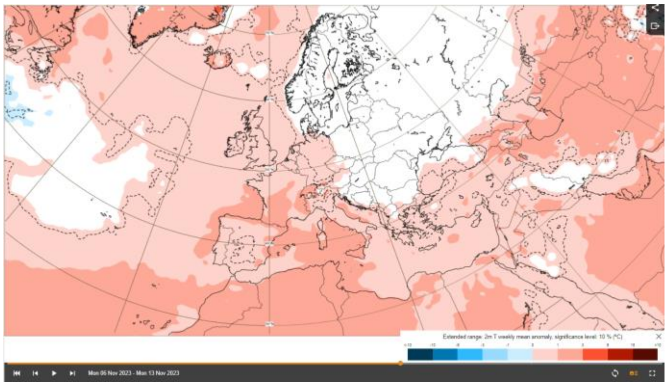
Our concern for near-term natural gas and LNG prices is that three will be a holdback as long as forecasts call for warmer than normal temperatures to start winter especially if it starts warmer than normal in multiple major natural gas consumption regions. As seen with winter 2022/23, when it starts warm, it's hard to catch up. As noted earlier, for terminology, much of Europe uses Oct 1 as the start of winter natural gas season. We tend to focus more on Nov as to when we might expect to see the start of some higher level of weather driven natural gas demand. The ECMWF provides daily short- term forecasts. ECMWF is European Centre for Medium Range Forecasts. The forecasts are not bullish for natural gas demand from weather. Yesterday's ECMWF's near term forecast calls for warmer than normal temperatures across Europe for the first two weeks of Nov. We should note that this week's forecast is for warmer temperatures than forecast a week ago to start Nov.

Figure 19: ECMWF Oct 30-Nov 6 Temperature Probability Forecast



Source: ECMWF

Figure 20: ECMWF Nov 6-13 Temperature Probability Forecast



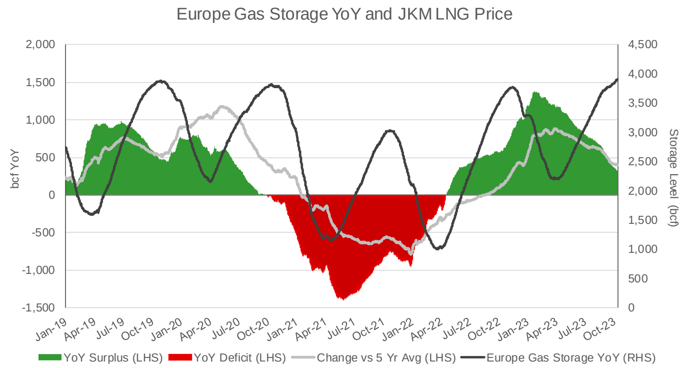
Source: ECMWF

Natural Gas: Europe storage over 97% full so started winter close to full

Europe 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. Europe storage stayed above the 97% full level this week so they entered winter at close to full levels. This week, Europe storage increased by +0.88% WoW to 97.34% on Oct 11. Storage is now +5.87% greater than last year's levels of 91.47% and is +8.26% above the 5-year average of 89.06%. The current storage is within the 5-year range, albeit at the top end of the range. Below is our graph of Europe Gas Storage Level.

Figure 21: European Gas Storage Level



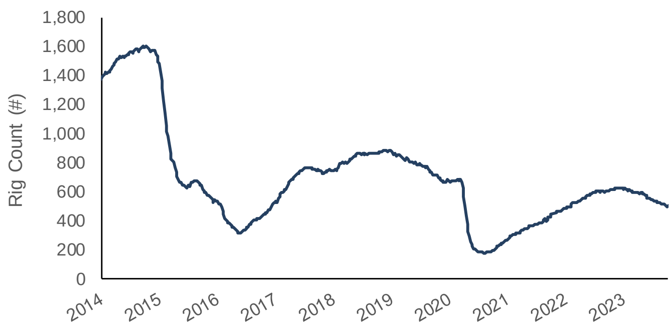
Source: Bloomberg, SAF

Oil: US oil rigs +4 WoW at 501 rigs, US gas rigs -1 WoW to 117 rigs

US oil rigs up WoW

On Friday, Baker Hughes released its weekly North American drilling rig data. (i) Total US oil rigs were up +4 WoW at 501 total rigs and are down -109 rigs YoY for the week of October 13. This is up +20 rigs from the 2022 low of 481 rigs in January. (ii) On a per basin basis, there were a few changes in the major US basins for the week of October 13. The Permian was up +2 rigs WoW to 304 rigs, Williston was up +1 WoW at 33 rigs, and Eagle Ford was up +1 rig WoW at 47. Cana Woodford, Ardmore Woodford, Mississippian, and DJ Niobrara were flat WoW at 16, 2, 1 and 14 rigs respectively. Others were flat WoW at 79 oil rigs. (iii) The Permian is near its lowest level since March 18, 2022, and is down -53 rigs from its recent high of 357 rigs on April 28, 2023. Note the Permian increase this week; we believe the reason for 3 of the Permian rigs dropping in the past few weeks was Pioneer getting ready for their sale to Exxon. (iv) Gas rigs were down -1 rig WoW to a total of 117 rigs and have now decreased -40 rigs YoY. On a per basin basis, Haynesville was down -2 rigs WoW at 37 rigs and Marcellus was up +1 rig WoW at 29 rigs. Others were flat at a total of 30 rigs. Below is our graph of total US oil rigs.

Figure 22: Baker Hughes Total US Oil Rigs



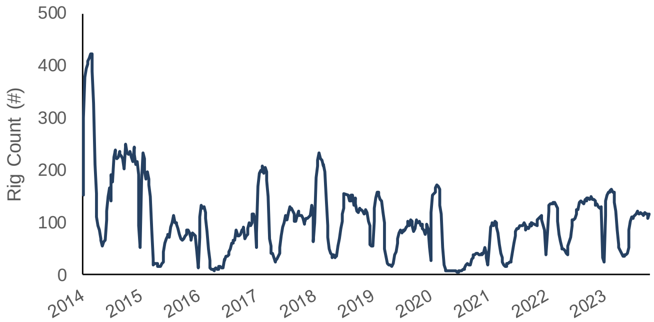
Source: Baker Hughes, SAF

Oil: Total Cdn rigs +13 WoW at 192 total rigs

Cdn total rigs up WoW

For the week of October 13, total Cdn rigs were +13 WoW at 193 rigs. BC was flat WoW at a total of 20 rigs and Alberta was up +10 rigs to a total 138 rigs. This is the first time since wildfire season that Alberta is showing zero "Out of Control" wildfires on their website. We expect BC to increase rigs going forward with the modest decrease in wildfires. Saskatchewan was up +3 rigs for a total of 31 rigs, Manitoba was flat WoW for a total of 3 rigs while Newfoundland was flat WoW at 1 offshore rig that they added last week. Cdn oil rigs were up +8 rigs WoW to 116 rigs, Cdn gas rigs increased +4 rigs to 76 rigs, and Cdn offshore rigs were flat at 1 rig. Cdn oil rigs are down -34 rigs YoY, while gas rigs are up +10 rigs YoY. Below is our graph of total Cdn oil rigs.

Figure 23: Baker Hughes Total Cdn Oil Rigs



Source: Baker Hughes, SAF

Oil: Another big catch-up increase +370,000 b/d to US weekly oil production estimates

US re-benchmarks +370,000 b/d to weekly oil

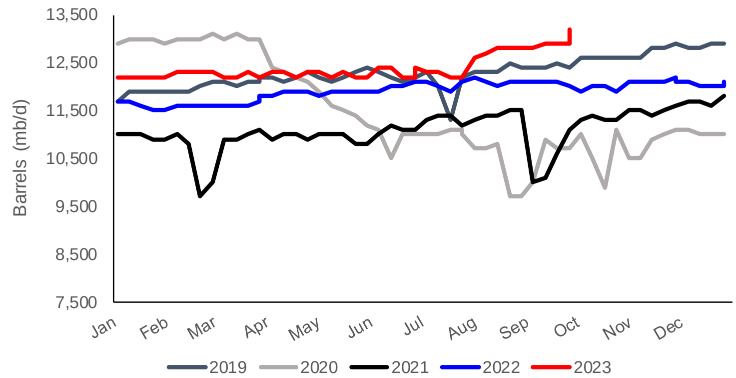
There was another big adjustment this week to the EIA's oil production estimates. The first was in Aug, when our Aug 13, 2023 Energy Tidbits memo highlighted the EIA increased their weekly US oil production estimates by +0.4 mmb/d and how we had been expecting such a big increase to the weekly estimates as, for months, the US weekly estimates were well below the EIA's actuals as per its monthly Form 914. This week, there was another big adjustment to catch up. 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 week, the EIA's production estimates were up +0.300 mmb/d WoW at 13.200 mmb/d for the week ended October 6 [LINK]. The Lower 48 drove the increase, being up +0.300 WoW at 12.800 mmb/d, while Alaska was down slightly at 0.418 mmb/d. Below is a table of the EIA's weekly oil production estimates.

Figure 24: 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								

Source: EIA

Figure 25: EIA's Estimated Weekly US Oil Production



Source: EIA, SAF

Exxon's forgotten Bakken assets

Oil: Will Exxon's Bakken assets be for sale soon?

Yesterday, we tweeted [LINK] "*Surely Exxon's #Bakken is for sale soon. $60b all-in with $PXD Permian. Largest well inventory in Bakken core Tier 1 geology, no active drilling rigs since Covid, just been working DUCs & DUCs inventory gone now. Thx ND Lynn Helms. See 👇SAF transcript. #OOTT.*" When we listened to the North Dakota monthly webcast, Director Lynn Helms comments on Exxon's activity, or lack thereof, points to a very logical sale of its Bakken given its $60b acquisition of Permian focused Pioneer Natural Resources. After every large oil and gas M&A deal, the acquirer inevitably sells off non-core assets. Helms laid out what Exxon has in the Bakken and what they aren't doing. And non-core assets don't have to be bad assets, just assets that aren't the priority of the company. Plus there were reports a year ago that Exxon was getting out of the Bakken but they have only sold what Helms called all their Tier 2 and Tier 3 to Chord for $375mm in May. So it seems like Bakken has been on their non-core sale lists for some time. If you listen to how Helms describes what Exxon owns in the Bakken as biggest well inventory in the Tier 1 Core and how they haven't drilled a well in three year, and now their DUCs are effectively gone, it certainly would appear to put the Bakken as an obvious non-core sale candidate. Our tweet included the transcript we made of Helms comments. "Items in "italics" are SAF Group created transcript. At 17:05 min mark, Helms *"The question was how does a major acquisition like that [Exxon/Pioneer] potentially affect North Dakota supply. And one of our concerns has been that the ExxonMobil subsidiary, XTO in North Dakota, has the largest well inventory potential in the core area in North Dakota. And they have not had a drilling rig operating since Covid. So they've been just exploiting their inventory of DUC wells. That inventory is gone now. And so a little bit concerned that an acquisition like that, which is Permian focused, might tend to pull capital away from that core area drilling in North Dakota and lead to really flat to declining production in the core area in North Dakota. XTO sold all their Tier 2, Tier 3 acreage, Chord picked that up and so that's going to get developed. They're respacing all of that into 3-mile laterals and very actively going to pursue that next year. But they have the largest inventory of Tier 1 core assets, and something like that merger is going to tend to pull capital away from that. So it may delay some of that development in the core area, which just means slower growth in North Dakota. But it's not necessarily all bad, they haven't talked about walking away from North Dakota but it could certainly delay development of some of those Tier 1 assets".*

North Dakota oil production

Oil: North Dakota August oil production increases +0.039 mmb/d MoM to 1.219 mmb/d

On Thursday, the North Dakota Industrial Commission posted its Director's Cut, which includes August's oil and natural gas production data [LINK]. North Dakota oil production in August was up +0.039 mmb/d MoM to 1.219 mmb/d, which is up +13.4% YoY from 1.075 mmb/d in August 2022. (i) North Dakota hitting 1.2 mmb/d is what North Dakota expected give the increasing frac spreads. In our Sept 20, 2023 Energy Tidbits, we wrote "North Dakota 1.2 mmb/d in sight thanks to completions of DUCs. Yesterday, we tweeted [LINK] "*North Dakota #Bakken insights from NDIC Lynn Helms podcast. See 👇SAF transcript. 2.5 yrs since hit 1.18 mmbd in July, 1.2 mmbd is in sight. 33 rigs is enough to keep production flat but not to create 1-2%/yr growth. Completions of DUCs drove the production increase. #OOTT."* Our supplemental Documents package includes both the Director's cut.

Figure 26: North Dakota Oil Production by Month

(b/d)	2017	2018	2019	2020	2021	2022	2022/21	2023	2023/22
Jan	981,380	1,179,564	1,403,808	1,430,511	1,147,377	1,088,613	-5.1%	1,060,708	-2.6%
Feb	1,034,248	1,175,316	1,335,591	1,451,681	1,083,554	1,089,091	0.5%	1,158,837	6.4%
Mar	1,025,690	1,162,134	1,391,760	1,430,107	1,108,906	1,122,640	1.2%	1,122,693	0.0%
Apr	1,050,476	1,225,391	1,392,485	1,221,019	1,123,166	900,597	-19.8%	1,133,435	25.9%
May	1,040,995	1,246,355	1,394,648	859,362	1,128,042	1,059,060	-6.1%	1,135,009	7.2%
June	1,032,873	1,227,320	1,425,230	893,591	1,133,498	1,096,783	-3.2%	1,166,604	6.4%
July	1,048,099	1,269,290	1,445,934	1,042,081	1,076,594	1,072,632	-0.4%	1,180,611	10.1%
Aug	1,089,318	1,292,505	1,480,475	1,165,371	1,107,359	1,075,307	-2.9%	1,219,345	13.4%
Sept	1,107,345	1,359,282	1,443,980	1,223,107	1,114,020	1,121,063	0.6%		
Oct	1,183,810	1,392,369	1,517,936	1,231,048	1,111,910	1,121,754	0.9%		
Nov	1,194,920	1,375,803	1,519,037	1,227,138	1,158,622	1,098,389	-5.2%		
Dec	1,182,836	1,402,741	1,476,777	1,191,429	1,144,999	957,864	-16.3%		

Source: NDIC, NDPA

North Dakota sees some growth to yr-end, Bakken DUCs now worked off

It is important to remember that North Dakota holds a monthly press conference on the monthly oil and gas data. It seems like analysts and investors don't listen to the press conference, but we always get additional insights. That was the case with Thursday's press conference [LINK]. (i) North Dakota sees some growth in oil production to year end. At 15:03 min mark, Helms "… *I think we were excited to see it [referring to reaching 1.2 mmb/d]. We were predicting that we would get there by the end of the year. So this is a little quicker than when we thought we would get to 1.2. We see today, 38 rigs running and 14 frack crews, it should be pretty easy to sustain that and actually grow it through the end of the year, making the assumption we're not going to get four blizzards in Nov and Dec like we had last year… we'll actually see a little growth I think between now and the end of the year*". (ii) DUCs have been worked off. At 1:28 min mark, Helms ".. *but wells completed was way up. We saw a large number of frack crews working, if you recall we had 21 frack crews working last month when we had the Director's Cut. And that plays out in the 129 completions that we saw. But when you look down now at the wells waiting on completion, we are now down to less than 400, 376 wells waiting on completion. And that's just a normal inventory of wells that are moving from drill to when a frack crew can move in. So we saw the number of frack crews decrease down to 14, which is a healthy number. And easily capable of keeping up with 38 rigs. So we're not going to fall behind here but, I think it's important to note that, the DUC well inventory is I think largely responsible for this large production increase that we saw in the month of August, is depleted now at this point. And there is few to no true DUC wells left in inventory. There is just the normal processing time that is built into the time between drilling and completing*."

Oil: North Dakota also says Bakken Tier 2 wells are as good as Tier 1 wells

Bakken Tier 2 wells

There is an overlooked upside to the Bakken that is still not getting the headlines – Bakken Tier 2 wells are delivering wells comparable to Tier 1 wells. (i) On Friday, we tweeted [LINK] "*Overlooked #Bakken upside to value of contiguous acreage. 3-mile horizontals plus new completions = Bakken Tier 2 wells performing as well as Tier 1. See 👇SAF transcript. North Dakota's Lynn Helms yesterday reinforces Harold Hamm Aug comments on Tier 2 upside. #OOTT.*" (ii) On Thursday, North Dakota highlighted this in its monthly webcast on how Tier 2 wells have as good performance as Tier 1, plus they have the added benefit of lower gas/oil ratios. Here is the transcript we made of Helms' comment. At 20:15 min mark, Helms "*the question was what's the reason for the migration out of Tier 1 into Tier 2. Probably #1 reason is that high gas/oil ratio in Tier 1 area. It's about 90% drilled up so there's only about 10% of the potential drilling slots left in that Tier 1 geology. And the gas/oil ratios are very high. And so with the new, with the development of the ability to easily and for very little incremental cost drill 3-mile laterals and the performance of some of the new completion technologies, the Tier 2 geology is performing just as good as the Tier 1 was. And so the incentive has been very strong because of the low gas/oil ratios and the high well IPs and the economics out there to go drill 3-mile laterals in Tier2. It's actually more economic in terms of infrastructure and capital deployment. It's exciting news and we think ultimately that's going to spill over into the Tier 3 geology. We see one or two rigs working out there. And some leasing activity. Folks are seeing landmen and getting leasing offers up in Divide County. And been a long time since that was happening.*"

Key to broader 3-mile success is oil service companies guiding how to do it

The reality is that Tier 2 and Tier 3 geology is less than Tier 1 and, all things being equal, should have lesser wells. But what Exxon said this week is that drilling and completions technology is better. We have said many times that technology advancements get passed along quickly in the oil and gas sector as the same big service companies working for the Exxons of the world also work for smaller oil companies. They are the key to sharing the trick shots to make the completions better. But it will happen.

08/17/23: Continental's Harold Hamm Tier 2 wells are as good as Tier 1 wells
Our tweet included what we first wrote on this in our Aug 20, 2023 Energy Tidbits memo, when Continental's Harold Hamm highlighted Tier 2 wells were now as good as Tier 1. Here is what we wrote in that memo. "*Is Harold Hamm the only one drilling Tier 2 wells as good as Tier 1 wells? It is worth noting some new commentary from North Dakota on Bakken Tier 2 wells. North Dakota has been highlighting how Bakken drilling has been moving away from the core to Tier 2 and Tier 3 lands and that is leading to lower productivity wells as wells as higher gas/oil ratio in the wells. BUT in the Thursday press conference, North Dakota's Lynn Helms said something very different. Helms came out and said that drilling and completion technology development is leading to Tier 2 wells performing better and now performing like Tier 1 acreage. He referenced Harold Hamm having this success but surely, the way technology gets quickly adopted, Hamm isn't the only one having this success. If so, it speaks to better Bakken oil potential in North Dakota. This will be one to watch what we see from the public Bakken players. Here is the transcript we created of Helms comments on this point. At 1:05 min mark, Helms "… what we're seeing is the migration of the drilling and completion activity out of the core and into the Tier 2 area and somewhat out into the Tier 3 areas. I think if you were at Mr. Hamm's event earlier in the week or late last week, you also heard comments from him that a lot of that Tier 2 acreage with the newer drilling and completion technologies is now performing like Tier 1 acreage." [Note Helms was referring to Harold Hamm's Aug 10 event promoting his new book "Game Changer: Our Fifty-Year Mission to Secure America's Energy Independence"]*

Oil: North Dakota crude by rail up MoM to 73,871 b/d in August

North Dakota CBR up MoM in August

On Thursday, the North Dakota Pipeline Authority posted its monthly update "*October 2023 Production & Transportation"* [LINK]. Please note that we always go to the backup excel sheets from the North Dakota Pipeline Authority that provide low and high estimates for Williston crude by rail exports. The NDPA Monthly Update (graph below) report has a thick line that represents the low and high range. In the backup excel, the NDPA estimates crude by rail in August from a low of 58,871 b/d and a high of 88,871 b/d for an average of 73,871 b/d. A moderate decrease from the June average of 66,858 b/d. The NDPA did not comment on the MoM changes. Below is a chart from the NDPA monthly update showing the crude by rail volumes since 2013. Our Supplemental Documents package includes excerpts from the NDPA monthly update.

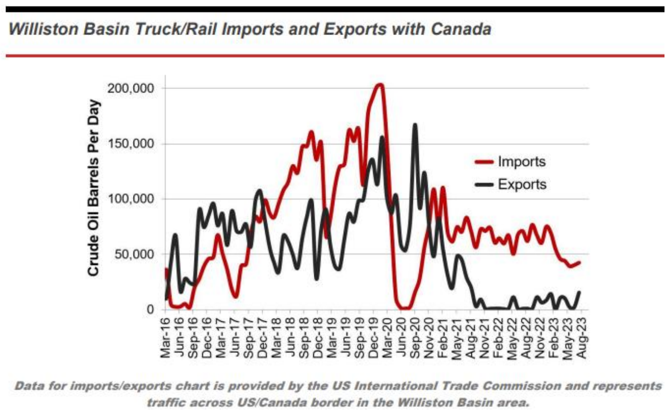
Figure 27: Estimated North Dakota Rail Export Volumes

Source: NDPA

Uptick in Bakken oil trucked to Canada

It's certainly not a material item but it was interesting to hear Justin Kringstad, Director North Dakota Pipeline Authority, comment on the slight uptick in oil exports, which were trucking volumes to Canada. It's hard to tell by the graph, but it looks like about 15,000 b/d trucked in August to Canada.

Figure 28: Williston Basin Truck/Rail imports and exports with Canada



Source: NDPA

Oil: EIA Oct STEO increases 2023, decreases 2024 US oil production

EIA STEO US oil production

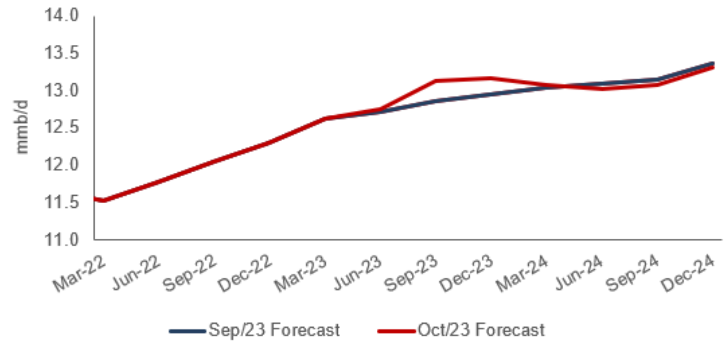
As noted earlier, we have been expecting, based on the US actuals being higher than the weekly supply estimates and stronger oil prices, the EIA to increase its forecasts for US oil supply and its 2023 supply forecast. On Wednesday, the EIA released its Short-Term Energy Outlook for October 2023 [LINK] and increased its oil production forecasts for 2023 but made a small decrease to its 2024 forecast. (i) The Oct STEO forecasts for 2023 US oil production estimated have increased vs the last STEO in September. The October STEO forecast for 2023 is up +140,000 b/d to 12.92 mmb/d from the September STEO of 12.78 mmb/d. The revisions by quarter were Q1/23 +0.00 mmb/d, Q2/23 +0.04 mmb/d, Q3/23 +0.27 mmb/d, and Q4/23 exit +0.22 mmb/d. (ii) The EIA decreased its 2024 oil production forecast by -40,000 b/d to 13.12 mmb/d compared to 13.16 mmb/d in the Sepember STEO, which is a YoY increase of +0.20 mmb/d. The revisions by quarter were Q1/24 +0.04 mmb/d, Q2/24 -0.07 mmb/d, Q3/24 -0.08 mmb/d and Q4/24 exit at -0.05 mmb/d from the September forecast to 13.31 mmb/d (was 13.36 mmb/d). Below is our EIA STEO forecast comparison by month.

Figure 29: EIA STEO Oil Production Forecasts by Month

(million b/d)	2021	Q1/22	Q2/22	Q3/22	Q4/22	2022	Q1/23	Q2/23	Q3/23	Q4/23	2023	Q1/24	Q2/24	Q3/24	Q4/24	2024
Oct-23	11.27	11.52	11.77	12.05	12.30	11.91	12.63	12.75	13.13	13.16	12.92	13.07	13.02	13.07	13.31	13.12
Sep-23	11.27	11.52	11.77	12.05	12.30	11.91	12.63	12.71	12.86	12.94	12.78	13.03	13.09	13.15	13.36	13.16
Aug-23	11.27	11.52	11.77	12.05	12.30	11.91	12.63	12.67	12.81	12.93	12.76	12.98	13.01	13.08	13.27	13.09
Jul-23	11.25	11.47	11.70	12.06	12.31	11.89	12.61	12.55	12.48	12.63	12.56	12.67	12.71	12.88	13.13	12.85
Jun-23	11.25	11.47	11.70	12.06	12.31	11.89	12.60	12.56	12.57	12.70	12.61	12.69	12.63	12.76	13.00	12.77
May-23	11.25	11.47	11.70	12.06	12.31	11.89	12.54	12.51	12.46	12.61	12.53	12.63	12.58	12.68	12.85	12.69
Apr-2023	11.24	11.47	11.70	12.06	12.30	11.88	12.54	12.50	12.50	12.61	12.54	12.69	12.71	12.77	12.83	12.75
Mar-2023	11.24	11.47	11.70	12.06	12.30	11.88	12.31	12.43	12.48	12.54	12.44	12.58	12.58	12.64	12.71	12.63
Feb-2023	11.25	11.47	11.70	12.06	12.36	11.90	12.44	12.46	12.49	12.56	12.49	12.63	12.62	12.65	12.70	12.65
Jan-2023	11.25	11.47	11.70	12.05	12.23	11.86	12.37	12.34	12.40	12.51	12.41	12.63	12.72	12.86	13.03	12.81
Dec-2022	11.25	11.46	11.70	12.03	12.29	11.87	12.24	12.24	12.34	12.51	12.33					
Nov-2022	11.25	11.46	11.70	11.99	12.15	11.82	12.22	12.24	12.32	12.48	12.31					
Oct-2022	11.25	11.46	11.70	11.83	11.99	11.74	12.27	12.29	12.36	12.50	12.35					
Sep-2022	11.25	11.47	11.70	11.81	12.16	11.79	12.42	12.55	12.70	12.87	12.63					
Aug-2022	11.25	11.46	11.69	12.01	12.28	11.86	12.39	12.50	12.82	13.10	12.70					

Source: EIA STEO

Figure 30: Estimated US Crude Oil Productions by Forecast Month



Source: EIA, STEO

Oil: Sector/commodity takeaways from Exxon's $60b acquisition of Pioneer

Beyond the Exxon Permian headlilne

Last week's (Oct 8, 2023) Energy Tidbits highlighted how Pioneer shares were up 10.4% last Friday on the WSJ last Thursday report that "*ExxonMobil is closing in on a deal to buy Pioneer*". It took a few days longer for the deal to be announced early Wednesday morning. The headlines were all about going all-in on the Permian and no question that is the headline for the deal. But as in all deals, we try to look at what are the beyond the headline sector and commodity takeaways that are relevant to a broader look at oil and gas. Here are a few.

Shifting from long-cycle to short-cycle to take advantage of 10-15 yr oil window
Exxon must see a strong window for oil for at least the next 10-15 years or else they wouldn't spend $60 billion. But, at the same time, also has to see an increased

uncertainty about oil as the world approaches 2050 ie. post 2040. So no one should be surprised to see an oil acquisition is one that takes Exxon's short-cycle barrels to 40% of Upstream from 28% pre-Pioneer. The question is how to best capitalize on a 10-15 yr oil window. Pioneer reinforces it's a move away from the traditional supermajor focus on long-cycle oil. Pioneer reminds is Exxon has shifted in their traditional old ways on how to win from oil. In old days before Paris Accord, 15 years ago, the super majors focused on building long life oil reserves. But not now They aren't going to go into something like the mega projects of the past that require a decade to build out the infrastructure to produce like a greenfield major oil sands project or major frontier project because they will miss too much of a 10 to 15 year window. They will look at major oil projects that can be onstream in bites like their Guyana. In the old days, they would probably design a facility for 500,000 b/d expandable to 1 mmb/d. But that would take too long so have developed in quick cycle smaller modules. This gets to Pioneer and the Permian shale. There is no better short cycle project area. Partly because of the resource but more importantly where the resource is located so it can take advantage of Exxon's Gulf Coast refinery, petrochemical, LNG, terminals, etc

Surely a Bakken sale is in the cards

Earlier in the memo, we highlighted the comments from North Dakota on the Exxon lands and their lack of activity, and how that seems to point to us that Exxon's Bakken lands are a logical non-core sale. Exxon did run a single rig since Covid on what North Dakota calls the biggest well inventory in the Bakken core Tier 1 geology. Rather Exxon has worked down their DUC inventory that North Dakota says is now gone.

Big value in contiguous land blocs given shale drilling/fracking advancements

The big sector theme from the deal was the need for contiguous land blocks to take advantage of technology advancements in drilling longer horizontal legs and being able to get good production from the heel to the toe of the well. And long horizontal wells require contiguous land blocks. Once we saw the deal and flipped thru the materials, early Wednesday morning, we tweeted [LINK] "*Contiguous land blocks! "Improved resource recovery" drive 2/3 of synergies. XOM 4 mile wells means less wells = improved recovery, less overall emissions, less water use, smaller footprint, Relevant to other shale players! #OOTT."* And then when the conference call started a few hour later, we immediately tweeted [LINK] "*Contiguous land has big value! Exxon call just started, CEO opens with "Pioneer, arguably the best Permian pure play co. with the largest undeveloped Tier 1 inventory in the Midland Basin. Their acreage is also highly contiguous which is critical to realizing the full benefits of our development approach & technologies" See 👇earlier tweet. #OOTT."* "Improved resource recovery" will drive 2/3 of synergies of $1b beginning 2nd year post closing growing to average $2b over next decade. Exxon opens the call with a clear statement that it's all about contiguous lands so they can drill long horizontals and realize the full benefits of their development approach and technologies. That was clear.

The value lift is all about drilling longer wells with improved competions
This looks to be the key theme to this deal – contiguous land blocks and better completions on long horizontal wells up to 4 miles long. And the reminder that drilling advancements get passed along to other shale/tight plays. Exxon may says this is ha they are doing but the actual drilling and completions are executed by the big service services companies. That experience gets passed on to others. Exxon says ""*we have strengthened our investments in technology, focusing our efforts to accelerate bottom-line improvements - with a significant program in the Permian. This is paying off; our industry-leading technology allows us to successfully drill and complete long laterals, up to 4 miles, which result in fewer wells and a smaller surface footprint. We see our technology as a perfect complement to the entrepreneurial culture of Pioneer, a company with a well-deserved reputation for operational effectiveness. Together, we expect to significantly improve resource recovery which will drive the majority of the synergies from this transaction. Longer-term, our ambition is to double resource recovery".* Note that this is a concept that we see being applied to other shale/tight plays. Being able to drill long horizontals and get good completion results from heel to toe is going to be applied to other plays and not just in the US.

Long horizontals also have big ESG value uplift
The other big advantage of long horizontals is that Exxon can have the same or better recovery of oil with less wells, which helps reduce the carbon intensity, the water usage and footprint ie. helps reach their ESG goals. We were watching the CNBC interview with Exxon CEO Woods and Pioneer CEO Sheffield and tweeted [LINK] "*#Exxon CEO highlights 👇earlier tweet on big value accretion & ESG win by producing more #Oil from less wells. "technologies that we've developed to basically more efficiently recover resources at a lower cost in a better environmental footprint so we are actually advancing the ambitions of a lower emissions future by driving down, using our combined capabilities to drive down emissions. Produce lower carbon intensity oil and gas." #OOTT."*

Oil: US gasoline prices -$0.11 this week to $3.61

US gasoline prices

As expected, US gasoline prices were down this week, in great part driven by lower California gasoline prices. Yesterday, AAA reported that US national average prices were down $0.11 this week to $3.61 on Oct 14, which is down $0.25 MoM, and down $0.29 YoY vs year ago of $3.90. Remember US gasoline prices started to ease below $4 in August 2022 and were declining in Sept helped by the SPR releases. AAA included the below graph with their blog.

California gasoline prices down big as Newsom allows move to winter gas
The big reason for the drop in US gasoline prices was the expected big drop in California gasoline prices following the two weeks ago Gov Newsom move to immediately switch to cheaper winter blend gasoline. AAA reported California average gasoline prices were down $0.19 WoW to $5.64 on Oct 14, which is also down YoY from $6.15. Here is what we wrote in our Oct 1, 2023 Energy Tidbits memo. "*California gasoline prices to drop as Newsom allows move to winter gas. We expect California gasoline prices to be down this week given Gov Newsom, on Thursday night, has moved an immediate switch to cheaper winter blend fuels. The San Diego Tribune reported [LINK] "In an attempt to curb a recent spike in gasoline*

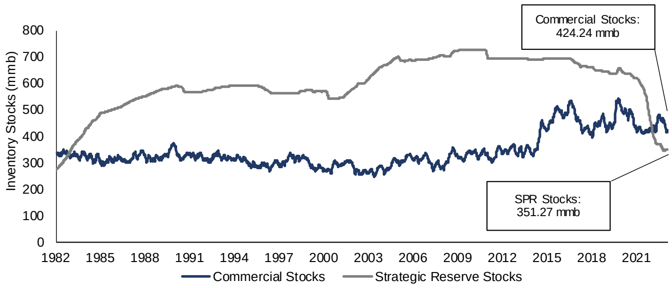
prices, Gov. Gavin Newsom late Thursday instructed California regulators to speed the delivery of less expensive winter-blended gas to stations across the state. Winter-blended gas is about 20 to 25 cents per gallon cheaper than summer-blended gas and fuel analysts expect the waiver put in place by the California Air Resources Board at Newsom's behest will lead to a dip in prices within a few days. "This waiver will affect wholesale gas prices probably on Friday," said Patrick De Haan, head of petroleum analysis at GasBuddy, a tech company that helps drivers across the country find the cheapest places to buy gas. "But there's only one day left in the trading week. That may segue into another drop on Monday and theoretically retailers could be passing that along in lower prices this weekend, but it's not going to be much at first."

US SPR reserves

Oil: US SPR reserves now -72,965 mmb lower than commercial crude oil reserves

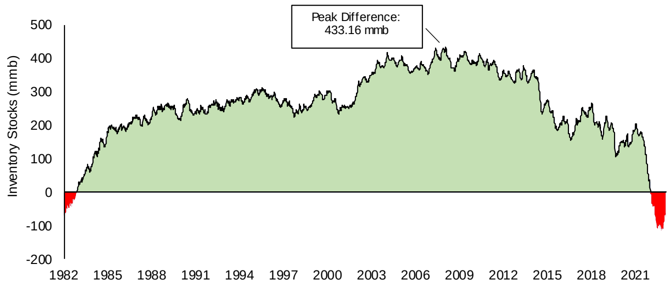
Oil in the US Strategic Petroleum Reserves (SPR) continues to be much lower than total US commercial crude oil reserves. The SPR went back below commercial for the first time since 1983 in the Sept 16, 2022 week. This deficit widened this week after a build in commercial oil stocks of +10.18 mmb. The EIA's weekly oil data for October 6 [LINK] saw the SPR reserves down -0.006 mmb WoW with the US DOE draws decreasing SPR reserves to 351.274 mmb, while commercial crude oil reserves increased +10.18 mmb to 424.239 mmb. There is now a -72.965 mmb difference between SPR reserves and commercial crude oil reserves. The below graphs highlight the difference between commercial and SPR stockpiles.

Figure 31: US Oil Inventories: Commercial & SPR



Source: EIA, SAF

Figure 32: US Oil Inventories: SPR Less Commercial



Source: EIA, SAF

Oil: Canada's oil sands have a similar opportunity in a 10-15 yr oil window

Cdn oil sands in a 10-15 yr window

We were asked by the Canadian Press on the Exxon/Pioneer deal if we had a view on Rich Kruger's views and how to Canadianize the Exxon/Pioneer deal ie. are there takeaways for Canada. The Canadian Press wrote "*Tsubouchi said oilsands bulls could also be looking to increase production in the coming years, though he said that will likely be accomplished through incremental add-ons to existing facilities — not through the whole-scale construction of a new oilsands mine. "These companies aren't going to go into something like the mega-projects of the past," he said. "But they will look at short-cycle projects where they can take advantage of a 10-15 year window, just like Exxon has."* My more fulsome comments to the Canadian Press were how a 10-15 year window provides a great opportunity for Cdn oil sands/SAGD. They know where the oil is, they have successful and continuing improved recovery, they have infrastructure so can do add-ons but I don't see them committing to a major greenfield oil sands mine project that could take 10 to 15 years to come onstream. Rather I see them adding on to exiting projects, doing small scall SAGD increments, etc. I said to the Canadian Press "Exxon stepping up to spend $60 billion to buy Pioneer links to your second question is does this bullish sentiment apply to the Cdn oil sector and how to Canadianize the deal. I don't know Rich Kruger and his views but I have to believe they are like Exxon and see a longer stronger for oil. And Exxon's shift away from long cycle projects to short cycle projects or big projects like Guyana that can be brought on in increments is kind of like where Suncor and CNQ are in the Cdn oil sands. They dominate the oil sands. On oil sands, they can take advantage of a 10 to 15 year oil window just like Exxon is doing in Guyana. They add on phases or increments and not take on a massive new greenfield project like Horizon. And the concept of where Pioneer assets are to link into Exxon's infrastructure is the same concept as oil sands adding phases or increments that link into their existing infrastructure. And also they have the benefit of increasing pipeline with Trans Mountain's expansion to be able to access Asian markets and US West Coast.

Oil: Trans Mountain CEO sees TMX commercial operations by end of Q1/24

TMX start up in Q1/24

We didn't see any comments this week that were pushing back on the Trans Mountain CEO comments last Thursday for the start of commercial operations by the end of Q1/24. Here is what we wrote in last week's (Oct 8, 2023) Energy Tidbits memo. "*On Thursday night, we tweeted [LINK] "Breaking good news for Cdn #Oil. Trans Mountain CEO sees TMX 590,000 b/d expansion in commercial operations by end of Q1/24. 4.5 mmb line fill to start end of Jan. Thx @ChrisVarcoe #OOTT"." The Calgary Herald had just posted an interview with Trans Mountain CEO Dawn Farrell, which was her first interview since taking over as CEO in Aug 2022. [LINK]. Farrell gave the key data point – when will first oil be on the West Coast. Farrell said ""We're aiming to have first oil to (the Westridge Marine Terminal) by the end of the first quarter of 2024 . . . As long as we don't run into sort of geological risks, I feel very confident that we're in that time frame." Calgary Herald didn't include her quote on line-fill but wrote "In her first interview since taking on the job as chief executive of the federal Crown corporation, Farrell said the $30.9-billion project remains "in that range," with only 16 kilometres of pipeline left to put in the ground. Once construction is complete, it will allow for testing, commissioning work and filling the line with 4.5 million barrels of oil, which should begin near the end of January." Starting to add 4.5 mmb of line-fill near the end of Jan and oil in the terminal by the end of Q1/24 for tanker loadings. Our Supplemental Documents package includes the Calgary Herald interview."*

TMX adds 590,000 b/d capacity of oil to west coast
Here is Trans Mountain's overview of TMX [LINK]. "*The original Trans Mountain Pipeline was built in 1953 and continues to operate safely today. The Expansion is essentially a twinning of this existing 1,150-kilometre pipeline between Strathcona County (near Edmonton), Alberta and Burnaby, BC. It will create a pipeline system with the nominal capacity of the system going from approximately 300,000 barrels per day to 890,000 barrels per day." "Three new berths will be built at Westridge Marine Terminal in Burnaby. Once the new berths are completed and in service, the number of tankers loaded at the Westridge Marine Terminal could increase to approximately 34 per month. The existing pipeline will carry refined products, synthetic crude oils, and light crude oils with the capability for heavy crude oils. The new pipeline will carry heavier oils with the capability for transporting light crude oils."*

Money talks? Looks like no TMX timing risk to B.C First Nations appeal request
The Calgary Herald interview with Trans Mountain CEO Farrell did not specifically address the B.C. First Nation saying it was entitled to an appeal of the CER approved minor route change. But CEO Farrell's timing for line-fill to start end of Jan and commercial operations at the loading terminal by the end of March, which suggests she doesn't see any risk to her timeline for TMX startup. On Tuesday, we tweeted [LINK] "*Risk to timing, hopefully only small, for 1st #Oil at TMX expansion? Seems hard for CER to not hear A.B.C First Nation appeal on the route change. CER Mission statement 👇 incl "recognizing and respecting the rights of the Indigenous peoples of Canada"? Thx @AmandaMsteph. #OOTT."* The Canadian Press had reported [LINK] "*In a letter to the regulator dated Wednesday, a lawyer representing the Stk'emlupsemc te Secwepemc Nation (SSN) said the decision to grant the route deviation Monday without providing its reasons has left the First Nation without the ability to decide its next steps. Article content. The letter said the First Nation has the right to request a reconsideration of the decision, or to appeal it through the Federal Court of Appeal."* We have to believe the key reason that Trans Mountain isn't seeing any impact to its timing is that money talks and the owner of the pipeline is the Cdn government and not private sector. And CEO Farrell indicates that every month of delay is $200 million. The Calgary Herald wrote "*I think we're close (on the latest price tag). For sure, there's pressure on it because every time there's a bit of a delay or you have to do a regulatory hearing, or you have to find a new methodology, that puts pressure on the contingency and on the reserve. But we are close, in that range," she added, noting rising interest rates are another factor. "The biggest pressure on this project right now is the timing, for sure. So every month of delay is $200 million that accrues to the project."*

Oil: Cdn WCS less WTI differentials +2.10 to $23.00 on Oct 13

WCS less WTI differentials

It was a great last five months for WCS less WTI differentials, which were significantly less than norm linked to the global medium sour tightness and Saudi's 1 mmb/d voluntary cut starting July 1. So, Cdn crude traded at a lesser discount to WTI than normal. WCS less differentials didn't have their normal seasonal widening but have over the past three week, WCS less WTI differentials have widened seasonally as they normally do each year as fall refinery turnaround season hits. The WCS less WTI differential closed at $14.65 on Apr 28,

$13.50 on May 31, $11.25 on June 30, $13.75 on July 31, $17.75 on Aug 31, and $18.60 on Sept 29. WCS less WTI differentials were +2.10 this week to close at $23.00 on Oct 13. For perspective, a year ago, the WCS-WTI differentials last year were $30.25 on Oct 13, 2022. Below is Bloomberg's current WCS–WTI differential as of Oct 13, 2023 close.

Figure 33: WCS less WTI oil differentials including Oct 13 close

Source: Bloomberg

Oil: Crack spreads increased $1.45 WoW to $20.73

Crack spreads down this week

This week, crude oil into refineries were down another 0.399 mmb/d Wow, which followed last week's down 0.463 mmb/d WoW, and the prior two weeks of down 0.239 mmb/d WoW and down 0.496 mmb/d WoW. So no surprise we have seen a big drop in crack spreads, although this week saw an increase of $1.45 WoW. 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 up $1.45 WoW to $20.73, which followed last week's down $3.07 WoW to $19.28 on Oct 6, the down $3.72 WoW to $22.35 on Sept 29, the $26.07 on Sept 22, and the $32.48 on Sept 15. Crack spreads at $20.73 are at the high end of the more normal pre-Covid that was more like $15-$20.

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 $20.73 as of the Friday Oct 13, 2023 close.

Figure 34: Cushing Crude Oil 321 Crack Spread Oct 13, 2013 to Oct 13, 2023

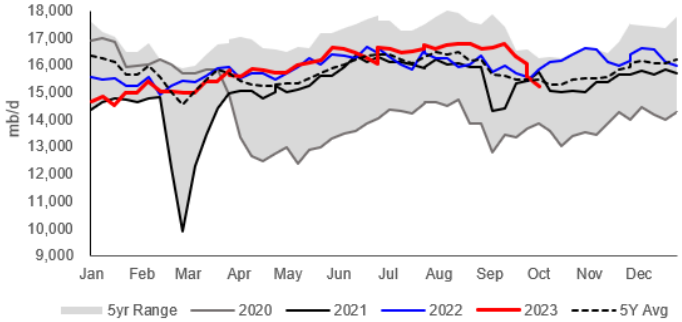
Source: Bloomberg

Oil: Refinery inputs down -0.399 mmb/d WoW to 15.203 mmb/d

There are always unplanned issues that impact crude oil inputs into refineries, but refineries around the world follow seasonal patterns for their maintenance. We'll normally see refineries come out of turnarounds in late March/early April to start their ramp up in refining of summer blend fuels, which typically peaks in Aug/early Sept. So, we have been expecting to see the seasonal decline in crude oil inputs into refineries as refiners turnaround to prepare to shift to more winter fuel blends. That seasonal decline has been underway for the past month.. On Thursday, the EIA released its estimated crude oil input to refinery data for the week ended October 6 [LINK]. The EIA reported crude inputs to refineries were down -0.399 mmb/d this week to 15.203 mmb/d and are down -0.639 mmb/d YoY. Refinery utilization was down -1.6% WoW to 85.7%, which is -4.2% YoY. We likely hit the seasonal peak in refining a month ago.

Refinery inputs -0.399 mmb/d WoW

Figure 35: US Refinery Crude Oil Inputs



Source: EIA, SAF

Oil: US net oil imports +2.004 mmb/d WoW as oil exports down -1.889 mmb/d WoW

The EIA reported US "NET" imports were up +2.004 mmb/d to 3.262 mmb/d for the October 6 week. US imports were up +0.115 mmb/d to 6.329 mmb/d, which is around the bottom for the last few months. But the big increase in "net" US oil imports was driven by US exports being down -1.889 mmb/d WoW to 3.067 mmb/d. (i) Venezuela weekly imports. We now know why the EIA doesn't have any data in the row for Venezuela weekly oil imports but we still

US net oil imports

don't know if the weekly oil imports are off or if Venezuela is included in the weekly oil imports in the Others number. But we do know that Chevron continues to import >100,000 b/d from Venezuela into the Gulf Coast. Give the EIA credit for putting out weekly oil import estimates, but it's a reminder that we have to be careful about using the weekly oil import estimates. Rather we need to make sure we go to the monthly data for oil imports. Ii) The WoW increase in US imports was driven mostly by "Top 10". Top 10 was up +0.169 mmb/d. Some items to note on the country data: Canada was up +0.253 mmb/d to 3.544 mmb/d. Saudi Arabia was down -0.224 mmb/d to 0.067 mmb/d. Mexico was up +0.132 mmb/d to 0.656 mmb/d. Colombia was up +0.146 mmb/d to 0.289 mmb/d. Iraq was down -0.059 mmb/d to 0.247 mmb/d. Nigeria was up +0.046 mmb/d to 0.046 mmb/d.

Figure 36: US Weekly Preliminary Imports by Major Country

US Weekly Preliminary Crude Imports By Top 10 Countries (thousand b/d)

(thousand b/d)	Jul 21/23	Jul 28/23	Aug 4/23	Aug 11/23	Aug 18/23	Aug 25/23	Sep 1/23	Sep 8/23	Sep 15/23	Sep 22/23	Sep 29/23	Oct 6/23	WoW
Canada	3,203	3,691	3,466	3,505	3,832	3,405	3,679	3,645	3,287	3,880	3,291	3,544	253
Saudi Arabia	242	427	330	285	221	462	567	383	383	383	291	67	-224
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	830	760	667	901	780	437	699	1,095	603	844	524	656	132
Colombia	287	290	296	75	290	295	300	211	287	286	143	289	146
Iraq	273	235	305	304	283	232	100	248	233	280	306	247	-59
Ecuador	216	175	142	363	192	328	99	0	134	167	125	0	-125
Nigeria	229	94	237	307	89	144	220	219	0	3	0	46	46
Kuwait	0	0	0	0	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0	0	0	0	0
Top 10	5,280	5,672	5,443	5,740	5,687	5,303	5,664	5,801	4,927	5,843	4,680	4,849	169
Others	1,087	996	1,239	1,418	1,246	1,314	1,106	1,781	1,590	1,386	1,535	1,480	-55
Total US	6,367	6,668	6,682	7,158	6,933	6,617	6,770	7,582	6,517	7,229	6,215	6,329	114
Source: EIA													

Source: EIA, SAF

US only imported 67,000 b/d from Saudi Arabia, the low level was expected

One country to highlight from the weekly US oil import data was Saudi Arabie, where US oil imports from Saudi Arabia were down -0.224 mmb/d to 0.067 mmb/d. Weekly oil imports from Saudi Arabia have only been below 100,000 b/d one other time since Jan 2021. This was expected given its about a 40-day transit time, this would reflect Saudi Aramco loadings at the end of August. Here is what we wrote in our Sept 3, 2023 Energy Tidbits memo on the expected low level of Saudi oil imports in Oct. *"Low Saudi oil shipments to US in Aug = lower US oil inventories in Sept/Oct. We remind that the best and quickest way for Saudi Arabia to impact global oil prices is to cut oil shipments to the US. The US is the only area with widely accepted weekly oil inventory changes so if the Saudis ship less to the US, it will show up in the EIA weekly oil inventory data. (i) On Friday morning, we tweeted [LINK] "Reminder quickest way for Saudi to impact #Oil prices is cut exports to US so it shows up in weekly US oil inventory data. Saudi cut crude shipments to US to 81,000 b/d in Aug vs 430,000 b/d in July. Provide support to Sept/early Oct prices. #OOTT @JLeeEnergy @bwingfield." And [LINK] "could have been clearer. low saudi oil shipments in aug = approx 40 days later less saudi oil landing on US = less in EIA weekly oil inventories on sept and early oct = support to sept and early oct prices. #OOTT." (ii) Our tweet included the below Bloomberg table with Bloomberg estimates from tanker loading data that Saudi oil exports to the US was down to only 81,000 b/d in Aug vs 430,000 b/d in July, 350,000 b/d in June and 306,000 b/d in May. When we saw the very low Saudi shipments to the US, we automatically* *thought that should show up in lower US oil inventories in Sept and early Oct. We still use an average ~40 days voyage from Saudi to the Gulf Coast. That moves around and may be impacted by the active tropical storm/hurricane activity in the Atlantic Ocean that normally causes tankers to take a longer more circuitous route. Our Supplemental Documents package includes the Bloomberg report."* Below is the table included in our Sept 3, 2023 Energy Tidbits memo.

Figure 37: Saudi Arabia key crude flows to selected destinations (000s of b/d)

Destination	Aug.	July	June	May
China	1,274	1,522	1,608	1,613
S. Korea	613	973	956	785
India	569	552	659	832
Japan	543	828	828	796
US	81	430	350	306
Egypt	65	645	533	806
Unknown	780	0	0	0
All destinations	5,552	6,266	6,657	6,551

Source: Bloomberg

US oil imports from Saudi in Aug fit the approx. 40-day lag to Saudi loadings
Here is another item from our Sept 3, 2023 Energy Tidbits memo. "*As noted above, we still use an ~40 day assumption for the typical Saudi tanker to get to the US Gulf Coast. The reason we put our second tweet on being clearer was because of a question on our first tweet that asked if there were some timing issues given the latest EIA data was that the US imported 462,000 b/d from Saud in the week ended Aug 25. We tweeted back our table of US weekly oil imports (see earlier in the memo) that notes the other weeks of US oil imports from Saudi were 225,000 b/d for Aug 18 week, 285,000 b/d for Aug 11 week and 330,000 b/d for Aug 4 week, which is roughly 325,000 b/d. And that the Bloomberg table was 306,000 b/d for May and 350,000 b/d for June. So the Aug oil imports from Saudi Arabia basically tracked the Saudi crude oil shipments for May and June. Our reply to the question was [LINK] "Yes, look at last 4 weekly imports that line up well with Saudi shipments assuming 40ish days voyage. July average from Saudi ~325 mbd. Vs May loadings 306 mbd and June loadings 350 mbd."*

Oil – A year late, a key 2024 oil theme is Mexico significantly reduces oil exports

Mexico reducing oil exports

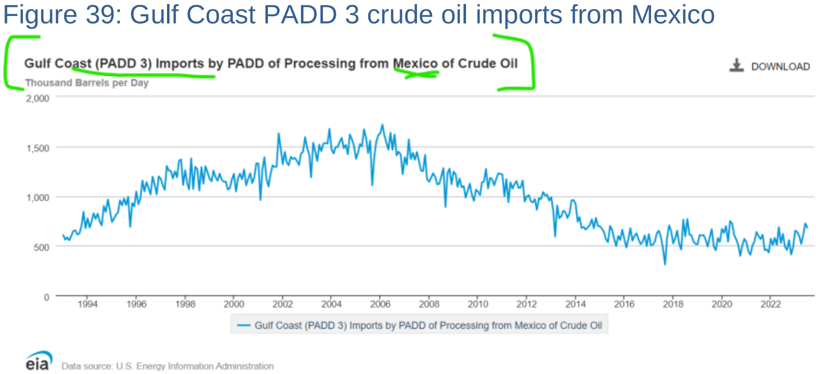
It's taken an extra year, but 2024 should see Mexico (Pemex) dramatically reduce its oil exports including to Gulf Coast PADD 3. This is different than last year because the new Dos Bocas (Olemeca) refinery has started commercial operations so is ramping up to full volumes.There should be a bit of a supply gap in the Gulf Coast in 2024. (i) On Tuesday, we tweeted [LINK] "*Positive for Cdn #Oil in 2024 besides TMX 0.59 mmbd start. PADD 3 supply gap. Pemex prod 2.0 mmbd - refining 1.6 mmbd = max 0.4 mmbd for export. Vs PADD 3 imports 0.62 mmbd from MEX YTD 07/31. ie. 0.22 mmbd less to PADD 3 IF ALL Pemex oil goes to PADD 3. Thx @lkassai. #OOTT."* (ii) Bloomberg reported that the recently started Dos Bocas refinery should reach peak 320,000 b/d processing next year and, along with increasing processing at its other refineries, wil take Pemex refining volumes to 1.611 mmb/d in 2024. (ii) Pemex's latest production frorecast was from June 2023 and was for total oil production, incl 3rd party oil, of 2.033 mmb/d, which means there is only 0.4 mmb/d of production that can be exported. (iii) Pemex owns the Deer Park (Texas) refinery and imports ~270,000 b/d and we have to believe that will be the first priority for the 400,000 b/d of oil available for export. That leaves 130,000 b/d of remaining Mexico oil that can be exported. (iv) The EIA reports that Gulf Coast PADD 3 imports from Mexico averaged 620,000 b/d for YTD July 31. Ie. there would be a minimum reduction of 220,000 b/d of Mexico oil if all 400,000 b/d of available oil gets exported to PADD 3, but that would increase to 350,000 reduction if the only barrels are for Deer Park refinery. (v) This creates a supply gap for heavy/medium crude that can't be filled by US that is mostly light barrels. On Tuesday, we tweeted [LINK] "*Gulf Coast PADD 3 supply gap options. This will be medium sour barrels so creates opportunity for Cdn crude. Also another reason why US will want Saudi to bring back voluntary cuts especially in Q1/24. And also why US could be looking to relax more Venezuela sanctions. #OOTT;"* Below are the Bloomberg table of Pemex refinery volumes, and the EIA current graphs showing Gulf Coast (PADD 3) oil imports from Mexico and Canada.

Figure 38: Pemex refinery volumes (thousand b/d)

	2022	2023	2024
6 refineries (*)	816	865	1,023
Dos Bocas	0	17	320
Deer Park, TX	277	277	269
Total	1,093	1,159	1,611
(*) Cadereyta, Madero, Tula, Salamanca, Minatitlan, Salina Cruz			

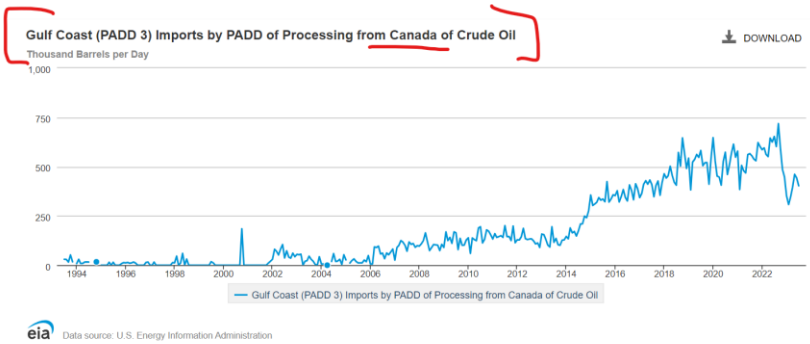
Source: Bloomberg

Figure 39: Gulf Coast PADD 3 crude oil imports from Mexico



Source: EIA

Figure 40: Gulf Coast PADD 3 crude oil imports from Canada



Source: EIA

12/25/22: Mexico was expected to significantly reduce oil exports in 2023
The reason for the one year delay was that the new Dos Bocas (Olemeca) refinery was several months late. Here is what we wrote in our Dec 25, 2022 Energy Tidbits memo. "*Yesterday, we tweeted [LINK] "Key #Oil theme for 2023 - Mexico refines more oil in its plan to cut exports to zero! Positive to Cdn oil ie. less MEX oil to Gulf Coast. AMLO: Olemeca refinery to hit 170 kbd July 1, full 340 kbd Sept 15. In Nov, Pemex exported 894 kbd incl 499 kbd to Gulf Coast. #OOTT." One of our key oil themes for 2023 is that Mexico expects to cut oil exports down to zero over the next 12 to 18 months. This was supposed to be happening around now, but the big delay and cost overruns at the new Olemeca (Dos Bocas) refinery pushed that back a year. The stoppage of oil exports wasn't just Olemeca it was the capital put into trying to improve operations to more consistent refinery production at its existing refineries. Our tweet referenced the AMLO tweets on how Olemeca should refine 170,000 b/d July 1, and then an additional 170,000 b/d on Sept 15. AMLO's goal has been to eliminate all Mexico oil exports by adding the new Olemeca refinery and putting capital to increase the capacity utilization of Pemex's existing refineries. And by the added and improved refinery utilization, Mexico could then be able to process all Mexico oil production and therefore eliminating exports. And if Mexico eliminates oil exports, it is a positive for Cdn oil going to the Gulf Coast (PADD 3)."*

Oil: 1st sanctions applied by US of price cap on Russian oil

US applies sanctions on Russian price cap

It will be interesting to see if the fear of god has been put into many of companies and countries involved in violations to the price cap put on Russia oil by western nations and how many will follow the new Price Cap Coalition recommendations. And the market has to assess if the US will apply more sanctions and how much more. And can the fear of god cause the price cap to work as originally envisioned and was working where Russian oil was not being sold for more than the price cap. It also led to big processing wins for Chinese and Indian refineries Oil was up Friday morning with the reports of US applying sanctions related to the Russian price cap. On Friday, we tweeted [LINK] "*1st sanctions applied by US of price cap on Russian #Oil. Gives a warning shot to separate Price Cap Coalition recommendations on shipping RUS oil & petroleum products that is "directed at both GOVERNMENT and private sector actors". #OOTT".* On Thursday night, there were two US announcements. (I) The US Treasury [LINK] announced it was applying the 1st sanctions related to the price cap on Russian oil. US Treasury wrote "*Today, the U.S. Department of the Treasury's Office of Foreign Assets Control (OFAC) is imposing sanctions on two entities and identifying as blocked property two vessels that used Price Cap Coalition service providers while carrying Russian crude oil above the* Coalition-agreed price cap." (ii) Also on Tuesday night, the US Treasury [LINK] announced "The Price Cap Coalition is issuing this advisory to provide recommendations concerning specific best practices in the maritime oil industry. This advisory reflects our efforts to promote responsible practices in the industry to prevent and disrupt sanctioned trade, and enhance compliance with the price caps on crude oil and petroleum products of Russian Federation origin, put in place by the G7, the European Union, and Australia ("the Price Cap Coalition" or "Coalition").[1] The advisory is directed at both government and private sector actors ("industry stakeholders") involved in the maritime trade of crude oil and refined petroleum products.[2]" Our Supplemental Documents package includes both US Treasury releases.

Oil: Novak says discounts on Russia oil are down to $11-12/barrel

Discount on Russia oil now $11-12/b

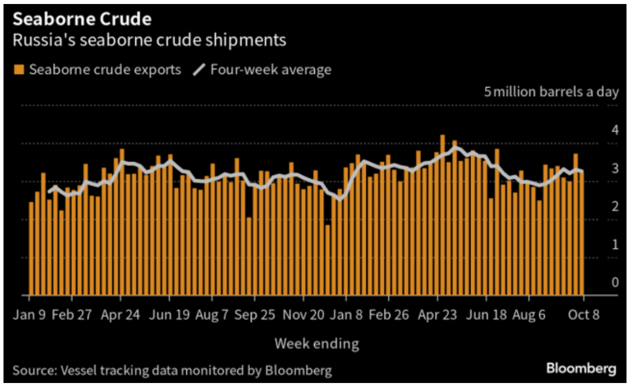
It isn't clear if the Russia Deputy PM Novak's comments on discounts on Russian oil was just before or just after the US Treasury announcement, but it was right around the same time. Novak said the discount on Russian crude was now down to $11-12/b and he thinks that can be narrowed another $5/b. On Friday morning (Moscow time), TASS reported [LINK] ""*At the beginning of the year, we saw that the discount on our oil reached $35-38 per barrel. As of today, it's about $11-12. This means that supplies have stabilised, transport and logistics chains have stabilised, we have agreed with our friendly countries on new markets and on the participation of companies. Now there is a lot of competition for our products and, of course, the market demand is also forming a reduction in the discount," he said in an interview with RT Arabic.Novak added that the reduction in the discount indicates a decrease in the risks associated with the supply of Russian oil. "If there is a lot of competition, everyone wants cheap oil and oil products - the demand is high, which means that the discount can decrease. We'll be watching. We are optimistic about it," he said. "The potential remained small to reduce the discount - $5," the Deputy Prime Minister of the Russian Federation said in an interview with the Business FM radio station. According to him, this depends on the increased cost of oil transportation."* Our Supplemental Documents package includes the TASS report.

Oil: Russia crude oil shipments in line with commit to cut shipments by 300,000 b/d

Russia oil shipments in line

There was a similar message this week from Bloomberg's weekly recap of Russia crude oil shipments – the shipments are in line with its commitment to reduce shipments by 300,000 b/d. On Tuesday, we tweeted [LINK] "*Supportive of #Oil prices. Russia oil shipments continue in line with its commitments to reduce exports by 300,000 b/d. Latest 4-week average to Oct 8 was 3.26 mmb/d, in line with commitment to reduce to ~3.28 mmb/d. Thx @JLeeEnergy #OOTT."* Bloomberg reported on Russia crude oil shipments for the week ended Oct 8. Bloomberg reported "*Russia's seaborne crude exports slipped back from a 13-week high in the seven days to Oct. 8, keeping four- week average flows in line with the export cut that Moscow pledged to maintain until the end of the year. About 3.23 million barrels a day of crude was shipped from Russian ports last week, a decline of about 490,000 barrels a day from the previous seven days, tanker-tracking data monitored by Bloomberg show. That reduced the less volatile four-week average to about 3.26 million barrels a day."* And "*Deputy Prime Minister Alexander Novak said in early August that Moscow would prolong export* *restrictions at a reduced level of 300,000 barrels a day below their May-June average until the end of the year. Bloomberg calculations indicate that shipments through ports should be running now at about 3.28 million barrels a day."* Bloomberg's report includes data on Russia's oil shipments by export port and by shipment destination. Our Supplemental Documents package includes Bloomberg's Russian seaborne crude flows report.

Figure 41: Russia's seaborne crude shipments thru Oct 8 week



Source: Bloomberg

Oil: OPEC MOMR: narrowing deficit of crude oil stocks to 2015-2019 average

OPEC Monthly Oil Market Report

On Thursday, OPEC released its Monthly Oil Market Report. (i) We thought the overall takeaway from the data and forecasts was neutral as there was no real change to demand or non-OPEC supply. (ii) 2023 average demand was kept flat at 102.06 mmb/d and growth remained unchanged at +2.44 mmb/d YoY. Oil demand for 2023 at 102.06 mmb/d is 1.72 mmb/d over the pre covid-19 2019 of 100.34 mmb/d. (ii) Quarterly demand changes for 2023. Q1/23 decreased to 101.59 mmb/d (was 101.74). Q2/23 increased to 101.35 mmb/d (was 101.26). Q3/23 increased to 102.17 mmb/d (was 102.06 mmb/d). Q4/23 decreased slightly to 103.13 mmb/d (was 103.18). (iv) There was no change to OPEC's 2024 growth forecast of +2.25 mmb/d YoY but 2024 demand Is unchanged at 104.31 mmb/d. (v) OPEC still forecasts increasing oil demand for OECD countries at +0.26 mmb/d YoY to 46.07 mmb/d. Note IEA is now forecasting peak oil demand for OECD countries to be reached in 2024. Non-OECD is forecast +1.99 mmb/d YoY to 58.24 mmb/d (was +1.99 mmb/d YoY to 57.93 mmb/d) with the largest growth being China +0.58 mmb/d YoY to 16.60 mmb/d and the Middle East +0.38 mmb/d YoY to 9.02 mmb/d. Other Asia non-OECD +0.31 mmb/d YoY to 9.57 mmb/d. India +0.22 mmb/d YoY to 5.60 mmb. (vi) Non-OPEC supply was slightly increased for 2023 to +1.68 mmb/d YoY (was +1.58 mmb/d) and full year average of 67.49 mmb/d (was 67.39 mmb/d). For 2024, OPEC forecasts non-OPEC supply at +1.38 mmb/d YoY to 68.88 mmb/d (was +1.39 mmb/d YoY to 68.78 mmb/d). Key YoY non-OPEC growth areas for 2024 are US +0.61 mmb/d (unchanged), Canada +0.24 mmb/d (unchanged), Guyana at +0.15 mmb/d (unchanged), Brazil +0.12 mmb/d (unchanged), Norway +0.12 mmb/d (unchanged), and Kazakhstan +0.08 mmb/d (unchanged). (vii) OPEC Secondary Sources for September were +273,000 b/d MoM to 27.755 mmb/d. The major changes were Nigeria up +141,000 b/d MoM to 1.390 mmb/d and Saudi Arabia +82,000 b/d MoM to 9.006 mmb/d. (viii) Direct Communications (what the OPEC countries report). There were a few items to note vs what countries directly reported vs Secondary Sources estimates: Iran does not provide production numbers. Iraq does its norm and says it produced less at 4.138 mmb/d in Sep vs. Secondary Sources of 4.307 mmb/d, and Venezuela does its norm and says it produced more at 762,000 b/d vs. Secondary Sources of 733,000 b/d. (ix) Our Supplemental Documents package includes excerpts from the September OPEC MOMR.

IEA Oil Market Report

Oil: Oil demand, IEA lowers oil demand for 2024 by 0.1 mmb/d to 102.7 mmb/d

On Thursday, the IEA released its monthly Oil Market Report for October at 2am MT. They only release very limited public info, but Bloomberg provided detailed tables and added color from the report. (i) Early Thursday morning, we tweeted [LINK] "*#Oil supporters will like @IEA OMR Oct. Yes, IEA highlights demand growth slows to 0.9 mmbd YoY in 2024. But 2024 demand unchanged, OPEC+ countries generally complying, "massive draw" in global oil stocks in 2024, and voluntary cuts expected to keep oil market in deficit. #OOTT.*" The IEA may have stressed the evidence of demand destruction, but they only reduced their 2024 oil demand forecast by 0.1 mmb/d to 102.7 mmb/d, which is another new record for oil consumption. (ii) Oil Demand. The IEA did not slightly raised its oil YoY demand growth rates as well as its its 2023 demand forecast such that total 2023 oil demand is up 0.1 mmb/d to 101.9 mmb/d (was 101.8 mmb/d) and down in 2024 to 102.7 mmb/d (was 102.8 mmb/d). (iii) One item the IEA didn't highlight was, as we expected, the IEA has now walked back what stood out to us as an unusual assumption for their Q1/24 oil demand. In their June OMR, the IEA had a massive -2.0 mmb/d QoQ drop in Q1/24 vs Q4/23. The normal seasonal pattern is for Q1 to be down sequentially QoQ vs the prior year Q4. But the 2.0 mmb/d QoQ drop was way higher than normal. They walked that QoQ decline to -1.9 mmb/d in July OMR, then -1.6 mmb/d QoQ in Aug OMR, then -1.4 mmb/d QoQ in the Sept OMR and now -1.3 mmb/d QoQ in the Oct OMR. Four months ago, w2e looked at some of the older pre-Covid OMR reports and didn't see any QoQ forecasts this big, rather it was more like 1 mmb/d QoQ. The reason why we highlight this is if Q1/24 is low, it probably means the rest of 2024 is low. (iv) IEA kept flat non-OPEC supply. For 2023, Oct OMR is now + 1.5 mmb/d YoY to 68.0 mmb/d. For 2024, non-OPEC supply, up to +1.3 mmb/d YoY to 68.8 mmb/d (was +1.2 mmb/d YoY to 68.8 mmb/d). (v) OECD stocks in Aug are at a 14-month low. The IEA wrote " *Global observed oil inventories tumbled by 63.9 mb in August, led by a massive 102.3 mb draw in crude oil stocks. Preliminary data suggest that on land inventories continued to draw in September, while oil on water rebounded as exports recovered. OECD industry stocks fell counter-seasonally by 6.5 mb in August to 2 816 mb, a substantial 105.3 mb below the five-year average."* Our Supplemental documents package includes the IEA release and the Bloomberg reports.

Figure 42: IEA Global Demand Forecast by OMR Report

mmb/d	2022	Q1/23	Q2/23	Q3/23	Q4/23	2023	23-22	Q1/24	Q2/24	Q3/24	Q4/24	2024	24-23
Oct 23	99.6	100.4	101.8	102.7	102.6	101.9	2.3	101.3	102.2	103.5	103.9	102.7	0.8
Sep 23	99.6	100.4	101.7	102.6	102.5	101.8	2.2	101.1	102.6	104.0	103.5	102.8	1.0
Aug 23	100.0	100.6	102.0	102.9	103.1	102.2	2.2	101.5	102.6	104.2	104.3	103.2	1.0
July 23	99.9	100.5	101.4	103.1	103.3	102.1	2.2	101.4	102.6	104.3	104.5	103.2	1.1
June 23	99.9	100.5	101.6	103.4	103.5	102.3	2.4	101.5	102.5	104.1	104.4	103.1	0.8
May 23	99.9	100.5	101.3	103.0	103.1	102.0	2.1						
Apr 23	99.9	100.4	101.2	103.1	103.0	101.9	2.0						
Mar 23	99.9	100.7	101.3	101.9	101.9	101.5	1.6						
Feb 23	100.0	100.1	101.1	102.9	103.5	101.9	1.9						
Jan 23	99.9	99.6	100.8	102.9	103.5	101.7	1.8						
Dec 22	99.9	99.7	100.6	102.7	103.4	101.6	1.7						
Nov 22	99.8	99.6	100.5	102.3	103.0	101.4	1.6						
Oct 22	99.6	99.5	100.4	102.1	102.9	101.3	1.7						

Source: IEA, Bloomberg, SAF

Oil: The Arab Oil Embargo Oct 19, 1973 was THE defining oil event

Arab Oil Embargo

Before the Hamas terrorist attack in Israel, our Oct 1, 2023 Energy Tidbits memo highlighted the anniversary of the Yom Kippur War, which was the catalyst for THE defining oil event in history – the Arab Oil Embargo 1973-74. We have highlighted the Arab Oil Embargo since we first started our Energy Tidbits memos 25 yeas ago. It was the most significant game changer to oil market. Here is what we have included in prior Energy Tidbits going back over the years/decades. "*We normally include a reminder of the 1973-1974 Arab Oil Embargo because it was "THE" game changer to oil markets. Most weren't born or too young or not in the US to remember the 1973/1974 Arab oil embargo that hammered the US economy and moved oil prices from ~$3 to ~$12. It forced the US and other western countries to have their first real look at oil security. There is no question that having an immediate cut off of oil forced change. Change always happens when something is cut off rather than just becomes more expensive. It was "THE" game changer to the oil and gas industry that led to lasting trends such as the 1976 election of Jimmy Carter (who introduced the first tax credits to kickstart the US shale gas/oil revolution), the creation of Strategic Petroleum Reserves, the International Energy Agency, the push to find oil outside the Middle East in regions, the US govt push to begin to import LNG, etc . It was also a game changer for consumers and led to the move to fuel efficient cars like the Honda Civic (don't forget made in Japan wasn't a good brand in the 60's). The big reason for this was that the Arab Oil Embargo led to an immediate rationing of gasoline in many parts of the US – it was immediate. And to the famous multi block long lineups to buy gasoline. I was in college in St. Louis (Missouri) at the time and the pictures, like the one below, were reality of line ups for gasoline. In. St. Louis, it immediately had restrictions on how many gallons of gasoline on day 1, and by day 2 they had switched to only allowed restricted volumes of gasoline to be purchased on odd days if your license plate ended in odd number and vice versa for even days. Don't forget there was no self-service gas stations so you couldn't fill up in violation of the restrictions. In areas like St. Louis that had poor access to gasoline, it was common to line up for an hour for gasoline with your car in neutral and turned off, and taking turns with your friends to push your car to the gas station. The end of the oil embargo was on March 17, 1974."*

Figure 43: Gas Station Line Up During Arab Oil Embargo 1973-74

Source: Tim

Oil: Israel/Hamas war updates

We have a 7am MT news cut off. This is a critical day(s) for the Israel/Hamas war as the time expired for Israel's 24-hr period for people to get out of the northern Gaza Strip. There will be a lot of news by the time people read this memo in four hours. So we aren't trying to give a minute by minute update this morning in the run up to 7am MT. But where the big picture is. Israel's 24-hr period to evacuate northern Gaza Strip is over. No change to Israel's message to inflight such damage as to change how Hamas and other enemies think about Israel. Biden continues to state his support for Israel including on military support. Yesterday the White House readout of Biden/Netanyahu call "*This afternoon, President Biden spoke with Prime Minister Netanyahu to reiterate unwavering U.S. support for Israel. President Biden updated Prime Minister Netanyahu on U.S. military support and reiterated his warning against anyone seeking to expand the conflict."* Israel's buildup of military forces on the edge of Gaza. No signs Hamas will give up its leaders. Most Arab nations asking for a de-escalation and wanting to provide humanitarian assistance. Egypt still has their border crossing closed to the most part. Iran being the vocal in support and seeming to warn Israel. In other words, no change to the expectation that Israel will do what they said and they will be going in hard.

Israel/Hamas war

Israel has directly warned its biggest enermy, Iran

There was a great clear comment from Israel Minister of Strategic Affairs, Ron Dermer, on CNBC Squawk Box on Oct 9, 2023. On Monday, we tweeted [LINK] "*Here's why Iran geopolitical risk has to be top of mind. "We're going to do whatever we have to do to send a lesson that they're going to understand for many, many decades. Not just Hamas, not just the other terror organizations in Gaza, but all the terror organizations and all the enemies of Israel and Iran is the biggest enemy of all .... We're going to have to send a message to everybody". Israel Minister just now to @FerroTV #OOTT,"*

Israel warned its allies/supporters there is heavy damage ahead.

Israel Minister of Strategic Affairs, Ron Dermer also highlighted that Israel's allies have been warned there will be heavy damage on Hamas. On Monday, we tweeted [LINK] "*Israel warns heavy damage ahead in Gaza. "I hope in the days ahead that that support continues when Israel has to do what it has to do to in order to exact such a heavy price for this terror organization" Israel Minister to @FerroTV. #OOTT."*

Oil: We don't see how people can say Iran drawn in isn't huge risk to oil markets

We are surprised to hear many commentators think there won't be a huge impact on oil markets if Iran is drawn into the war. We agree that no one knows what would play out and for how long. But, the potential risk to oil supply is huge if oil, petroleum products and LNG shipments get interrupted/stopped in the Strait of Hormuz, or if there are missile/attacks on Iran and other Persian Gulf oil wells, production facilities or export terminals. This would be brutal. The risk is there that Iran gets drawn in. As noted above, Iran gave a direct warning to its biggest enemy, Iran. And yesterday, Iran's Foreign Minister has warned Israel about Israel's planned military action going into the Gaza Strip. Yesterday, Iran didn't downplay that potential. PressTV (Iran state media) reported [LINK] on Iran's Foreign Amir-Abdollahian "*made the remarks in a Saturday meeting with his Qatari counterpart, Sheikh Mohammed bin Abdulrahman bin Jassim Al Thani, in Doha. The Iranian top diplomat was in the Qatari capital as part of a regional tour that has already taken him to Iraq, Lebanon, and Syria. "If the*

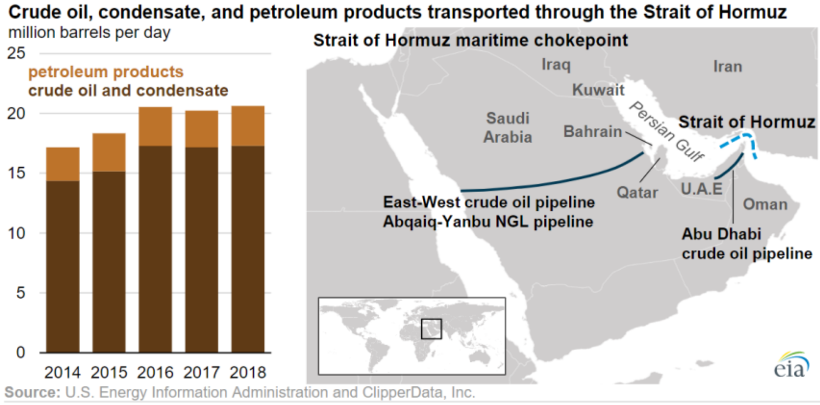
Will Iran be drawn in?

Zionist regime's crimes against the people and citizens of Palestine continue, nobody can guarantee that conditions in the region will remain the same," Iran's top diplomat warned." Earlier today, the Jerusalem Post wrote [LINK] "*Iran warns of 'consequences' if Israel's bombing of Gaza not stopped. Iran sent a private message to Israel through the UN that it could intervene if Israel continued its military campaign in Gaza. Tehran warned of "far-reaching consequences" if the IDF's bombing of Gaza is not stopped, as diplomats worked around the clock to prevent the Israel-Hamas war from escalating into a regional conflict that could include Hezbollah and Iran."* And "*Iran's mission to the United Nations posted on X on Saturday, "If the Israeli apartheid's war crimes [and] genocide are not halted immediately, the situation could spiral out of control [and] ricochet far-reaching consequences, the responsibility of which lies with the UN, the Security Council & the states steering the Council toward a dead end."*

The Strait of Hormuz is the most important oil/LNG chokepoint

Earlier this morning, we tweeted [LINK] "*Reminder any military conflict that interrupts tankers via Strait of Hormuz will have a huge impact. It is the most important tanker transit chokepoint for #Oil #PetroleumProducts #LNG tankers. See 👇 @EIAgov Strait of Hormuz, it's 4-yrs old but still makes the point. #OOTT."* The Strait of Hormuz, which is the most important chokepoint for global oil and LNG shipping. This EIA blog is four years old, but still provides an excellent recap of the significance of the Strait of Hormuz. We recommend adding the June 20, 2019 EIA brief "*The Strait of Hormuz is the world's most important oil transit chokepoint"* to reference libraries. The brief reminds that 17.3 mmb/d of crude oil and condensate flows thru the Strait of Hormuz, but also highlights there is 3.3 mmb/d of petroleum products and over 11 bcf/d of LNG flows thru the Strait. The significance is that the EIA the liquids flows are "*equivalent of about 21% of global petroleum liquids consumption".* This is of total global consumption, not of global oil import/export volumes. The brief also notes "*There are limited options to bypass the Strait of Hormuz. Only Saudi Arabia and the United Arab Emirates have pipelines that can ship crude oil outside the Persian Gulf and have the additional pipeline capacity to circumvent the Strait of Hormuz. At the end of 2018, the total available crude oil pipeline capacity from the two countries combined was estimated at 6.5 million b/d. In that year, 2.7 million b/d of crude oil moved through the pipelines, leaving about 3.8 million b/d of unused capacity that could have bypassed the strait*". Our Supplemental Documents package includes the EIA brief.

Figure 44: Crude oil, Condensate & Petroleum Products Flows Thru Strait of Hormuz



Source: EIA

Oil: We don't think Saudi adds back oil supply soon unless supply interruptions

When will Saudi add back oil supply?

We continue to believe the likely timing for any Saudi decision to add back barrels is that any decision isn't likely to be made until with barrels not being added to physical markets until in Q2. However that could move earlier if the Hamas/Israel war impacts oil supply. We would then expect Saudi to move to add barrels to the market to offset any supply interruption from the war. But that qualifier aside, here is what we wrote in last week's (Oct 8, 2023) Energy Tidbits memo on that timing. "*The qualifier to this point is that it was from Tuesday night before the uncertainty on what happens to the Middle East from Hamas/Israel conflict. It was a little bit of bad timing for us on Tuesday night. We were asked to be on the A block on Brian Sullivan's CNBC Last Call on Tuesday night to talk about the Wed OPEC JMMC meeting. The unfortunate timing was that the Kevin McCarthy stepping down had just broken in the minutes before the A block so our interview was cut from about 8 min to 3 min. Regardless, it was great to be on his show as we are big fans of Brian given he knows every significant oil person in the world starting with Saudi Energy Minister Abdulaziz. (i) We could only give a short bit of what we prepared to say on the CNBC question does $90 oil bring OPEC oil supply sooner? Here are a few of our key points. We don't look at this as an OPEC+ or Russia decision. It's a Saudi decision. For OPEC+. They will have to wait until either after Saudi/Russia bring back their voluntary cuts or simultaneous with Saudi/Russia. Russia is in a different spot. But we don't think they have much choice to follow Saudi's lead and do the bare minimum of what they promised. Which they seem to be doing based on Sept oil shipments. The last thing Russia wants is Saudi to put other producers back in line. So it all comes down to Saudi and Prince Abdulaziz and when will he think is the right time to add back his voluntary 1 mmb/d cut. When he does decide to do so, we have to believe it will be done in one shot and not in stages. (ii) It's not now, we see no reason even with $90 oil for him to consider adding back the 1 mmb/d at this time. Putting aside for the moment what has happened to markets in the last week on higher for longer rates that the market is clearly pricing in for interest rates, but also the impact of interest rates are hitting sectors like renewable energy stocks. Go back five months and the supply and demand factors that led to the Saudi 1 mmb/d voluntary cut aren't better, arguably a little worse. On supply - Iran has just hit 5 yr production highs, Venezuela hit 800,000 b/d exports, and US oil production has* *been stronger than move everyone expected given that drilling hasn't ramped up. On demand, the number one holdback to demand is China. There are probably even deeper questions on China today than there were five months ago. But on the numbers. Domestic air flights are up with Super Golden Week but probably 15% less than what was expected. PMI numbers and the commentary is that there still isn't solid footing for the recovery of the economy. And the big one is the Chinese consumer. Remember Chinese don't have our safety nets on health, pensions, etc. That's why we think it means more when the Chinese are taking their money out of saving to travel or buys stuff. And we just saw BlackRock CEO Larry Fink last week on how, in his words, the Chinese consumer is "frightened" to spend. Their savings rate has gone from 35% of disposable income pre Covid to 50% now. There is multi trillion dollars of excess savings that keeps growing because the Chinese are frightened to spend. Don't forget on the flip side, when they start to spend we should see a big boost just like we saw the consumer lead the US recovery. So prior to the higher for longer interest rate hit on markets, supply/demand gave no reason for Saudi to add back oil. Now add in the last week and how the markets reacted in the last couple days pricing in a higher for longer rate rtes. And don't forget US rates flow thru to other regions who can't handle the higher rates as well. So even if Saudi had given an ounce of thought to add back the 1 mmb/d voluntary cut, the past few days has only reinforced they were right to do what they did for oil price stability and right to not change. (iii) When? Back to timing, the other overlooked demand factor by non-oil people is that oil demand is always seasonally lower in Q1 of every year vs the preceding Q4, and normally call it a 1.5 mmb/d or so. So even if the supply/demand was a little better, the fact that oil demand is down QoQ in Q1 ever4y years makes it hard to see why Saudi add back barrels until the barrels won't hit the market until after Q1 and in the lead up to summer oil demand. So we think the most likely early time for an add back is either late in Q1 or early in Q2 so the barrels can hit the market for the normal big seasonal increase in demand in the summer. (iv) We also told CNBC that this our view unless some unknown event that hits supply, all the data and indicators really haven't changed the argument as to why Saudi put did the voluntary 1 mmbd. If anything, the supply and demand and new higher for longer interest gives Prince Abdulaziz more reason to say he was right and there is no reason to change his action. But there will be big pressure in an election year to do so for him to do in that late Q1/early Q2 period with the 2024 elections. We think that will be the key test. To add back 1 mmb/d to physical markets until sometime in Q2 at the earliest. (v) Reminder this is what we told CNBC on Tuesday night ahead of the OPEC JMMC Wed meeting and ahead of Hamas/Israel conflict this weekend. And that is far from clear what will happen."*

Oil: IMF, Saudi has highest budget oil break-even for budget price $86 vs its peers

Saudi break-even oil price

For the past few years, we have been calling the #1 financial theme for Saudi Arabia for the 2020s – its increasing use/need for Other People's Money to finance its Vision 2030. There is nothing that we see that has changed this long-stated view. Rather we keep seeing more indicators to support that view. The IMF sees Saudi Arabia needing an $86 oil price to provide a fiscal break-even. And significantly that Saudi's break-even price is way higher than its peers ie. UAE is On Thursday, the Bloomberg reported "*The International Monetary Fund said Saudi Arabia needs a much higher oil price to fund the government's burgeoning spending commitments than previously forecast, a view that explains why the kingdom can't afford to let go of the crude output curbs that are inflicting pain on consumers worldwide. Using a measure of fiscal resilience known as oil breakeven prices, the fund's latest* *projections published on Thursday showed Saudi Arabia would need crude close to $86 per barrel to balance its budget, an increase of nearly $5 from the IMF's estimates in May. Saudi Arabia increasingly stands out among a group of the Middle Eastern energy producers tracked by the IMF, most of which either need lower oil prices to balance their books or have seen their breakeven estimates reduced sharply this year."* The IMF is focused on the break-even for their fiscal budget and doesn't take into account the hundreds of billions that will be spent of Vision 2030. Below is the Bloomberg table showing the IMF's breakeven oil prices. Our Supplemental Documents package includes the Bloomberg report.

Figure 45: IMF's breakeven oil price estimates for 2023

IMF's Breakeven Oil Price Estimates for 2023

Country	Latest estimate	May 2023 estimate
Saudi Arabia	$85.8	$80.9
UAE	$56	$55.6
Oman	$54.3	$72.2
Bahrain	$108.3	$126.2
Qatar	$45.5	$44.8
Kuwait	$68.2	$70.7
Iraq	$97.7	$75.8
Iran	$307.4	$351.7
Algeria	$118.3	$112.4

Source: Bloomberg

Saudi nest egg, its net foreign assets down $329.6b in last nine years

We have been reporting on the monthly change in Saudi Net Foreign assets for over three years because we believe the huge burn is a key reason why we thought Saudi Arabia would be working hard to keep strong oil prices after the Covid oil price crash. Here is what we wrote in last week's (Oct 1, 2023) Energy Tidbits memo. *"On Monday, the Saudi Central Bank (SAMA) released it's Monthly Statistical Bulletin for the month of August [LINK]. We continue to believe the #1 financial theme for Saudi Arabia in the 2020s will be their continued, and likely increasing, use of Other People's Money as they try to transition their country to MBS's Vision 2030. We believe this has been obvious with how Saudi Arabia's net foreign assets dropped by 45% or $329.6b over the last nine years. We are surprised that markets and oil watchers didn't seem to pay attention to the Saudi net foreign assets data i.e., what we call their nest egg to help them their push to MBS's Vision 2030. There was a +$0.4b MoM increase to $407.4b vs $407.1b in July. Saudi net foreign assets at August 31 of $407.7b is a decline of 45% of $329.6b over the last 9 years from its peak of $737.0b on Aug 31, 2014. That is an average of $3.1b per month for the last 108 months since the peak. One factor over the last several years is that Saudi Arabia has been moving more capital to its PIF (Public Investment Fund) but those would generally be into less liquid assets. Saudi Arabia is far from going broke but there has been a huge decline in the last 9 years, but it is still a big nest egg. This net foreign asset depletion is why we have been highlighting that the primary financial theme for Saudi Arabia in the 2020s is getting Other People's Money (OPM) to fund as much of their Vision 2030 as possible. And no question, accessing OPM has* *helped to slow down and temporarily pause the decline in net foreign assets. Below is our graph of Saudi Arabia net foreign assets updated for the August 31 data."*

Figure 46: Saudi Arabia Net Foreign Assets

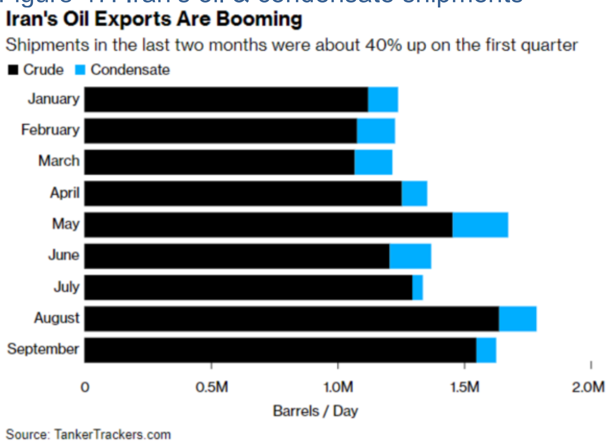
Source: Bloomberg

Oil: TankerTrackers data shows Iran oil/condensate shipments +40% vs Q1/23

Iran's oil and condensate shipments

No one should be surprised to have seen the Bloomberg Friday report that included TankerTrackers.com shipments of Iran crude oil & condensate shipments for 2023 and that Iran's oil and condensate shipments in Aug and Sept were up about 40% higher than during Q1/23. Their below Iran shipments graph is good as it splits out oil vs condensate.

Figure 47: Iran's oil & condensate shipments



Source: TankerTrackers.com, Bloomberg

Oil: Still no visibility to when restart Kurdistan/Iraq oil via Turkey

Kurdistan oil via Turkey

As of our 7am MT news cut off, there doesn't seem like any visibility to when there could be a restart of Kurdistan/Iraq oil via the Turkey pipeline to export from Ceyhan. Rather, our view is unchanged, it seems like this could last for longer than expected. And that there are two deals, not one deal to be made. We have highlighted for weeks that Turkey has an ask on what they want and we have seen no indication that Iraq and Turkey have reached a deal. And then there is still a Iraq/Kurdistan deal that still is unresolved. It seems like it's in Baghdad's hands and our concern remains that the OPEC+ quotas are to run thru Dec 2024 so Iraq can't crank up production. Iraq's oil exports are flat and it's Kurdistan oil that is being shut-in so, under the continued OPEC+ quota, Baghdad isn't being disadvantaged. And it just feels like a bit of a delaying tactic on who says what and what is or isn't happening. We haven't seen any reports since Monday after Turkey reportedly said it was ready to receive oil. But then Reuters reported "*Turkey has yet to notify Iraq on oil pipeline, Baghdad says. Iraq has not received formal notification from Turkey on whether the oil exports pipeline is ready to begin operations, two senior Iraqi oil officials said on Sunday. The officials spoke following Turkish Energy Minister Alparslan Bayraktar's comments last Monday when he said the oil pipeline bringing crude from Iraq was ready."We as an oil ministry need to be informed officially by the Turkish side about the recent developments on the pipeline status. We heard about it in media only," said a senior oil ministry official, speaking on condition of anonymity. A second senior energy adviser told Reuters Iraq was also waiting for talks on "lingering financial and technical issues".*

Turkey "*we need to take care of our interests*" before restart of Kurd oil

Here is what we wrote in our Sept 17, 2023 Energy Tidbits memo on Turkey's latest public comments. "*It was interesting to see the reports and tweets on the Turkish energy minister Alparsian Bayraklar comments on Friday. The reports focused on his comments that the pipeline will soon be "technically" ready for operations. Rather, it seemed like his key comments were overlooked, which is why we tweeted [LINK] ""we need to take care of our interests" says Turkey before can restart Iraq/Kurdish #Oil exports. - Iraq owes $950mm re ICC arbitration, net of damages Turkey has to pay Iraq. - Iraq to withdraw 2nd arbitration case. - negotiate a reduced payment. What else does Turkey need? #OOTT." No question Bayraklar said the pipeline will technically ready to resume production soon, but he was also clear that Turkey will need to take of their interests before there is a resumption. And that they want concessions from Iraq before they let the oil exports resume. It seems clearly in Iraq's court if they want to satisfy Turkey's demands. Reuters wrote "Turkey also calculates Iraq owes $950 million as a result of ICC arbitration, net of damages Turkey has to pay Iraq. Ankara will also file in the Paris court for a "set-aside case", Bayraktar said. Iraq opened an enforcement case against Turkey in a U.S. federal court in April, to enforce a $1.5 billion arbitration award. "As two neighbouring countries, we need to find an amicable solution. But from the legality perspective, we need to take care of our interests. Most likely in the future we might face another court challenge. But the pipeline will be operational technically. It is more or less ready and we will start the operation soon", Bayraktar said. Ankara wants Baghdad to withdraw a second arbitration case covering the period from 2018 onward, and negotiate a reduced payment. Turkey also wants Erbil and Baghdad to agree on a common position and negotiate the continuance of the pipeline agreement, which is set to expire in 2026". Our Supplemental Documents package includes the Reuters report."*

Oil: Libya oil production stable at ~1.2 mmb/d

We expect to see the Libya National Oil Corporation post an updated Facebook post on its oil production either today or tomorrow but we said the same thing last week as we often see NOC oil production updates on Sunday or Mondays. But, as of our 7am MT news cut off, the latest NOC production update was posted on Oct 2. There as no NOC oil production update

Libya oil stable at 1.2 mmb/d

last week or this week on either the NOC Facebook or NOC Twitter. The Google Translate of the NOC Oct 2 Facebook post [LINK] was "*Crude oil production reached 1,208,000 barrels per day, and condensate production reached 50,000 barrels per day during the past 24 hours."* This is unchanged from the ~1.2 mmb/d levels over the past several months. .

Oil: China scheduled domestic flights expected up big with international flight ramp

China scheduled domestic flights

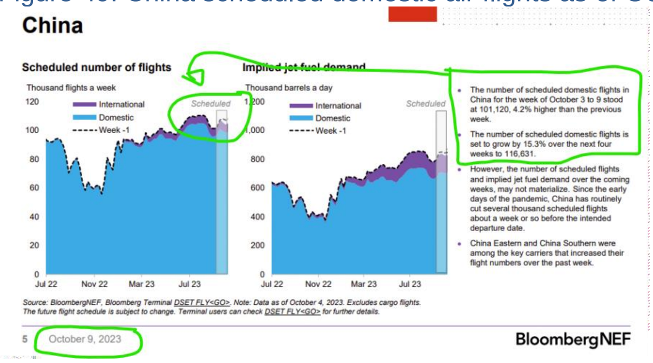
On Monday, we tweeted [LINK] "*Scheduled +240/wk increase to Oct 31 in international flights is driver for jump in China scheduled domestic flights over next 4 wks to 116,631, highest since Covid. @BloombergNEF Claudio Lubis reminded more international flights = need for more domestic feeder flights. #OOTT."* (i) Early Monday morning, BloombergNEF posted its Aviation Indicators Weekly Oct 9. (ii) China scheduled domestic fights increased +4.2% WoW to 101,120 flights for the peak/end of Golden Week holidays. It's up but still less than expected or hoped. A month ago. In the Sept 13 report, the then 4-week lookahead was to grow by 6.6% to 104,953 flights. The item to note is there is a huge increase expected in domestic flights over the next four weeks that is currently scheduled to increase by 15.3% to 116,631 domestic flights. This is way above the just finished Golden Week, way above any summer holiday peak and be a new high by a long margin. So what gives in light of a stalled or bottoming China economy? BloombergNEF says a reason is that this would be linked to an expected big increase in international flights around the end of Oct. It is important to remember that scheduled domestic flights are typically lowered as they get closer to the data, but there is logic to a big increase in domestic flights as international flights ramp up ie. a need for domestic flights to feed into and out of the international hubs. BloombergNEF says international flights by the major seven airlines is to increase by more than 240 a week to around 3,380 by the last week of October. (iii) China scheduled domestic flights were +4.2% WoW to 101,120 flights for the Oct 3-9 week, which followed 97,009 flights for Sept 26-Oct 2 week and start of Golden Week travel, 95,742 flights for the Sept 19-25 week, 95, 853 flights for the Sept 12-18 week, 98,469 flights for the Sept 5-11 week, and 103,637 flights for Aug 29-Sept 4 week. The increase in domestic flights was expected with the peak and end to the 12-day travel rush for national holidays. However, at 101,120 flights, it is still less than what was expected a month ago, when the Sept 13 report wrote the then 4-week lookahead was to grow by 6.6% to 105,953 flights. (iv)There is a big surprise to the upside in BloombergNEF's updated scheduled domestic flights over the next four weeks, who write "*the number of scheduled domestic flights is set to grow by 15.3% over the next four weeks to 116,631*". That is hugely above the just finished Golden Week rush peak of 101,120 flights, the summer holiday peak of 104,823 in Aug 8-14 week and the highest by far over the last year or more. For perspective, the 4-week lookahead scheduled flights in the Oct 2 report was 101,181, the Sept 26 report was 103,570, and the Sept 19 was 104,947. We reached out to the BloombergNEF analyst to ask what could lead to such a a huge jump. The BloombergNEF analyst, Claudio Lubis reminded there was a big ramp of international flights in Oct, which will lead to more domestic flights into and out of the international hubs. And BloombergNEF forecasts international flights out of China for the seven major airlines "*will rise by more than 240 a week to around 3,980 by the last week of October*". Assuming that holds, it makes sense that domestic flights go up, but +15.3% seems high. But the point is that opening international flights is likely the next boost for china Domestic flights and can take it much higher. Below is our running WoW changes from the prior BloombergNEF reports and the BloombergNEF charts from Oct 9 and our listing of WoW changes from the prior BloombergNEF reports.

Figure 48: China scheduled domestic flights from BNEF Aviation Indicators Weekly reports

Oct 3-9: +4.2% WoW to 101,120 flights
Sept 26-Oct 2: +1.3% WoW to 97,009 flights
Sept 19-25: essentially flat WoW to 95,742 flights
Sept 12-18: -2.7% WoW to 95,853 flights
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

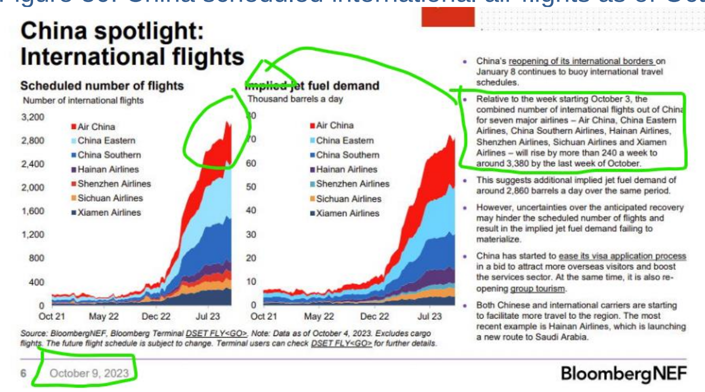
Source: BloombergNEF

Figure 49: China scheduled domestic air flights as of Oct 9



Source: BloombergNEF

Figure 50: China scheduled international air flights as of Oct 9



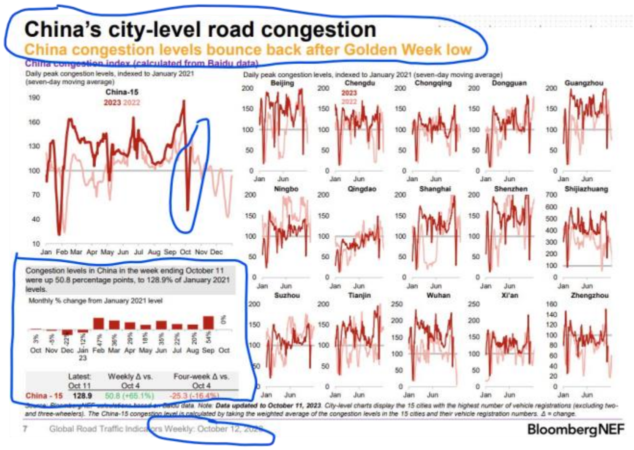
Source: BloombergNEF

Oil: Baidu China city-level road congestion bounce back after Golden Week

China city-level traffic congestion

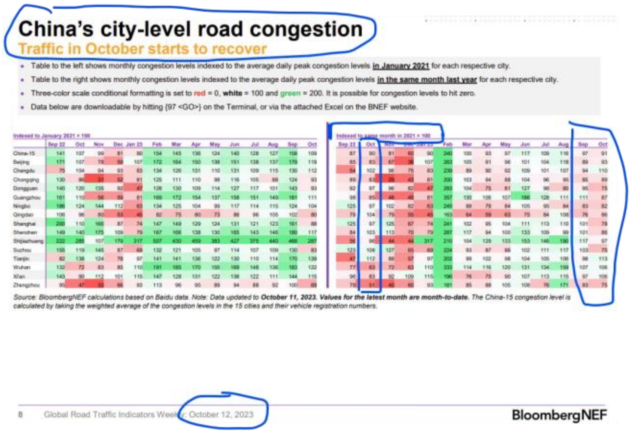
The headlines from the BloombergNEF Global Road Traffic Indicators Oct 12 report were "*China congestion levels bounce back after Golden Week low*" and "*Traffic in October starts to recover*". (i) On Thursday, we tweeted [LINK] ""*China congestion levels bounce back after Golden Week low" But despite no Covid restrictions in 2023, China city-level road congestion for 1st 11 days in Oct are still only 91% of Oct 2021 levels. Still room to go before recovery. Thx @BloombergNEF. #OOTT."* (ii) For the week ended Oct 11, Baidu data for China city-level road congestion was +65.1% WoW to 128.9% of Jan 2021 levels. A big WoW increase expected with the end of the 12-day travel rush with the combined holidays for mid-Autumn Festival and National Day holidays. Prior to last week's big WoW plunge due to Golden week, there had been eight consecutive WoW increases in city-level road congestion as summer holiday season ended and people returned to cities and back to work. For the Top 15 Cities in aggregate, they ended up for Sept at 97% of Sept 2021 levels vs Sept 2022 that was 87% of Sept 2021 levels. For the limited Oct data to Oct 11, there are two factor that are likely at work. This year, this year Mid Autumn Festival rolled into National Day Holidays to create a 12-day travel rush so more travel this year than last year, and the removal of Covid restrictions this year means that people are free to travel when they weren't in 2022. IT was more visible in last week's data to Oct 4 when Oct 2023 was only 43% of Oct 2021 levels vs Oct 2022 that was 90% of Oct 2021 levels. That is less of an impact this week, for the first 11 days of Oct, Oct 2023 is 91% of Oct 2021 levels vs Oct 2022 that was 90% of Oct 2021 levels. (iii) As noted above, the data to Oct 11 in 2023 is impacted by the combined Autumn Festival and National Day holidays created more out of city traffic than normal. (iv) For the Top 15 cities in aggregate, Sept 2023 was 97% of Sept 2021 levels, whereas Sept 2022 was 87% of Sept 2021 levels. Ten of the top 15 cities were higher YoY and 5 were lower YoY. For Oct 2023 to date, the top 15 cities in aggregate are 91% of Oct 2021 levels whereas Oct 2022 was 90% of Oct 2021 levels. And 9 of the top 15 cities are up YoY but only four of the top 15 cities are up vs Oct 2021 levels.

Figure 51: China city-level road congestion for the week ended Oct 11



Source: BloombergNEF

Figure 52: China city-level road congestion for the week ended Oct 11



China's city-level road congestion

Traffic in October starts to recover

- 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

	Sep 22	Oct	Nov	Dec	Jan 23	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
China-15	141	107	99	81	90	154	145	136	124	140	128	127	158	109
Beijing	171	107	78	59	107	172	164	150	138	151	138	137	179	119
Chengdu	75	104	94	93	83	134	126	131	110	131	109	115	130	112
Chongqing	130	86	31	52	81	125	111	110	98	116	105	88	124	93
Dongguan	140	120	135	92	47	128	130	109	114	127	117	101	143	93
Guangzhou	161	110	56	56	81	169	172	154	137	158	151	149	181	111
Ningbo	186	124	144	112	63	134	125	104	99	117	114	115	124	104
Qingdao	106	96	80	53	45	82	75	80	73	86	96	105	102	80
Shanghai	200	110	166	87	74	147	149	129	124	131	121	123	161	88
Shenzhen	149	140	175	109	79	167	166	138	130	165	143	146	180	117
Shijiazhuang	222	285	107	179	317	507	430	459	383	427	375	440	468	287
Suzhou	155	119	145	87	68	132	121	105	97	114	107	109	130	83
Tianjin	82	138	124	78	97	141	141	136	122	130	110	114	170	139
Wuhan	132	72	83	85	110	191	185	170	150	168	148	136	183	122
Xi'an	143	90	112	101	115	147	128	131	122	136	122	111	144	115
Zhengzhou	95	47	33	68	93	113	96	95	89	94	88	92	100	69

Indexed to same month in 2021 = 100

	Sep 22	Oct	Nov	Dec	Jan 23	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
China-15	87	90	81	60	90	240	100	93	97	117	109	116	97	91
Beijing	85	83	67	36	107	283	105	91	96	101	104	118	89	93
Chengdu	54	102	96	75	83	239	89	90	92	109	101	107	94	110
Chongqing	89	83	29	43	81	300	103	94	88	104	96	95	85	89
Dongguan	92	97	96	82	47	283	104	75	81	127	96	80	95	75
Guangzhou	98	85	48	45	81	357	130	106	107	166	128	111	111	87
Ningbo	125	97	102	82	63	245	88	79	84	105	95	84	83	82
Qingdao	79	104	79	55	45	163	64	59	63	75	84	108	76	86
Shanghai	125	97	125	67	74	341	102	95	104	111	113	110	101	78
Shenzhen	84	103	113	70	79	287	117	94	100	133	109	99	101	86
Shijiazhuang	56	96	44	44	317	210	104	129	133	153	146	190	117	97
Suzhou	123	108	127	65	69	224	93	87	86	102	111	117	103	75
Tianjin	47	112	88	57	97	202	99	102	98	104	105	106	98	113
Wuhan	77	63	72	63	110	333	114	116	120	131	134	159	107	106
Xi'an	96	83	92	109	115	196	76	75	90	107	113	116	97	106
Zhengzhou	78	51	40	60	93	181	85	88	105	108	76	171	83	75

*Source: BloombergNEF calculations based on Baidu data. Note: Data updated to **October 11, 2023. Values for the latest month are month-to-date.** 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.*

8 Global Road Traffic Indicators Weekly, October 12, 2023 BloombergNEF

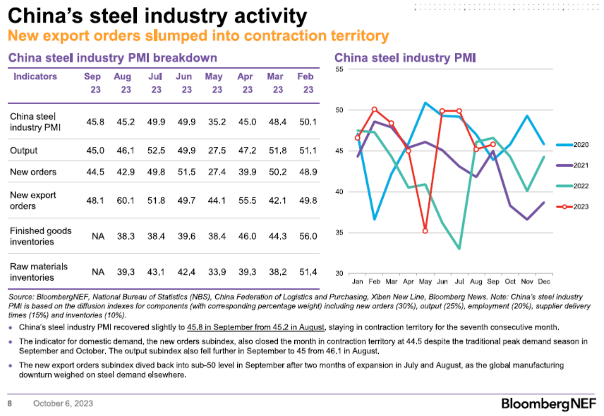
Source: BloombergNEF

Chinese steelmakers warns on H2 outlook

Oil: BloombergNEF "*New [steel] export orders slumped into contraction territory*"

Many look at China's steel industry as a key leading indicator for China's domestic economy and the steel outlook continues to be weak. Last week (Oct 6), BloombergNEF posted its "Industrial Metals Monthly", which is their monthly report on iron ore, steel, aluminum copper and other base metals. The BNEF report confirms what we had seen in the summer – China's steel industry is far from recovered and that it will continue to be tough for the steel industry in H2/23. The BNEF key steel slide was "*China's steel industry activity: New export orders slumped into contraction territory." "China's steel industry PMI recovered slightly to 45.8 in September from 45.2 in August, staying in contraction territory for the sevenths consecutive month. The indicator for domestic demand, the new orders subindex, also closed the month in contraction territory at 44.5 despite the traditional peak demand season in September and Octoer. The output subindex also fell further in September to 45 from 46.1 in August. The new export orders subindex dived back into sub-50 level in September after two months of expansion in July and August, as the global manufacturing downturn weighed on steel demand elsewhere."* BNEF also includes "*Air quality index for China: Activity readings rose across major cities ahead of the Golden Week holidays*." The nitrous oxide readings were up for the major cities, which is a good indicator of increased activity. The exception being Tangshan, which is a major China steel city in Hebei province. Hebei produces roughly ¼ of China steel ie. more support for lower than normal steel industry activity.

Figure 53: China steel industry activity



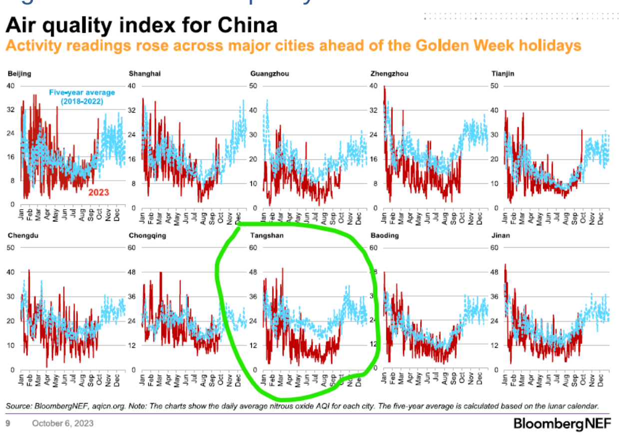
Indicators	Sep 23	Aug 23	Jul 23	Jun 23	May 23	Apr 23	Mar 23	Feb 23
China steel industry PMI	45.8	45.2	49.9	49.9	35.2	45.0	48.4	50.1
Output	45.0	46.1	52.5	49.9	27.5	47.2	51.8	51.1
New orders	44.5	42.9	49.8	51.5	27.4	39.9	50.2	48.9
New export orders	48.1	60.1	51.8	49.7	44.1	55.5	42.1	49.8
Finished goods inventories	NA	38.3	38.4	39.6	38.4	46.0	44.3	56.0
Raw materials inventories	NA	39.3	43.1	42.4	33.9	39.3	38.2	51.4

Source: BloombergNEF, National Bureau of Statistics (NBS), China Federation of Logistics and Purchasing, Xiben New Line, Bloomberg News. Note: China's steel industry PMI is based on the diffusion indexes for components (with corresponding percentage weight) including new orders (30%), output (25%), employment (20%), supplier delivery times (15%) and inventories (10%).

- China's steel industry PMI recovered slightly to 45.8 in September from 45.2 in August, staying in contraction territory for the seventh consecutive month.
- The indicator for domestic demand, the new orders subindex, also closed the month in contraction territory at 44.5 despite the traditional peak demand season in September and October. The output subindex also fell further in September to 45 from 46.1 in August.
- The new export orders subindex dived back into sub-50 level in September after two months of expansion in July and August, as the global manufacturing downturn weighed on steel demand elsewhere.

Source: BloombergNEF

Figure 54: China air quality index



Source: BloombergNEF

06/23/23: "*China Steelmakers Issue Stark Warning About 2n Half Outlook*"
The weak China steel industry in H2/23 was warned by Chinese steelmakers in June. Here is what we wrote in our July 2, 2023 Energy Tidbits memo. "*Many look at China's steel industry as a key leading indicator for China's domestic economy and the steel outlook continues to be weak. More confirmation this week that China's steel industry is far from recovered and that it will continue to be tough for the steel industry in H2/23. On Friday, we tweeted [LINK] ""Continued negative China industry indicators. Its leading steelmakers warn on very challenging H2 as demand disappoints, profitability lags, and pressure to cut costs mounts, report @business. See 👇06/23 tweet ALL China steel indicators worse in May. #OOTT". Our tweet linked to the Bloomberg report [LINK] "China Steelmakers Issue Stark Warning About Second-Half Outlook China's leading steelmakers warned the industry faces a very challenging second half as demand disappoints, profitability lags, and pressure to cut*

costs mounts in the world's top producer. Representatives from China Baowu Steel Group Co., Ansteel Group Co., Hesteel Co. and Hunan Iron & Steel Group Co. said they are "not optimistic" about the coming six months, the China Iron & Steel Association said after the four companies attended a meeting organized by the industry body this week. "The peak inflection point for steel demand has emerged, while the problems of insufficient end-user consumption, and ongoing thin margins are particularly prominent," the CISA said in a statement, citing the quartet of companies. Mills in China — which account for more than half of global steel production and are the largest importers of iron ore — have struggled this year as the nation's recovery has stalled while a property crisis dragged on."

Oil: China oil imports 11.2 mmb/d in Sep, down 10% MoM

China oil imports 11.2 mmb/d in Sep

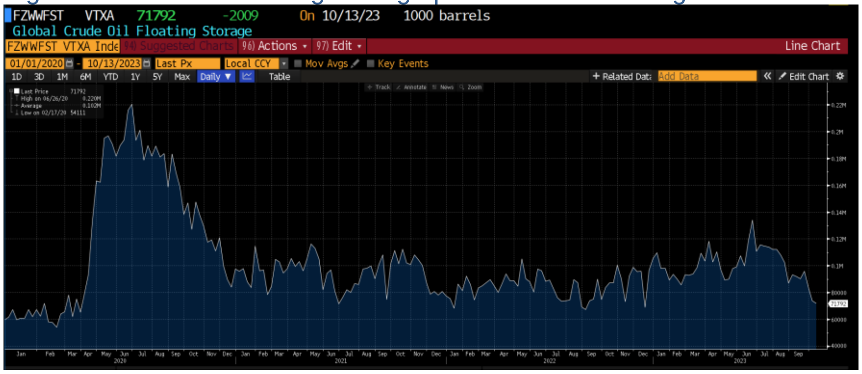
On Thursday, Bloomberg reported on the summary data of China's oil and natural gas imports for Aug based on China's General Administration of Customs website. It is only summary data and it did not include China's oil production for Sep. But on the summary data, Bloomberg reported "*China imported less crude oil last month as private refiners skimped on flows from overseas pending a top-up of year-end allocations. Shipments totaled 45.74 million tons in September, according to customs data issued on Friday. That's equivalent to 11.18 million barrels a day, 10% lower than August's pace, according to Bloomberg calculations. Crude demand in Asia's largest economy has slowed from a near-record level after some independent refiners exhausted year-to-date import allocations before they were topped up at the end of last month. Purchases of feedstocks by so-called teapots and traders slipped to 10.14 million tons in September, down 7% on-month, JLC said earlier this week".*

Oil: Vortexa crude oil floating storage est 71.79 mmb at Oct 13, -2.01 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 Oct 7 at 9am MT. (i) The headline is a big positive for oil with a 2nd consecutive week of very low crude oil floating storage at 71.79 mmb which followed 73.80 mmb. To put in perspective, this down about 60 mmb vs the recent high on June 23, 2023. (ii) As of 9am MT yesterday, Bloomberg posted Vortexa crude oil floating storage estimate for Oct 13 at 71.79 mmb, which is -2.01 mmb WoW vs upwardly revised Oct 6 of 73.80 mmb. Note Oct 6 was revised +3.24 mmb vs 70.56 mmb originally posted at 9am on Oct 7. (iii) Revisions. There were a mix of +/- revisions that ranged from +3.24 to -3.31 mmb. The revisions from the estimates posted yesterday at 9am MT vs the estimates posted on Bloomberg at 9am MT on Oct 7 are as follows: Oct 6 revised +3.24 mmb. Sept 29 revised -2.71 mmb. Sept 22 revised -2.26 mmb. Sept 15 revised -3.31 mmb. Sept 8 revised -1.46 mmb. Sept 1 revised +0.75 mmb. Aug 25 revised +1.81 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 85.83 mmb vs last week's then seven-week average of 88.54 mmb. The decrease is due to the adding of a low 71.79 week in the 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) Oct 13 estimate of 71.79 mmb is -148.52 mmb vs the Covid peak of 220.31 mmb on June 26, 2020. (viii) Oct 13 estimate of 71.79 mmb is +6.18 mmb vs pre-Covid Feb 28, 2020 of 65.61 mmb. (ix) Below are the last several weeks of estimates posted on Bloomberg as of 9am MT Oct 14, 9am MT Oct 7, and 9am MT Sept 30.

Figure 55: Vortexa Floating Storage posted on Bloomberg Oct 14 at 9am MT



Source: Bloomberg, Vortexa

Figure 56: Vortexa Estimates Posted 9am MT on Oct 14, Oct 7, and Sept 30

Posted Oct 14, 9am MT

	Date	FZWWFST VT... Last Px
Fr	10/13/2023	71792
Fr	10/06/2023	73801
Fr	09/29/2023	84139
Fr	09/22/2023	95814
Fr	09/15/2023	90352
Fr	09/08/2023	91791
Fr	09/01/2023	93116
Fr	08/25/2023	86815
Fr	08/18/2023	102.337k
Fr	08/11/2023	108.099k
Fr	08/04/2023	112.16k

Oct 7, 9am MT

	Date	FZWWFST VT... Last Px
Fr	10/06/2023	70555
Fr	09/29/2023	86846
Fr	09/22/2023	98074
Fr	09/15/2023	93663
Fr	09/08/2023	93249
Fr	09/01/2023	92371
Fr	08/25/2023	85005
Fr	08/18/2023	102.389k
Fr	08/11/2023	108.306k
Fr	08/04/2023	111.692k
Fr	07/28/2023	113.137k

Sept 30, 9am MT

	Date	FZWWFST VT... Last Px
Fr	09/29/2023	77932
Fr	09/22/2023	89388
Fr	09/15/2023	85808
Fr	09/08/2023	86258
Fr	09/01/2023	84147
Fr	08/25/2023	81072
Fr	08/18/2023	100.343k
Fr	08/11/2023	105.783k
Fr	08/04/2023	111.572k
Fr	07/28/2023	111.529k
Fr	07/21/2023	111.665k

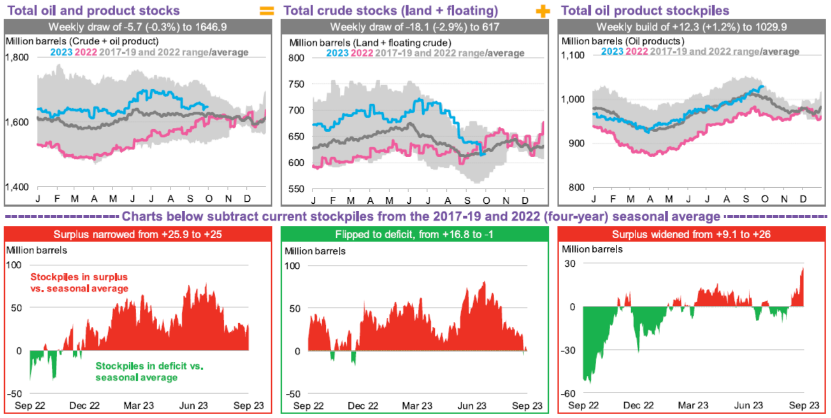
Source: Bloomberg, Vortexa

Source: Bloomberg, Vortexa

Oil: BNEF – global oil and product stocks surplus narrowed WoW to 25.0 mmb

Please note that the BloombergNEF global oil and products stocks estimate are for the week ending Sept 29, which is a week earlier than the EIA US oil inventory data that is for the week ending Sept Oct 6. So, the BloombergNEF global oil stocks data won't include the US crude oil inventory build of +10.18 mmb for the week ending Oct 6. 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 narrowed from 25.9 mmb to 25.0 mmb for the week ending Sept 29. (iii) Total crude inventories (incl. floating) decreased by -2.9% WoW to 617.0 mmb, flipping the +16.8 mmb surplus to a -1.0 mmb deficit. (iv) Land crude oil inventories decreased by -0.8% WoW to 534.5 mmb, widening the deficit to -38.7 mmb against the five-year average (2016-2019 + 2022). (v) The gas, oil, and middle distillate stocks decreased by -1.0% WoW to 153.6 mmb, with the deficit against the four-year average narrowing to -14.3 mmb. Jet fuel consumption by international departures for the week of October 16 is set to decrease by -29,600 b/d WoW, while consumption by domestic passenger departures is forecast to decrease by -9,400 b/d WoW. Below is a snapshot of aggregate global stockpiles.

Figure 57: Aggregate Global Oil and Product Stockpiles



Source: BloombergNEF

Oil: Bloomberg Oil Demand Monitor "Market to Stay Tight as Prices Sting Drivers"

Bloomberg oil demand monitor

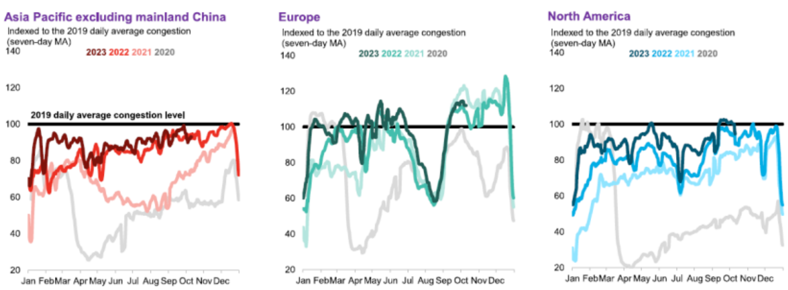
We recommend reading the Bloomberg Terminal Oil Demand Monitor for a good recap of key oil demand indicators around the world. Major themes in this month's report include evidence of demand destruction for gasoline in some markets while other economies are growing their demand. Subsequent to last month's MOMR where OPEC predicted the world may be short 3 mmb by Q4 2023, record supply deficits for this quarter was pointed out again in Thursday's MOMR in the face of Saudi still curbing outputs. The IEA believes that if Russia and Saudi bring production back online, we'll see another supply surplus in 2024. In terms of air travel, flights for the first week of October were higher than pre-pandemic levels globally, with more passengers flying in the US in particular. The report noted again on China's record passenger traffic from August which shows 64 million passengers flew that month, the most since 2006. Traffic levels in China have also rebounded since the Golden Week holidays. The latest figures imply that US jet fuel demand fell MoM and dipped just below 2022 levels. Commercial airline flights at the start of this week were ~20.0% higher YoY, and ~6.7% above 2019 levels (pre-Covid), according to a 7-day average tracked by Flightradar24. As of Oct 9, road congestion was above pre-pandemic levels in 7 of the 13 major global cities tracked by TomTom mobility data. China's traffic continues to remain strong in major cities following the huge initial recovery seen after the country's zero-Covid policy was lifted. Refinery utilization in the US as of Oct 9 was down -8.0% MoM to 85.7% and also down -4.2% YoY. Our Supplemental Documents package includes the Bloomberg Oil Demand Monitor.

Oil: TomTom mobility indicators: Asia Pacific increases, NA and EU decrease 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 Oct 10, Asia Pacific (ex-China) traffic levels increased by +1.9% WoW, while North American and EU traffic levels decreased by -6.8% and -1.8% WoW, respectively. Traffic levels in Europe, North America, and Asia Pacific (ex-China) traffic are +12.0%, -5.4% and -7.0% compared to the 2019 average and are +4.5%, +6.5% and -0.1% YoY, respectively. Traffic in Europe has recovered to pre-summer levels while Asia Pacific (ex-China) is recovering from its expected big drop due to the golden week holidays. 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 58: Mobility Indicators



	Week-on-week (2019 average = 100)				Year-on-year (same week last year = 100)			
	Latest week: Oct 10	Δ vs. Oct 3	4-week MA	Δ vs. Oct 3	Latest week: Oct 10	Δ vs. Oct 3	4-week MA	Δ vs. Oct 3
Asia Pacific ex-China	93.0	+1.8 (1.9%)	94.8	-0.3 (-0.3%)	99.9	+2.4 (2.5%)	102.2	+0.3 (+0.3%)
Europe	112.0	-2.0 (-1.8%)	112.3	+2.0 (1.8%)	104.5	+2.4 (2.3%)	102.8	+1.5 (+1.5%)
North America	94.6	-6.9 (-6.8%)	99.9	-1.4 (-1.4%)	106.5	-0.5 (-0.5%)	106.0	+1.0 (+1.0%)

Source: BloombergNEF calculations based on TomTom data. Note: ***Data updated to October 10, 2023****. Δ = change. MA = moving average.*

Source: BloombergNEF

Oil: IATA, air passenger data, travel now 95.7% of pre-Covid levels

Air travel up in August

Last Wednesday, the International Air Transport Association (IATA) released air passenger data for August 2023 [LINK] and the August 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 5th consecutive month, 9.2% above August 2019 levels. International air travel keeps recovering but is still below pre-Covid levels at 95.7% of August 2019 levels. (i) Total traffic in August, measured in revenue passenger kilometers (RPK), rose +28.4% YoY. Please note the IATA splits out total market air travel into International travel vs Domestic travel. (ii) For August 2023, total global RPKs were -4.3% vs August 2019 levels, but that was split between International RPKs -11.5% vs August 2019 and Domestic RPKs +9.2% vs August 2019 levels. (iii) The IATA commented "*Despite sustaining a positive trend in levels, the recovery of industry-wide international RPKs has been regressing since May 2023. While most regions* *have seen continuous recovery, Europe's momentum has been losing steam over the most recent months. In addition, August 2023 saw lower passenger traffic numbers than July, an unusual pattern in contrast to the historical seasonal trends. The region also faces a wider range of capacity constraints, which could further hinder traffic recovery. International RPKs performed by European carriers were 9.8% lower in August compared to pre-Covid levels, while the load factor remained 2.3 ppts below… major route areas have seen slight contractions in traffic recovery rates in August. International RPKs between Europe and the Americas, as well as Europe-Middle East, remained strong. Meanwhile traffic continued to be restored on Asia Pacific route areas. International traffic from China has not recovered as fast as domestic traffic. However, as demand gradually ramps ups, flows within and from Asia Pacific could recover further".* Our Supplemental Documents package includes the IATA release.

Oil & Natural Gas: Small decline in Alberta and BC wildfires

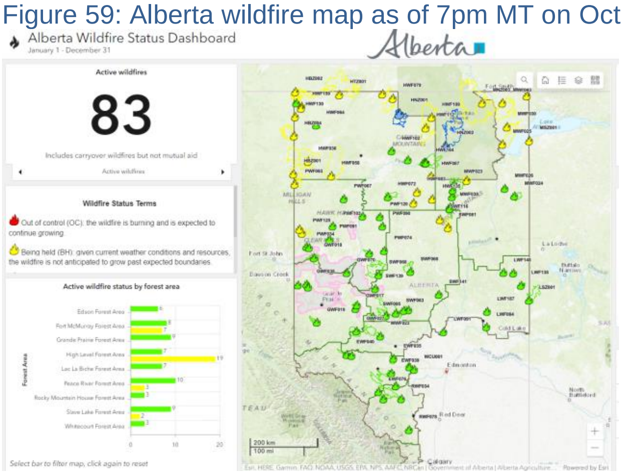
BC and Alberta Wildfires

There were small declines in both Alberta and BC wildfires. As of 7pm MT last night, there were 83 Albera wildfires and, for the first time in months, zero Out of Control, which compares to a week ago at 85 Alberta wildfires including 1 Out of Control. In BC, it was another week of big decline in Out of Control wildfires. As of 7pm MT last night, there were 321 wildfires including 43 Out of control, which compares to a week ago at 320 wildfires including 46 Out of Control.

Links to Alberta and BC wildfire status maps

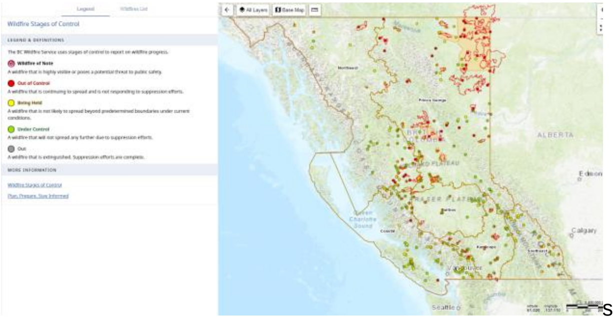
We recommend bookmarking the starting points for wildfire information are the Alberta Wildfire Status interactive map [LINK] and the BC Active Wildfires interactive map [LINK]. Please note these links have changed over the past few years. Both maps are interactive and open up for the information on any particular fire. Here are the wildfire maps as of 7pm MT last night.

Figure 59: Alberta wildfire map as of 7pm MT on Oct 14



Source: Alberta Wildfire Status Dashboard

Figure 60: BC wildfire map as of 7pm MT on Oct 7



Source: BC Wildfire Service

Energy Transition: Exxon's role in key transition items likely why they see strong oil

Does Exxon see a strong oil outlook?

We had the opportunity to be interviewed by the Canadian Press who asked if we agreed the Pioneer deal was sign Exxon was doubling down on oil prices. We believe Exxon wouldn't have committed $60 billion for an oil deal if they didn't see a strong outlook for oil for at least the next 10 to 15 years. The Canadian Press wrote "*Observers have framed the deal as Exxon doubling down on fossil fuels at a time when the world is seeking to transition to lower-carbon energy sources in order to slow the pace of climate change. Dan Tsubouchi, Calgary-based principal and chief market strategist with SAF Group, said in an interview that Exxon is clearly confident that global demand for oil will remain strong in at least the immediate future. "They're spending US$60 billion today," Tsubouchi said. "They wouldn't do that if they didn't see at least a 10-to-15-year window for oil." That "stronger for longer" outlook is due to a variety of factors, Tsubouchi said, including the fact that many of the technologies necessary for the energy transition — including hydrogen development, sustainable aviation fuel and more — have been slower to roll out than advocates may have hoped.*" We said that Exxon is probably in the best position of any energy company to make the two most important calls – are the critical success factors or major elements of the energy transition working and what type of investments should a major oil company make. Exxon has been looking at all these key success factor for Net Zero and they know they aren't working well enough vs Net Zero aspirations/plans. They were early to say offshore wind math doesn't work. And the big story in the past year is that major offshore energy project that have been approved aren't proceeding in the NE US and in Europe. Hydrogen is another critical success factor that isn't happening at commercial scale. Exxon is looking at hydrogen but knows, like Saudi Aramco, Equinor and others, that the cost is too high and multiples higher the energy cost of natural gas so unless governments step up to heavily subsidize like they did in the early days of LNG, there aren't commercial buyers committing to commercial hydrogen volumes so a hydrogen supplier can step up to build a project. It means that hydrogen ramp up will take years longer than expected. Sustainable aviation fuel is considered the major way the airline industry will decarbonize and its another area that Exxon and the other major refiners are in and they know the reality that SAF is multiples higher than jet fuel and there are physical constrains how much SAF can ever be developed. They all know they can sell immaterial volumes of SAF and airlines can, at a little overall impact to costs, trumpet they are blending in a small percentage of SAF or did one or two small SAF Flights. So Exxon knows the critical success factors for the energy transition aren't anywhere near on track to what the Paris aspirations are. The concept that was sold to citizens was that these alternative energies would replace fossil fuels very quickly and peak oil demand would be around now, well before 2030. Exxon knows from the above that it is nowhere the reality. They aren't replacing fossil fuels, to the most part, they are additive to fossil fuels. There is more, but those are why we believe Exxon sees at least a 10 to 15 year runway for a strong oil outlook. Our Supplemental Documents package includes the Canadian Press article.

Energy Transition: New York says we have a deal so no to offshore wind renegotiation

New York says no to offshore wind renegotiation

There was big news in the offshore wind sector with New York rejecting a requires for contract amendments by the offshore wind developers who have been saying the projects are uneconomic. Rather New York has said there is a deal, live with it. So it's going to be interesting to see what happens next. We don't know the penalty clauses or termination clauses. But we have to believe there is added uncertainty to these projects and there has to be risk to even more delays. This was a surprise given the recent reports that suggested New York knew they needed to renegotiate or else put some of these projects at risk. On Thursday, the New York State Public Service Commission "*denied petitions filed by a group of offshore wind developers and a state renewable energy trade association seeking billions of dollars in additional funding from consumers for four proposed offshore wind projects and 86 land-based renewable projects. In denying financial relief, the Commission opted to preserve the robust competitive bidding process that provides critically needed renewable energy resources to New York in the fairest and most cost-effective manner that protects consumers. "The requested amendments to the contracts would have provided adjustments outside of the competitive procurement process; such relief is fundamentally inconsistent with long-standing Commission policy," said Commission Chair Rory M. Christian. "The Commission has repeatedly stated that competition in the procurement process is necessary to protect ratepayers and provides the soundest approach to mobilize the industry to achieve our critical State goals dependably and cost-effectively, and we do so again through today's action." The petitions denied today were submitted by Empire Offshore Wind LLC and Beacon Wind LLC, Sunrise Wind LLC, and the Alliance for Clean Energy New York, Inc. (ACENY). The petitions were seeking adjustment to Renewable Energy Credit (REC) and Offshore Wind REC (OREC) purchase and sales agreements entered with NYSERDA to address recent inflationary pressures that are impacting project economics."* Our Supplemental Documents package includes the New York release and also Bloomberg's reporting on the decision.

Avangrid paid $16mm to terminate CT offshore wind project

We said we don't know what the penalty or termination clauses are in the offshore New York wind contracts. But, a week ago, we saw how a major offshore wind player paid a penalty to terminate their deal because of the economics. Here is what we wrote in last week's (Oct 8, 2023) Energy Tidbits memo. "*We have been highlighting how major offshore wind in US and in Europe are running into delays and cancellations because the projects aren't economic. No one should have been surprised to see Avangrid announced it was paying $16 mm to terminated its offshore Connecticut Park City Offshore Wind Project. It was worth reading both the press release and the slide deck as they had some different points. (i) On Wednesday, we tweeted [LINK] "to avoid MASSIVE write-offs", Avangrid pays $16mm to terminate CT #OffshoreWind. Is "a rebid of the project" just a way to give cover to CT to accept Avangrid's terms or else no Park City project? Rebid = way* *higher clean energy costs than promised in CT. #OOTT #NatGas." (ii) Both highlighted that the facility "is no longer financeable". But the slide deck included to avoid "massive write-offs". (ii) Avangrid paid a penalty to get out of the deal. But Avangrid wrote "it is clear the best path forward for Park City Wind is in the termination of the Power Purchase Agreements and a rebid of the project." We suspect that Avangrid likely feels confident that no one else will come in to take over their deal or bid uneconomically. So we have to wonder if the end result is Avangrid goes back to work on Park City Wind Offshore Project BUT after a rebid process has been taken. How long will that take? We don't know but think it will be hard for Connecticut to not at least open the bidding up to others to at what is competitive bids before agreeing to a new Avangrid bid that Connecticut has not liked. If they liked it, Avangrid wouldn't go thru this process. It's why we wonder if this is just a cover for Connecticut to say they have no other choice. (iii) The end result of this is that it is a reminder that the cost of clean energy power for Connecticut will much higher for this project and what was originally planned with this hold/termination/rebid. Plus this project will have lost time so it will cost more and be later than expected. Our Supplemental Documents package includes the Avangrid release and slide deck.*

09/03/23: New York knows it needs to renegotiate offshore wind contracts

We are surprised by the New York decision in light of the recent reports that suggested New York knew they needed to renegotiate or put at risk someof the projects. Here is what we wrote in our Sept 10, 2023 Energy Tidbits memo on New York having to renegotiate. "*It feels like New York realizes it has to negotiate and pay up if it wants the major offshore wind projects to proceed or else it risks these approved projects not going to FID. The bottom line is that these major offshore wind projects are likely to get done, but done later than expected and at significantly higher electricity costs to NY customers. Fits our several year thesis – the Energy Transition is happening, but is taking way longer, will cost way more and be a bumpy/rocky road. On Monday, we tweeted [LINK] "Looks like @NYSERDA knows have to renegotiate and pay up or else major NY #OffshoreWInd won't happen. So expect delays and higher than promised prices for wind electricity to consumers for the #EnergyTransition. Thx @OffshoreWINDbiz Adrijana Buljan.#OOTT #NatGas." There were a number of reports last Friday on filings by the New York State Energy Research and Development Authority (NYSERDA) in response to the petitions filed by the major New York offshore wind developers seeking price adjustments on their contracts to give them better prices/revenues. Our tweet included the offshorewind.biz reporting as we thought it gave the best insight into the filings. We did not review the NYSERDA filing. NYSERDA is well aware that they need to renegotiate or else they risk these approved major offshore wind projects not getting done. Offshorewind.biz wrote "In their petitions, the developers said that without price adjustments their offshore wind projects might not be able to move forward, with Ørsted and Eversource saying that without this intervention "it would not be able to obtain a final investment decision (FID) allowing it to fully construct the Project" and the Equinor-BP joint venture noting that price adjustments would "restore the Projects' ability to attract the capital required for them to move forward". And ""[If] no price adjustment is made, progress to Climate Act targets would be slowed,* *opportunities to realize earlier grid reliability and health benefits, as well as substantial economic development, would be missed", NYSERDA states". Offshorewind.biz report included the below NYSERDA table of the increased prices being sought by the wind developers. Our Supplemental Documents package includes the Wind Offshore.biz report.*

Figure 61: NYSERDA estimated pricing impact of developer proposed new prices

Project	Original Strike Price ($/MWh)	Adjusted Strike Price ($/MWh)	Strike Price Increase
Sunrise Wind	$110.37	$139.99	+27%
Empire Wind 1	$118.38[34]	$159.64[35]	+35%
Empire Wind 2	$107.50	$177.84	+66%
Beacon Wind	$118.00	$190.82	+62%
Empire/Beacon portfolio (Wtd. Avg.)	$114.43	$176.36	+54%
Portfolio (Wtd. Avg.)	$113.40	$167.25	+48%

Source: NYSERDA

09/06/23: Orsted, need better deals or no more NE US offshore wind get done

Last month, another major US offshore wind player, Orsted, warned better NE US offshore wind deals are needed or else NE US offshore wind won't get done. Here is what we wrote in our Sept 10, 2023 Energy Tidbits memo. "On Wednesday, we tweeted [LINK] "*Reality check. Energy costs will be higher in #EnergyTransition. It's "inevitable" that electricity prices have to go higher, "and if they don't, neither we nor any of our colleagues are going to more offshore" in US. #Orsted CEO. Thx @priazrocha @_ToddGillespie #OOTT #NatGas."* Orsted is one of the big global offshore wind players who has offshore NE US projects that are currently in limbo, needing renegotiated terms. Orsted CEO Mads Nipper was clear to Bloomberg that offshore wind deals in the US need better deals/higher prices for the wind developer or they won't get done. The Bloomberg report was titled "*Orsted Ready to Abandon US Wind Projects as It Asks for Help"*. Nipper had a pretty clear message on the need for renegotiated better terms. And he also warned that having offshore wind means higher energy/electricity costs to consumers. So Nipper's view is give wind developers a better deal or be prepared for no more offshore wind. Bloomberg wrote "*While offshore farms are seen as critical to ridding the US power grid of fossil fuels and avoiding the worst effects of climate change, they're also extremely capital- and labor-intensive. In order for the industry to bring future projects to fruition, it's "inevitable" that consumer prices for energy will increase, Nipper said. "And if they don't, neither we nor any of our colleagues are going to build more offshore," Nipper said. "It's very simple*." Our Supplemental Documents package includes the Bloomberg report.

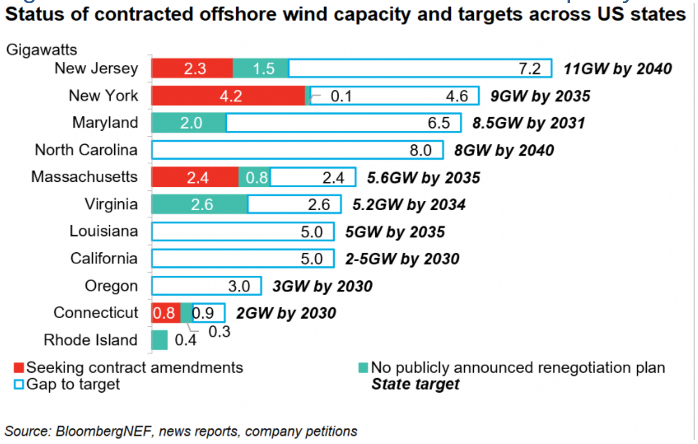
Orsted CEO says Biden Admin must also renegotiate NE US offshore wind

Here is another item from our Sept 10, 2023 Energy Tidbits memo. *"Earlier, we noted the item on how New York recognizes the need to renegotiate with the offshore wind developers. But there is also a federal role and Orsted CEO Nipper's comments to Bloomberg focused on the need for the Biden Administration to give a better deal to* *offshore NE US wind developers. Bloomberg wrote "Orsted A/S said it's prepared to walk away from US projects unless the White House guarantees more support, highlighting the myriad challenges facing wind-energy developers in the country." And "Under the Inflation Reduction Act, Orsted and other developers can already tap into tax credits generally worth 30%. At issue is the ability to claim additional bonus credits under the law that reward developers for using domestic content and projects that benefit so-called energy communities, such as those with coal mines and plants. Nipper has asked the White House to guarantee subsidies without the domestic content requirement at first and requested extra time to overcome the difficulties in sourcing American- made material. "What we proposed was a grace period, say, so give us three to five years," the CEO said. "Right now, it can't deliver." Biden administration officials working to implement the Inflation Reduction Act's tax provisions have emphasized that the domestic content bonus is an added incentive meant to help spur new clean-energy supply chains inside the US. The law "includes critical incentives to promote clean energy development while ensuring that US manufacturers and workers benefit from the growth of the clean energy economy," Treasury Department spokeswoman Ashley Schapitl said. The agency "is laser-focused on implementing these landmark incentives in a way that follows the law and its underlying goals."*

Over ½ of US offshore wind projects face delays

Here is what we wrote in our July 16, 2023 Energy Tidbits memo. "*Wind generation and the big offshore wind projects are key to the Energy Transition. And no question, over the past few years there have been a number of major offshore wind projects announced including offshore the US east coast. But it isn't enough to have a project announced, the project has to get done and done on time. There have been some offshore wind project cancellations and project developers leaving projects. And there are also many offshore projects in delay limbo as the project developers seek to renegotiate the deals to get satisfactory returns due to big cost increases. These projects are in limbo. We have been reporting on this lack of returns to OEMs and project developers. In the, BloombergNEF estimates that more than half of all offshore wind projects are now delayed and there could be more projects delays on top of that. On Monday, we tweeted [LINK] "Over 1/2 of US #OffshoreWind face delays as "developers such as Avangrid, Shell-Ocean Winds, BP-Equinor & Orsted-Eversource have cited deteriorating economics due to rising costs in trying to renegotiate or cancel contracts" reports @atinjai. #NatGas power will be needed for longer. #OOTT." Our tweet included the below BloombergNEF graph and wrote "New York state has a target to add 9 gigawatts of cumulative offshore wind capacity by 2035 and contracted 4.36GW of projects in its two concluded solicitations. But renegotiation attempts mean that 95% of the contracted capacity is at risk of delays. Neighboring Massachusetts sees 75% of contracted capacities being delayed by renegotiation attempts. In Connecticut it's 73%. New Jersey, which is targeting of 11GW, risks delays to 60% of its contracted pipeline. About 9.7GW of US offshore wind projects, or just over half of the 17.8GW total contracted, face delays, and more projects may soon face the same fate. Developers such as Avangrid, Shell-Ocean Winds, BP-Equinor and Orsted-Eversource have cited deteriorating economics due* *to rising costs in trying to renegotiate or cancel contracts." Our Supplemental Documents package includes the BloombergNEF report."*

Figure 62: Status of contracted offshore wind capacity and targets across US states



Source: BloombergNEF

RWE CEO says "*worst-case scenario for energy transition*" as "*offshore wind projects in EU & US have been stopped*"

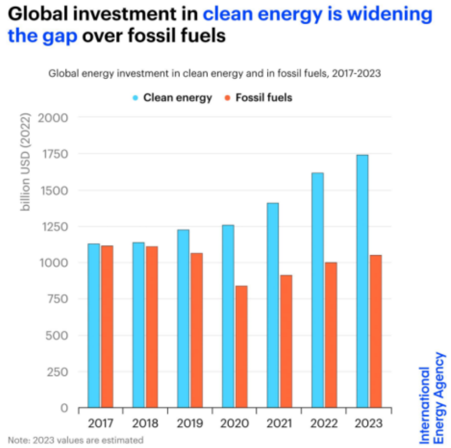
The Avangrid termination and the NYSERDA comments on New York e UK energy auction are in line with what we wrote in our Sept 3, 2023 Energy Tidbits memo on the RWE CEO LInkedin post. Here is what we wrote "*We have to wonder if governments are hearing wind developers and OEMs insisting the economics are working for wind generation, in particular offshore wind, or if they are just ignoring it and hoping for the best. Sooner or later, governments will have to make changes or accept what is clearly happening – wind projects aren't proceeding as approved and planned. There is a pause in wind, in particular offshore wind, in EU and US in 2023 and no visibility to unlock that pause. We have been highlighting this issue and clearly wind developers and OEMs don't see any changes coming to get a restart. (i) On Wednesday, we tweeted [LINK] "WOW! Must read 👇RWE CEO post "... #OffshoreWind projects in EU & US have been stopped, mainly citing cost increases" "worst case scenario for the #EnergyTransition when large projects that have already been awarded are not realised as planned". #NatGas needed for longer. #OOTT." (ii) Our tweet included a Linkedin post by RWE CEO Markus Krebber last week "is there a perfect storm brewing in the offshore wind industry?" Krebber had a very clear message that the offshore wind industry is stuck in 2023 and it needs a lot from governments if they want offshore wind to get unstuck. And Krebber warned that offshore wind being stuck is the "worst-case scenario" for the energy transition. Krebber said "In recent weeks, for the first time, offshore wind projects in Europe and the U.S. have been stopped, mainly citing cost increases. In other news, turbine manufacturers were once again in the red in their latest quarterly reports, with losses running into billions. This is not good news, it's in fact the worst-case scenario for the energy transition when large projects that have already been awarded are not realised as planned. Happening at a time when the entire offshore industry has to* *scale up to achieve expansion targets, this quickly calls into question the achievement of climate protection goals." Krebber then goes thru five actions and says clearly "This development must serve as a wake-up call for policymakers to adapt the regulatory framework to market realities." The Krebber Linkedin post is short and worth a read. Our Supplemental Documents package includes the Krebber Linkedin post."*

Energy Transition: IEA reminds clean energy spend is 1.7x oil and gas spend in 2023

Clean energy spend vs oil and gas

It was a small IEA tweet on their May 2023 clean energy spending but it reminded us of the challenge for having any chance for a smooth energy transition. (i) On Wednesday, we tweeted [LINK] "*Hmmm! How many $ trillions does clean energy need as IEA highlights behind the pace needed for #NetZero. World better hope peak #Oil demand happens soon as this reinforces OPEC warning of continued underinvestment in oil & gas ie. supply crunch ahead in late 2020s. #OOTT."* (ii) The IEA highlights the big ramp up in clean energy spending but, remember the IEA also highlights how clean energy spending has to be hugely increased to catch up to keep 1.5C in sight. What isn't clear is how many $ trillions are needed to keep 1.5C in sight. (iii) Our big concern with the IEA and others on being behind on the energy transition is that they highlight that spending isn't enough so need to accelerate spending. That is the big ask – accelerate spending. But they don't highlight how the key success factors for the energy transition and replacing where fossil fuels are used are not working as expected. This is the setup for an energy crisis. The key alternative energies that are to replace fossil fuels are well behind schedule ie. hydrogen, sustainable aviation fuel, offshore wind, etc. (iv) And at the same time, the IEA graph reminds of the major point highlighted by OPEC, Saudi Aramco, Exxon and others – there has been years of underinvestment in oil and gas and that is setting up a supply crunch in the later 2020s. We have highlighted how the major key success factors for alternative energy to replace fossil fuels aren't having the success and therefore won't replace fossil fuels as quickly as aspirations. That is our concern for energy in the world – peak demand is not happening as fast as hoped and with an underinvestment in oil and gas, it sets up an energy crisis in the last 2020s. Below is the IEA graph attached to their tweet [LINK] *"Global spending in clean energy is widening the gap over fossil fuels 5 years ago, for $1 invested in fossil fuels, the same went to clean energy. This year, for $1 invested in fossil fuels, $1.70 is going to clean energy. More in our new report 👉 https://iea.li/48QM2Ik."*

Figure 63: Global investment in clean energy is widening the gap over fossil fuels



Source: IEA

Capital Markets: BlackRock CEO Fink on China, market fear and Mexico/India

BlackRock CEO Larry Fink

BlackRock reported its Q3 results on Friday morning and CEO Larry Fink was on CNBC Squawk on the Street. It was a wide-ranging interview with Fink being hit with many great questions. The headlines were on his view of expecting 5% interest rates for the longer term. We tweeted on a few of them and our tweets included video clips of Fink's longer comments on each tweet. (i) Fink reminded of the advantage BlackRock has from being the biggest money manager so they get better and broader feedback than others thru their ETFs and equity investments. He said "*there is no question we have a better understanding of the texture of what is going on in the markets through our ETF platform and our global network*." (ii) Geopolitical risk fear is increasing. We tweeted [LINK] " *unquestionably we are seeing, my barometer of hope and fear. Well all the geopolitical issues, we are seeing more fear, more people pulling back" $BLK CEO Fink just now on @SquawkStreet. #OOTT."* (ii) Mexico is getting capital with China risks. We tweeted [LINK] "*Hola Mexico! $BLK CEO Fink "Look at the growth rates in India. Look at the growth rates in Mexico, great opportunities there." @jimcramer "You know Mexico very well. India was quite impressive this quarter." Fink "And that's where money is going to!" @SquawkStreet #OOTT."* (iv) Capital will keep flowing out of China. China was a big point. Fink highlights how China has sided with Russia, who is the enemy of the US and Europe. And they haven't sided with their biggest clients who are the US and Europe. And this will lead to more capital outflows. We tweeted [LINK] ""*we're going to see a systematic more outflows out of China if they don't reorient themselves to working with their clients [US, EU]" $BLK CEO Fink. How US/China plays out will be market story for years! See 👇SAF transcript. Great interview @carlquintanilla @jimcramer #OOTT."* Our Supplemental Documents package includes the transcript we made of Fink's more fulsome comments on these points.

10/02/23: JPMorgan Jamie Dimon sees China as the biggest geopolitical risk

BlackRock CEO Fink's China focus in his comments are in line with what we hear other major financial leaders as China being the big geopolitical risk. Here is what we wrote in last week's (Oct 8, 2023) Energy Tidbits memo on Jamie Dimon's China view. "*Overlooked by the headlines of JPMorgan CEO Jamie Dimon's 7% interest rate comments was his concern on geopolitical risks especially on China. Dimon warned that there are storm clouds but "We don't know if they're going to hit, when they're going to hit, what they're going to do." And he highlighted China as the biggest geopolitical risk. We created a transcript of his comments with Bloomberg's Emily Chang on Monday. SAF Group created transcript of comments from JPMorgan CEO Jamie Dimon in London with Bloomberg's Emily Chang on Oct 2, 2023. [LINK] Items in "italics" are SAF Group created transcript. At 7:05 min mark. Dimon ".. but there are two things today, which are extraordinary today, which may have different outcomes. Think of them as storm clouds. We don't know if they're going to hit, when they're going to hit, what they're going to do. So I'm not predicting that but I tell you what i worry about. So one is the fiscal money being spent. It's so big, the largest in peace time ever. America and kind of around the world, with already very high deficits. And QT, we've never had. I know some people think QT will be uneventful. I'm not so sure. At a minimum, I expect volatile markets. And then you've got all the long term fiscal things are kind of inflationary – you know oil prices, certain commodity prices, the green economy, you know the restructuring of trade, you name it, I see adding to Inflation, not subtracting inflation. I don't think inflation will be that, keep on coming down, it may not. And therefore rates may go higher. But the bigger storm cloud is geopolitical. It's Ukraine, its humanitarian crisis, you know it's a war not far from here, 600 miles, 500,000 people killed. It's nuclear blackmail. It's going to affect all global relationships in America, China , trade alliances. We don't know how it's going to sort out either. So I just put those two things as I keep a close eye on." At 10:04 min mark. Chang "where is China on the list of risks?" Dimon "When I say geopolitical, that's the big one. It's the thread from Ukraine, oil and gas, food, migration, all our relationships, the most important one being China. That is the most important for the future of the world. And obviously, Ukraine has affected it. In fact, its' very hard to see really positive outcomes with China until the Ukraine war is resolved. Hopefully, for the Ukraines to say they have a victory of some sort."*

09/07/22: Deutsche Bank CEO warned on China in his keynote speech
Larry Fink and Jamie Dimon's warning on China reminded us of an excellent Deutsche Bank CEO speed from a year ago on many of the big geopolitical issues being discussed today including China. Here is what we wrote in our Sept 11, 2022 Energy Tidbits memo. "*We weren't certain where to put this item, but we believe the Deutsche Bank CEO Christian Sewing views of the world, if correct, will be positive for oil and natural gas thru the 2020s. The headlines on his Wednesday comments were all about his warning a recession is coming for Germany. (i) We tweeted [LINK] "1/2. Must Read @DeutscheBank CEO. RUS/UKR "destroyed a number of certainties on which we build our economic system over the past decades". NEXT UP, "awkward question on how to deal with China" in light of increasing CN/US isolation/tension, reducing China dependency will .. #OOTT", and [LINK] "2/2.."require a change no less fundamental than decoupling from RUS energy". Globalization gone, labor a global bottleneck. Extremely expensive #Electricity #NatGas s a threat to economy. the longer inflation remains high the higher the potential for social unrest, etc. #OOTT.". (ii) As you can see from our tweets, there are many thoughts. We tend to agree with a lot of what he is saying unless there is a*

social revolt to say enough is enough. (iii) The real theme of his theme of his speech is excellent – the world has changed for the foreseeable future. The norms of the past decades are gone. Globalization gone. China dependency must be reduced. Global value and supply chains disrupted. Workforce a worldwide bottleneck. Electricity/natural gas will be expensive in EU for a long time.. The truth is that 30 years of presumed calm will now be followed by a period of heightened volatility with economic uncertainty, regular crises and geopolitical conflicts that are also likely to drag on for decades. Trouble spots are not cut off from the rest of the world; they impact other regions in a number of ways. (iv) And he doesn't say much about it, but says "But the longer inflation remains high, the greater the strain and the higher the potential for social conflict." We still wonder about social conflict and if there will be Arab Spring type revolt within Germany and other European countries to how people feel they are getting hit by the Russian sanctions. (v) His views are relevant to longer term capital allocation. It's not just Germany has a terrible economic outlook. He raises issues like we have noted about China is the next Russia type target even if they don't invade Taiwan. Germany affects more than itself. And think about it, if Germany can hold the line on Russian sanctions on energy, then it probably says most of Europe can hold the line other than a handful like Hungary, etc. (vi) There is much more in this short viewpoint. Our Supplemental Documents package includes the CEO viewpoint."

Capital Markets: 2024 election wildcard, Robert F. Kennedy to run as an Independent

Robert F. Kennedy

It took a couple weeks but RFK Jr. confirmed the speculation in late Sept (see our Oct 1, 2023 Energy Tidbits memo) that Robert F. Kennedy Jr was test marketing a potential run in 2024 as an Independent instead of trying to get the Democrat nomination over Biden. We thought the timing makes sense as he had to decide soon given the 2024 elections are now only 13 months away. We thought his test marketing would be to see how much Democrat support he could bring and how much money he can raise. Elections are all about raising money. In our Oct 1 memo, we thought Biden and the Democrats would be worried as RFK taking enough Democrats with him to let give the Republicans a better chance to win. We shouldn't be surprised to see the story post his announcement wondering more that he will hurt the Republicans than the Democrats. We aren't surprised as most of the media leans to Democrats and the last thing they will do at this stage is raise more doubt on Biden. Biden has enough challenges with his poll ratings. Our view is still the same as per our Oct 1 memo, we believe an RFK run would likely hand the 2024 presidential election to the Republicans no matter who runs for them. Presidents are decided on electoral votes, which are not the same as national vote percentage. But to put in perspective, Biden got 51.3% of the vote vs Trump at 46.8% of the vote. And that 51.3% led to 306 electoral votes to 232 electoral votes. But if RJK only gets 5% of the vote, he would likely tip the electoral vote in a number of close race states to the Republicans.

Ross Perot run as an Independent led to Clinton winning 1992 with 43.0% vote

The last time there was an Independent who received a significant vote was in 1992, when Texan Ross Perot ran as an Independent. George H.W. Bush was President and the Republican nominee running for re-election. Perot was a Republican who went Independent not being a Bush fan and also because of his opposition to the Gulf War and NAFTA. And had to have known he would be splitting the Republican vote and thereby handing the election to Clint. The popular vote was split Clinton 43.0%, Bush 37.5% and Perot 18.9%, but the electoral vote was split Clinton 378, Bush 168 and Perot 0.

Demographics – China set up for another year of declining population

Declining China births in 2023

The numbers are far from in, but the conditions look to be setting up another year of declining China population. 2022 was the first year for declining China population in 60 years. On Thursday, Global Times (China state media) report [LINK] was on how more families having a third child in response to China's policy changes to encourage higher birth rats. However, the report also laid out the reasons why China's birth rates are going lower – less women in childbearing age and people getting married at older ages. Global Times reported "*He pointed out that the decreasing numbers of first-child, second-child, and multiple-child births reflect that both the number of women of childbearing age and the fertility rate are declining. "The decline in women of childbearing age exposes the structural problems in China's population and will have a significant impact on the population for a long period of time in the future," He said. He told media that the number of births in 2023 is likely to decrease by around 10 percent compared to 2022, dropping to approximately 8.5 million given factors such as the continued decline in the number of women of childbearing age and in marriage registrations."*

Xi recognizes China's long term economic problem is shrinking population

China is well aware they have a declining population and that means economic issues ahead. Here is what we wrote in our May 7, 2023 Energy Tidbits memo. *"Xi's speech noted China's #1 short term economic problem, but he also highlighted China's #1 long term economic problem – need to get population growth. The real question for China will be what happens to its population between now and 2040 and can Xi quickly get China back on a strong population growth rate. We say quickly because one of the basic fundamentals for economic growth is more working age population. And babies in 2024 won't hit the work force until after 2040. And Xi knows there is a link between population and economy. Yesterday we tweeted [LINK] "Population development is of vital importance to the rejuvenation of the Chinese nation" says Xi. Also recognizes "relationship between population and economy and society" Demographic trends are very tough to change so a growing post 2030 China economic problem. #OOTT #Oil." And [LINK] "China needs increasing birth rate ASAP. Babies born in 2024 don't become contributing work force memb`ers until >2040. Shrinking population may be a growing post 2030 problem but increasing birth rate is an immediate challenge. Demographics are predictable! #OOTT #Oil." Xinhua (and other Chinese state media) reported on Xi's address to the Central Financial and Economic Affairs Commission with a report titled "Xi stresses building of modern industrial system and high-quality population development." [LINK]. Xi noted the relationship of between population and economy and society, stressed that "Population development is of vital importance to the rejuvenation of the Chinese nation, and efforts must be made to improve the overall population quality so as to support Chinese modernization." There is much more in the reports but the bottom line is that Xi knows China needs to get population growth growing as it impacts the economy."*

China's population declined in 2022 for 1st time in 60 years

Here is what we wrote in our Jan 22, 2023 Energy Tidbits memo. "*Demographic impacts don't surprise overnight, but demographics are predictive. And one of the key demographic trends for the next 30 years is China's aging population. And it looks lie Covid caused an abrupt pivot to a declining population in 2022. And it may be down the road, but China, like any aging population will eventually face a Japan problem. On Monday, we tweeted [LINK] "China population shrinks by 850,000 to 1.4118 b, 1st decline in 60 yrs. Seems Covid impact with deaths and also lower birth rates. But reminds of long-term challenge for China - an aging population ie. a Japan demographic problem in 10 or 20 years. Thx @sunyue_luna. #OOTT." The South China Morning Post [LINK] reported "2022 officially marked the year China saw its first population decline in six decades, with the national birth rate falling to a record low. And the deepening demographic crisis threatens far-reaching implications for China's already slowing economic growth. China's overall population plummeted by 850,000 people – to 1.4118 billion in 2022, from 1.4126 billion a year earlier, the National Bureau of Statistics (NBS) said. Mothers in China had 9.56 million babies last year, a 9.98 per cent drop from 10.62 million in 2021. The national birth rate fell to a record low of 6.77 births for every 1,000 people in 2022, down from 7.52 in 2021, and marking the lowest rate since records began in 1949. The national death rate was 7.37 per thousand last year, putting the national growth rate at negative 0.6 per thousand people." Our Supplemental Documents package include the SCMP* report."

Pre-Ukraine, Putin's greatest concern was Russia's shrinking population

For years, Putin has been blunt that Russia's shinking population was his greatest concern. At least that was so prior to their invasion of Ukraine. Here is what we wrote before Russia invaded Ukraine in our Jan 2, 2022 Energy Tidbits memo. "*On Tuesday, we tweeted [LINK] "ICYMI. Putin is asked "what is your greatest concern?", he replies "demographics is one of our main problems for our humanitarian and economic considerations" ie. Russia's shrinking population". on. A big factor why he needs stronger for longer #Oil #NatGas #Metals prices. #OOTT. Putin's big press conference comments this week on Russia's population reminded us of an item we forgot to include in our Dec 5, 2021 Energy Tidbits – Putin's greatest concern is the shrinking Russia population. This week, Putin noted "There are issues that cannot but cause concern, including life expectancy, which has slightly decreased from 71.5 to 70.1 years." The item we forgot to include was Putin's comments at the "Russia Calling! Investment Forum" on Nov 30. [LINK]. Putin was asked "What keeps you awake at night?" In the sense, "What is your greatest concern?". Putin responds "We have domestic issues typical of Russia, primarily demographic problems. We had two natural declines in our demographic development: during World War II or the Great Patriotic War, as we call it, in 1943–1944, and in the early and middle 1990s after the collapse of the Soviet Union. There was an equal drop in the birth rate. It was the lowest in 1999 – I believe a little over 1,200,000. In 2006, we already had almost two million births – more than 1,900,000. This problem has acquired a systemic and economic character due to the shortage of workforce in the labour market. We have a little over 80 million there and our losses amount to 1.1–1.2 percent a year. In this context, demographics is one of our main problems both for humanitarian and* *economic considerations, and because we need to strengthen our statehood as well. I will not enumerate all the measures and instruments we are using and intend to continue using in the future in order to tackle this problem. In general, we managed to get things moving in the recent past. Overall, we understand what we can do and know how to do it."*

Demographics: Japan to cut down more cedar trees to reduce hay fever

Cedar trees and hay fever

This is something that won't surprise those who have hay fever, but we didn't realize that cedar trees are one of the big villains for hay fever and that Japan has really high percentage of the population impacted by hay fever. On Wednesday, Japan Times reported [LINK] "*Japan has pledged to reduce cedar pollen — the root cause of a seasonal allergy that afflicts 40% of the country — by revitalizing the country's shrinking forestry industry. A package of policies released Wednesday includes boosting demand for cedar tree products in buildings through the revision of the Building Standards Law, which takes effect next April, as well as greater use of foreign workers in forestry. The government will also subsidize firms buying high-level logging machinery, as well as push for more people in the farming and construction sectors to enter the forestry trade. Pollen carried by the wind affects many allergy sufferers living in cities. As such, during this fiscal year ending in March the government will designate "high-priority areas" near major urban areas where measures such as cutting cedar trees and replacing them with other tree varieties that produce less pollen will be carried out ahead of other areas, officials said."* Our Supplemental Documents package includes the Japan Times report.

Demographics: More people return to "*long form reading*"?

Heather Reisman, Indigo CEO

There wasn't much overnight news so early Saturday morning, we were able to turn on CTV's Taking Stock that had lengthy meeting with Heather Reisman, who returned to take over as CEO of Indigo in Sept. We tweeted [LINK] ""*we have an opportunity to find ways to inspire long-form reading" @HeatherReisman. never heard term long-form reading. she certainly knows the book business challenge so hope more than booklovers rally behind a great Cdn brand. much more in this great @AmandaLang interview."* We had never heard the term "*long-form reading*". We have heard Reisman speak and it's clear that she saw there was a big diversion from the brand and she knows the challenge facing the book business from e-books, audio books, Amazon, and people's attention spans. But she reminds the physical book business is a resilient business. Our Supplemental Documents package includes the transcript we made of a couple of her comments.

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

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

Look for energy items on LinkedIn

Misc Facts and Figures

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

Cdn golf fans will be watching PGA today with 4 Cdn stars in the hunt

There should be a shoot-out in the final round today at the Shriner's Children Open and Cdn golf fans will be watching. There are 17 golfers within three shots of the lead going into the final round. Cdn Adam Hadwin is in a 3-way tie for the lead at -15. Cdn Taylor Pendrith is in a 3-way tie one stroke back at -14. Cdn Adam Svennson is in a 4-way tied another stroke back at -13. Cdn Nick Taylor is in a 7-way tie another stroke back at -12. Guys were going really low in the 3rd round including Hadwin at 63. Taylor had the highest round 3 score in the top 17 with a 69. Its Par 71, gotta believe it's going to take -21, -22 to win so guys are going to go low today. But we have four clearly in the hunt.

Today is National Red Wine Day

Today is a good food & drink holiday – Oct 15 is National Red Wine Day. We don't' have any of the vintages of the Wine Spectator Top 10 for 2022, but did have older did pull out some of the older vintages of the #2 Fattoria Dei Barbi Brunello di Montalcino Riserva 2016, #5 Antinori Toscana Tignanello 2019, and #7 Chateau de Beaucastel Chateauneuf du Pape 2019. But, in honor of National Red Wine Day, am having a Chateau de Beaucastel Chateauneuf du Pape 2005 vintage.

Figure 64: Wine Spectator Top 10 of 2022

Source: Wine Spectator