Energy Tidbits

Nov 3, 2024

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Bullish for Natural Gas & Coal in 2020s, AI Data Center Leader, Dominion Energy, Fossil Fuels Provided 63.7% of 2023 Power

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 1998 with input from PMs, who were looking for research (both positive and negative items) that helped them shape their investment thesis to the energy space, and not just focusing on daily trading. My priority was and still is to not just report on events, but also try to interpret and point out implications therefrom. The best example is the review of investor days, conferences and earnings calls focusing on sector developments that are relevant to the sector. My target is to write on 50 weekends per year and to post by noon MT on Sunday. The Sunday noon timing was because PMs said they didn't have research to read on Sundays and Sundays are a day when they start to think about the investing week ahead.

This week's memo highlights:

1. Dominion Energy, the global leader in providing power to AI data centers, discloses that fossil fuels supplied 63.7% of its power supply in 2023. [click here]

2. Trump's biggest impact on oil would be if he returns to his first term playbook and take ~2 mmb/d of Iran and Venezuela oil off export markets by enforcing sanctions. [click here]

3. Is it bluster or what does Iran have that can deliver a "crushing response" to Israel? [click here]

4. Cdn oil plays, especially Clearwater and Mannville heavy oil stack, keep getting bigger and better with new emerging value. [click here]

5. China new home sales volumes up YoY in Oct, first YoY increase since June 2023. [click here]

6. Please follow us on Twitter at [LINK] for breaking news that ultimately ends up in the weekly Energy Tidbits memo that doesn't get posted until Sunday noon MT.

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

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Natural Gas: +78 bcf build in US gas storage; now +107 bcf YoY

+78 bcf build in US gas storage

For the week ending October 25, the EIA reported a +78 bcf build [LINK]. Total storage is now 3.863 tcf, representing a surplus of +107 bcf YoY compared to a surplus of +106 bcf last week. Since February, total storage had remained above the top end of the 5-yr range, until 1 month ago when storage dipped into the 5-yr range but this week's data shows that storage remains below the range at -14 bcf below the 5-yr maximum of 3.877 tcf. Total storage is now +178 bcf above the 5-year average, above last week's +167 bcf surplus. Below is the EIA's storage table from its Weekly Natural Gas Storage report and a table showing the US gas storage over the last 8 weeks.

Figure 1: US Natural Gas Storage

	Stocks billion cubic feet (Bcf)				Historical Comparisons: Year ago (10/25/23)		5-year average (2019-23)	
Region	10/25/24	10/18/24	net change	implied flow	Bcf	% change	Bcf	% change
East	919	901	18	18	920	-0.1	901	2.0
Midwest	1,109	1,088	21	21	1,093	1.5	1,079	2.8
Mountain	291	291	0	0	254	14.6	225	29.3
Pacific	305	300	5	5	284	7.4	281	8.5
South Central	1,240	1,205	35	35	1,205	2.9	1,200	3.3
Salt	331	314	17	17	309	7.1	312	6.1
Nonsalt	909	891	18	18	896	1.5	888	2.4
Total	3,863	3,785	78	78	3,756	2.8	3,685	4.8

Source: EIA

Figure 2: Previous US Natural Gas Storage

Previous 8 weeks (Bcf)				
Week Ended	Gas in Storage	Weekly Change	Y/Y Diff	Diff to 5 yr Avg
Sep/06	3,387	40	198	296
Sep/13	3,445	58	194	274
Sep/20	3,492	47	159	233
Sep/27	3,547	55	127	190
Oct/04	3,629	82	124	176
Oct/11	3,705	76	107	163
Oct/18	3,785	80	106	167
Oct/25	3,863	78	107	178

Source: EIA

Natural Gas: Storage would have been full if producers hadn't shut in production

Producers shut in natural gas

There is only one storage week to go to the traditional Nov 1 storage. In May, it looked like there was the real risk for storage to be full early as it was +444 bcf YoY on May 3. But a hot summer, some hurricane supply interruptions and producers shutting in natural gas due low prices meant that storage did not get full early. Rather all it resulted in was higher YoY gas storage. So storage is now down to +107 bcf YoY as of Oct 25. Storage would be way worse if EQT, Coterra, etc didn't shut-in production in Q2 and Q3. And the fact that storage was up YoY even with the shut-in production was the big holdback to Henry Hub prices in Q2 and Q3. In the summer, we started to highlight how gas prices would be weaker if key producers hadn't shut-in natural gas production due to low prices. Later in the memo, we note EQT's Q3 call and how they brought back their curtailed volumes, which had peaked at ~1 bcf/d, in Sept. And we previously noted how Coterra shut-in of 0.275 bcf/d for H2/24 and later in the

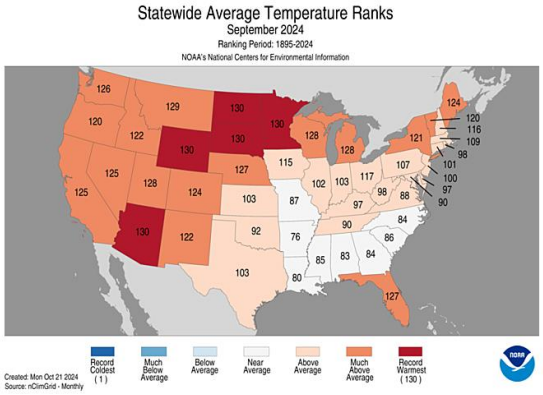
memo, we note how Coterra is continuing to curtail production of approx. 0.325 bcf/d. And there were others like Chesapeake and Apache who shut-in natural gas due to low natural gas prices. There were various estimates for voluntary shut-in total that seemed to be around 2 bcf/d.

Natural Gas: NOAA reported US Sept temperature was 2nd hottest in last 130 years

Sept was 2nd hottest US on record

Last Friday, the NOAA posted their September temperature recap for the U.S., which came in as the second warmest September in the 130 year record [LINK]. We would typically include NOAA's recap of the prior month's temperature around the middle of the month, but the NOAA had some products delayed due to outages caused by Hurricane Helene. The NOAA wrote "*The contiguous U.S. average temperature during September was 68.6°F, 3.8°F above average, ranking second warmest in the 130-year record… The contiguous U.S. average maximum (daytime) temperature during September was 81.8°F, 4.1°F above the 20th century average, ranking second warmest September for daytime temperatures in the historical record. Maximum temperatures were above average across much of the western half of the contiguous U.S. as well as from the Upper Midwest to the Northeast and across portions of Florida. Temperatures were below average across parts of the Lower Mississippi Valley and Southeast. Wyoming, South Dakota, and Minnesota each ranked warmest on record, while North Dakota, Arizona, and Wisconsin each had their second warmest September for daytime temperatures.*" Below is a map of statewide average temperature ranks.

Figure 3: Statewide average temperature ranks



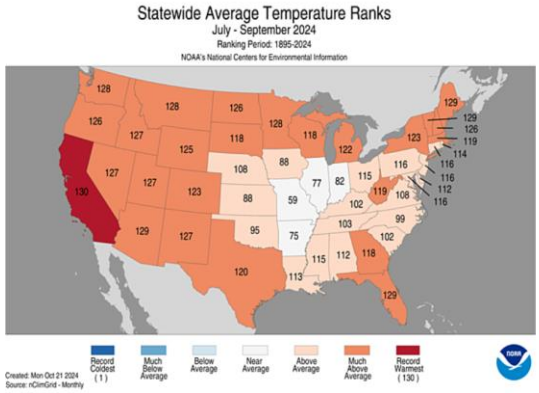
Source: NOAA

Natural Gas: NOAA, Jul/Aug/Sep was 3rd hottest in US in last 130 years

JAS was 3rd hottest US on record

It was a hot summer summer and the NOAA posted their September temperature recaps on last Friday. As noted above, these would have been posted much earlier but NOAA had interruptions from Hurricane Helene. The hot summer helped make a significant reduction in the YoY gas storage surplus. NOAA posted their Jul/Aug/Sept temperature map [LINK] and it was the 3rd hottest Jul/Aug/Sept on record. The map shows that it was very hot almost everywhere in the Lower 48 other than a handful of states such as Arkansas, Missouri, Illinois, and Indiana. Below is the NOAA's Statewide Average Temperature Ranks map for Jul/Aug/Sep 2024.

Figure 4: NOAA Statewide Average Temperature Ranks – Jul/Aug/Sep 2024



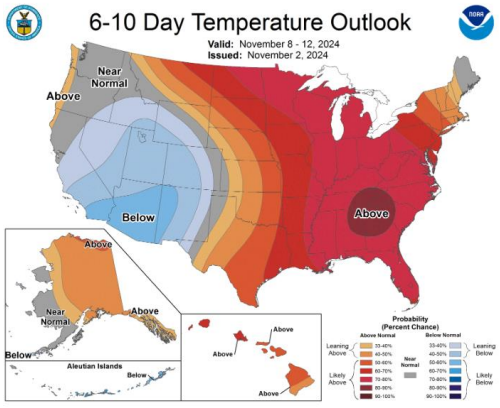
Source: NOAA

Natural Gas: NOAA forecasts warmer-than normal temps to start Nov

NOAA updated 6-10 and 8-14 day temp outlook

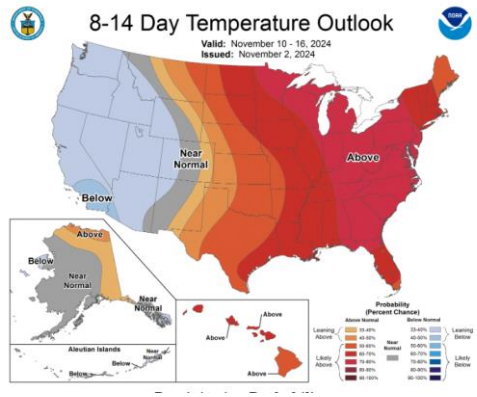
It's now November and that means warmer than normal temperatures minimize demand for heating ie. no need to crank up the furnace. Yesterday, we tweeted [LINK] "*A warm start to winter is never a positive to HH #NatGas prices. @NOAA updated 6-10 & 8-14 day temp outlook for Nov 8-16 calls for much warmer than normal temps across east 2/3 of Lower 48. #OOTT."* Our reminder is that warmer than normal in early Nov temperatures generally don't drive any significant weather driven natural gas demand. Below are NOAA's updated, as of yesterday, 6-10 day and 8-14 day temperature outlook maps covering Nov 8-16.

Figure 5: NOAA 6-10 day temperature outlook for Nov 8-12



Source: NOAA

Figure 6: NOAA 8-14 day temperature outlook for Nov 10-16



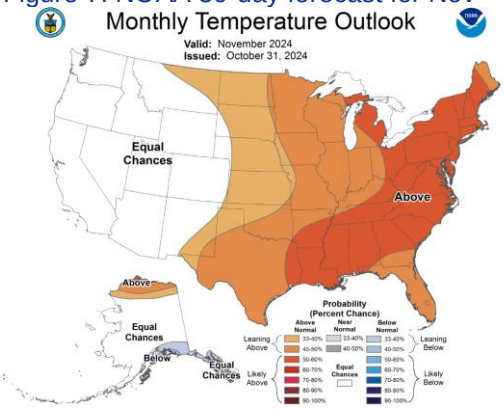
Source: NOAA

Natural Gas: NOAA expects above normal temp for most of U.S. in Nov

Forecast for a warm Nov

November 1 marked the start of what has traditionally marketed the "winter natural gas withdraw season". We continue to expect a key holdback to near term natural gas and LNG prices will be that weather forecasts still call for a warm start to winter. On Thursday we Tweeted [LINK] "*Warm winters and a warm start to winter are never good for #NatGas @NOAA updated 6-10 day, 8-14 day, and 30-day temperature forecast call for warmer than normal (less heating demand) to start winter across most of the Lower 48 especially the populous east and south. #OOTT #NatGas*". And a warm start to winter is never a plus to HH gas prices and makes it essential for Jan/Feb/March to have below average temperatures; or else it points to another year of soft prices. On Thursday, the NOAA posted its 30-day forecast for November, and the temperature probability outlook calls for above normal temperatures almost everywhere in the Lower 48. We recognize that weather forecasts are far from 100% accurate, but near-term forecasts tend to have greater accuracy. Below is the NOAA temperature probability outlook forecast for November released on Oct 31.

Figure 7: NOAA 30-day forecast for Nov



Source: NOAA

Natural Gas: Tough for HH prices to catch up from a warm start to winter

Risk to HH prices going into winter

For years, we have warned on the risk to HH gas prices unless it's cold to start winter ie. in Nov/Dec. Yesterday, we tweeted [LINK] "*Reason to be cautious on #NatGas as long as temp forecasts are for a warm start to winter. Other than 2022 where global #NatGas markets were driven up post Russia 02/24/22 invasion of Ukraine, HH prices have weakened in Nov/Dec with warm or even normal temps in Nov/Dec. #OOTT."* Our tweet included the below graph showing the seasonal HH price moves. Russian invaded Ukraine on Feb 24, 2022 and that drove up global natural gas and LNG prices with Europe cutting off cheap Russia natural gas pipeline gas. Putting 2022 aside, all the other years have seen HH gas prices weaken in Nov even when temperatures were normal. And our weekly memos have been highlighting US gas storage is up YoY and would have been full if producers hadn't shut in natural gas production due to low prices. And weather forecasts continue to call for a warmer than normal start to winter. Our concern is that the graphs remind it is tough for HH gas prices to catch up with a weak start to winter. So there is risk going into the winter unless it starts off cold."

Figure 8: HH gas prices seasonal comparison to Nov 1, 2024 close

Source: Bloomberg

Natural Gas: US Aug natural gas production -1.2 bcf/d YoY to 103.3 bcf/d

US August gas production

No one should be surprised to see the EIA report US natural gas production in Aug was 103.3 bcf/d, which was -1.2 bcf/d YoY and -3.1 bcf/d from dec 2023 record high. As noted earlier and every week for the past few months, US natural gas producers had shut in natural gas production in Q3 due to low HH gas prices. On Thursday, the EIA released its Natural Gas Monthly [LINK], which includes its estimated "actuals" for August dry gas production. Key items to note are as follows: (i) August was 103.3 bcf/d, which followed July's revised 104.3 bcf/d. This marks the second month of production above 103 bcf/d, following a previous slump which began in March. (ii) August at 103.3 bcf/d is down -1.2 bcf/d YoY, and down -3.1 bcf/d since Dec 2023. Dec 2023 was the record high of 106.5 bcf/d. (iii) July's data was not revised, and held flat at 104.3 bcf/d. (iv) August's production of 103.3 bcf/d was down -1.0 bcf/d MoM and down -1.2 bcf/d YoY from August 2023's figure of 104.5 bcf/d. The EIA does not provide any commentary. Our Supplemental Documents package includes the EIA Natural Gas Monthly.

Figure 9: US dry natural gas production

bcf/d	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Jan	65.3	66.8	73.4	73.6	70.6	78.7	89.3	97.4	92.6	96.2	101.9	103.5
Feb	65.4	68.4	73.8	74.6	71.5	80.4	89.9	95.5	85.8	96.0	102.0	105.9
March	65.3	68.9	74.1	73.8	73.2	81.3	90.3	95.3	93.6	97.6	102.9	102.6
Apr	66.1	70.5	75.2	73.7	73.3	81.2	90.7	95.0	94.3	98.3	102.6	101.7
May	65.9	70.2	74.1	72.9	73.3	82.1	91.4	87.9	94.2	99.1	103.6	101.5
June	65.8	70.5	74.0	72.2	74.0	82.5	91.7	90.4	93.9	99.3	103.3	102.8
July	67.1	72.0	74.2	72.8	74.7	84.2	92.2	90.3	94.8	100.4	103.4	104.3
Aug	66.9	72.4	74.3	72.2	74.7	85.9	94.4	90.4	95.0	100.9	104.5	103.3
Sept	66.8	72.4	74.7	71.7	76.0	87.3	94.8	91.3	95.7	102.4	104.5	
Oct	67.0	73.1	74.2	71.4	77.3	88.4	95.6	89.7	97.2	102.2	104.3	
Nov	67.7	72.6	73.9	72.0	79.8	89.9	97.2	92.5	98.3	102.2	105.9	
Dec	66.5	73.2	73.9	71.2	80.4	89.5	97.1	93.1	99.1	100.2	106.5	
Average	**66.3**	**70.9**	**74.2**	**72.7**	**74.9**	**84.3**	**92.9**	**92.4**	**94.5**	**99.6**	**103.8**	**103.2**

Source: EIA

Natural Gas: US natural gas pipeline exports to Mexico up +0.1 bcf/d MoM, flat YoY

US to Mexico August natural gas exports

The EIA's Natural Gas Monthly also includes pipeline exports to Mexico and, up until the last few months, it was the EIA report that first provided this data. However, that changed this year when the Department of Energy changed its LNG Monthly report to US Natural Gas Imports and Exports Monthly. The DOE now includes the pipeline exports to Mexico, and this DOE report always comes out days in advance of the EIA Natural Gas Monthly, in this case it was released on Thursday, October 24. And since the EIA is part of the DOE, the data is the same. Here is what we wrote in last week's (Oct 27, 2024) Energy Tidbits memo. "*On Thursday, October 24, the Department of Energy (DOE) posted its Natural Gas Imports and Exports Monthly [LINK], which includes its estimate for August natural gas exports via pipeline to Mexico. These are the same data points that will come out in the more referenced EIA Natural Gas Monthly on Thursday. Natural gas exports to Mexico were up +0.1 bcf/d to 6.9 bcf/d in August from 6.8 bcf/d in July, and was flat YoY at 6.9 bcf/d from August 2023. This means the figures are flat with the all-time high for pipeline exports of 6.9 bcf/d in August 2023. US natural gas pipeline exports to Mexico are now in line with Q3/23 exports of ~6.8 bcf/d. The DOE doesn't provide a split but for pipeline vs LNG or CNG exports to Mexico but we believe essentially 100% of the exports are via pipeline, without any CNG/LNG in the mix. Please note that we will note if we ever believe there are any notable CNG/LNG exports to Mexico. Below is a summary of natural gas via pipeline exports to Mexico from the US. Our Supplemental Documents package includes excerpts from the DOE US Natural Gas Imports and Exports Monthly.*"

Figure 10: US Natural Gas Pipeline Exports to Mexico

(bcf/d)	2019	2020	2021	2022	2023	2024
January	5.3	5.4	5.6	5.7	5.5	6.0
February	5.1	5.3	5.4	5.5	5.5	5.8
March	5.1	5.6	5.9	5.5	5.8	5.9
April	5.0	4.6	6.1	5.9	5.6	6.3
May	5.6	4.7	6.2	6.0	6.2	6.8
June	5.8	5.4	6.6	6.2	6.8	6.8
July	6.2	5.8	6.4	6.1	6.8	6.8
August	5.9	6.1	6.3	5.9	6.9	6.9
September	5.8	6.2	6.0	5.6	6.7	
October	5.7	6.2	6.0	5.5	6.5	
November	5.4	5.6	5.5	5.4	6.0	
December	5.2	5.3	5.4	5.1	5.6	
Average	5.5	5.5	5.9	5.7	6.2	

Source: DOE, SAF

Natural Gas: US LNG exports up +1.3 bcf/d MoM to 11.7 bcf/d in August

US August LNG exports

Here is what we wrote in last week's (Oct 27, 2024) Energy Tidbits memo on US LNG exports for August. "*The DOE normally posts the US LNG export data before the more commonly referenced US LNG exports from the EIA's Natural Gas Monthly that is to be released on Thursday. The EIA is a group within the DOE so the data for LNG exports is either identical or just a rounding issue. On Thursday, we tweeted [LINK] "US #LNG exports: Aug 2024: 11.7 bcfd July 2024: 10.4 Aug 2023: 11.4 July was hit by Freeport down ~8 days re air cooler damage from Beryl & Cheniere planned maintenance. DOE actuals are same as EIA #NatGas Monthly actuals on Oct 31. #OOTT #natgas". US LNG exports were up +1.3 bcf/d MoM in August from 10.4 bcf/d in July, and up +0.3 bcf/d YoY from 11.4 bcf/d in August 2023. As we highlighted in our tweet, one of the reasons for the MoM increase, was lower US LNG exports in July due to the 2.1 bcf/d Freeport LNG being shut for ~7 days from Hurricane Beryl. The top five countries destinations for US LNG in August were South Korea 1.4 bcf/d, Netherlands 1.2 bcf/d, Japan 1.0 bcf/d, China 0.8 bcf/d and India 0.8 bcf/d. The DOE did not comment on the MoM or YoY changes.*"

Figure 11: US Monthly LNG Exports

(bcf/d)	2019	2020	2021	2022	2023	2024
January	4.1	8.1	9.8	11.4	10.9	12.8
February	3.7	8.1	7.4	11.3	11.7	12.4
March	4.2	7.9	10.4	11.7	11.8	11.9
April	4.2	7.0	10.2	11.0	12.5	10.1
May	4.7	5.9	10.2	11.3	11.8	11.9
June	4.7	3.6	9.0	10.0	10.9	11.9
July	5.1	3.1	9.7	9.7	11.3	10.4
August	4.5	3.6	9.6	9.7	11.4	11.7
September	5.3	5.0	9.5	9.8	11.6	
October	5.7	7.2	9.7	10.0	12.4	
November	6.4	9.4	10.2	10.1	12.9	
December	7.1	9.8	11.1	11.0	13.6	
Average	5.0	6.6	9.7	10.6	11.9	

Source: EIA, DOE

Natural Gas: Shell still seems to point to LNG Canada 1.8 bcf/d Phase 2 FID

LNG Canada 1.8 bcf/d Phase 2

Shell held its Q3 call on Thursday. On Friday, we tweeted [LINK] "*Seems still pointing to LNG Canada 1.8 bcf/d Phase 2 FID. Shell CEO Sawan in Q3 call Q&A. Phase 1. 1.8 bcf/d is 95% complete, still hoping for 1st commercial cargos by mid 2025. Phase 2. 1.8 bcf/d. "has to be an investable opportunity. They are developing that, and in due course, they'll be able to put it forward to us to be able to reflect, along with the other shareholders doing the same." #OOTT #NatGas."* In the Q&A, mgmt was asked on the status of LNG Canada 1.8 bcf/d Phase 2. Our tweet included an excerpt from the transcript with CEO Sawan's response. (i) First, he recapped the status of LNG Canada 1.8 bcf/d Phase 1, which is 95% complete, receiving natural gas for plant commissioning and still looking for first commercial cargos by mid-2025. We remind that there will be commissioning LNG cargos before that time. (ii) On LNG Canada 1.8 bcf/d Phase 2, CEO Sawan did not say it would FID and, if so, when. However, he doesn't raise any doubt and his comments seem to point to a continued path to FID in the coming months. Sawan replied "*LNG Canada Phase 2, of course, the joint venture, which is an independent joint venture, will have to present their proposal to their shareholders. Of course, that has to be an investable opportunity. They are developing that, and in due course, they'll be able to put it forward for us to be able to reflect, along with the*

other shareholders doing the same." (iii) CEO Sawan didn't raise any BC government approval risk. CEO Sawan's comments were on Thursday and after the BC election that saw the return of the BC NDP in another majority government. LNG Canada has been dealing with the NDP government and we would assume that if Shell saw BC NDP risk to Phase 2, he would at least mention a potential risk to get BC NDP onside. (iv) Shell has tied up acreage to support LNG Canada volumes. It's not clear if Shell has tied up acreage to help support both Phase 1 and 2 but CEO Sawan confirmed they have tied up more acreage. He said '*In terms of acreage, we're very pleased with the position we have, which really gives us the option, not the obligation, the option to be able to either produce out of our existing acreage or to pull from third-party suppliers in ACO That is the beauty of the position we have there, and that's one where we will continue to be able to look forward as we bring LNG Canada up, to be able to optimize and to create value out of."*

BC NDP seem to be onside with future development of oil, gas & LNG

As noted later in the memo, the final count of the BC election resulted in another BC NDP government but by the narrowest of majorities. It was all along expected to be a nail biter and it was. Although we suspect the ruling BC NDP were a little surprised in the lead up to the strength of the Conservatives. But the close pre-election poles likely forced the BC NDP to try to be more balanced in their platform to appeal to not lose the center to the Conservatives. Our concern with this required approach is that it not clear how the general platform statements be enacted by laws and regulations. One of the real tests to their election platform will be in how they implement their inferred support or acknowledgement for development on oil, natural gas and LNG. They seem to suggest they aren't against future development, rather they will use the revenues from future development to build a green economy. This is seems like a logical approach – use the revenues to pay for green actions. In the section titled *"Building a Sustainable Economy with Good-Paying Jobs",* the BC NDP platform said "*Leverage our clean energy to attract global investment. Market BC to global companies that are making climate action a priority. A new Clean Economy Transition fund will use revenues raised from oil and gas development, including LNG, to build BC's clean-economy future, attracting even more investment*." Our Supplemental Documents package includes the BC NDP election platform section on building a sustainable economy.

Natural Gas: Mexico's natural gas production stuck below 5 bcf/d

Mexico monthly natural gas production

Last week's (Oct 27, 2024) Energy Tidbits highlighted Mexico's Sept 2024 natural gas production as reported by Mexico's National Commission of Hydrocarbons. The NCH typically posts the Mexico monthly natural gas production data one to three days before Pemex. This week Pemex posted their reported figures which told the same story [LINK]. The story for Mexico natural gas production is unchanged for the last several years – it is stuck right around 5 bcf/d. Pemex reported September 2024 natural gas production of 4.515 bcf/d, which is down is down -9.1% YoY from 4.969 bcf/d in September 2023 and down -0.4% MoM from 4.534 bcf/d in August 2024. The big picture story for Mexico natural gas for the past six years has been that Mexico natural gas production has been stuck at or below 5 bcf/d, and that means any increased domestic natural gas consumption has been met by US natural gas imports. Below is our ongoing table of Pemex reported monthly natural gas production.

Figure 12: Mexico Natural Gas Production

Natural Gas Production bcf/d	2017	2018	2019	2020	2021	2022	2023	2024	24/23
Jan	5.326	4.910	4.648	5.005	4.848	4.713	4.955	4.780	-3.5%
Feb	5.299	4.853	4.869	4.942	4.854	4.646	4.979	4.777	-4.1%
Mar	5.383	4.646	4.857	4.946	4.839	4.766	5.035	4.768	-5.3%
Apr	5.334	4.869	4.816	4.827	4.671	4.740	5.095	4.500	-11.7%
May	5.299	4.827	4.841	4.460	4.730	4.702	5.034	4.488	-10.8%
June	5.253	4.840	4.843	4.754	4.727	4.744	5.035	4.606	-8.5%
July	5.216	4.856	4.892	4.902	4.725	4.815	4.936	4.566	-7.5%
Aug	5.035	4.898	4.939	4.920	4.656	4.796	4.947	4.534	-8.3%
Sept	4.302	4.913	5.017	4.926	4.746	4.798	4.969	4.515	-9.1%
Oct	4.759	4.895	4.971	4.928	4.718	4.795	4.950		
Nov	4.803	4.776	5.015	4.769	4.751	4.845	4.888		
Dec	4.811	4.881	5.024	4.846	4.697	4.845	4.786		

Source: CNH, Pemex

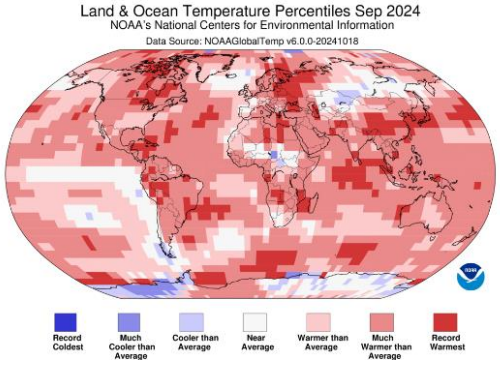
Mexico natural gas production

Second warmest September on record globally

Natural Gas: NOAA, second warmest September globally in the last 175 years

Last Friday, the NOAA posted their September recap for the global climate, which came in as the second warmest September in the last 175 years [LINK] The NOAA wrote "*The September global surface temperature was 1.24°C (2.23°F) above the 20th-century average of 15.0°C (59.0°F). This is 0.19°C (0.34°F) less than the record warm September of 2023, and broke the streak of 15 straight global record-breaking warm months; the first month since May 2023 that was not record warm. September 2024 marked the 50th consecutive September with global temperatures, at least nominally, above the 20th-century average and the 547th-consecutive month with temperatures at least nominally above the 20th-century average."* Below is a map of selected significant climate anomalies and events from September.

Figure 13: Land & Ocean Temperature Percentiles for September 2024



Source: NOAA

TotalEnergies getting closer to restart

Natural Gas: TotalEnergies, waiting on G7 credit before restarting Mozambique LNG

TotalEnergies held its Q3 call on Thursday. In the Q&A, mgmt was asked if the recent Mozambique election was a step forward to a restart of the Mozambique LNG project. We checked local Mozambique news a few times this week and it doesn't seem that any post election protests have escalated into significant violence events. So, at least for now, it sounds solid. Rather in the Q&A, TotalEnergies CEO Pouyanne seemed to suggest they were just waiting on G7 credit agreements for the project financing and then they would be ready to go. Absent any new terrorist events, it feels like a restart could be coming in the next few months. Here is the transcript excerpt of Pouyanne's reply. "*On Mozambique. I*

would say we need to. I mean, again, as you know, we have different aspects in Mozambique. One of them was a security. On the security side, I would say it has progressed. Of course, the fact that there will be a stable political power in Mozambique is important for us. So we are following different news from there and we intend to visit the country when it will be ready. But I think it's of course positive the more your stability in the country will come, the better it is for all of us. Having said that, we are more focused on Ensign Cabo Delgado and in Cabo de la Gadot, good news from the election process, but it was quiet. There was no events during that period. So I would say from this perspective, for me it's positive. But the assessment there on the security side, fundamentally that we could restart this project with the contractors. We worked hard, everybody is there. But as I told you, I think last time, the last point on which we are working and I hope we have good news, is that we are working with the different on the financing of the project. You know, there was a big project financing package which was the signed in fact executed in 2020 2021. We began by the way, to execute it in '21 before the force majeure. All the credit export agencies have done the due diligence from on the projects and. Technically it's okay. Now we are waiting for the different green lights in particular from I would say some G7 credit agencies and we are working for them. So from my perspective, I would say we are on the right track. But of course, this is fundamental to have all the financing in place before we restart the project. That's the last point on which we work."

Mozambique to hire security specialists to protect around Mozambique LNG

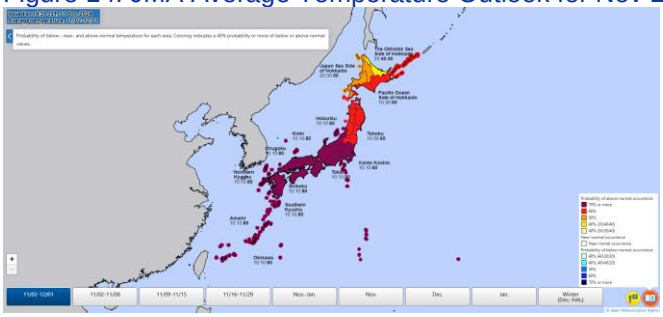
We have to believe Mozambique is well aware that a return of violence and terrorism that causes a TotalEnergies to have to halt the Mozambique LNG project again could mean the end of the project. And they moving head to On Friday, Club of Mozambique (local Mozambique news) reported [LINK] that Mozambique is preparing a security plan for Cabo Delgado (LNG located here) and hiring security specialists on this project. Club of Mozambique wrote "*A risk and security plan is being prepared for the province of Cabo Delgado, with a view to protecting projects being implemented in that part of the country. To this end, the government, through the Ministry of Justice, Constitutional and Religious Affairs, is looking to recruit a company specialising in risk and security management for the rapid operationalization of the initiative. The resources to be used to finance the preparation of the aforementioned plan are part of the Digital Economy and Electronic Government (EDGE) project, a donation from the World Bank. This is a project that aims to increase access to legal identification, digital public services and digital business opportunities in the Mozambican market. The institution explains that the main mission of the entity to be hired will be to identify, evaluate and develop strategies and plans to mitigate security risks and threats to workers, equipment and areas of intervention associated with the implementation of the EDGE project in the region. The company is also expected to provide technical support to ensure the continuity of operations and the safety of the project's beneficiaries and resources in Cabo Delgado. In addition to small-scale initiatives underway, Cabo Delgado province is also home to large natural gas exploration projects, some of which have been suspended due to security concerns in the region."*

Natural Gas: Japan expects warmer than normal temps for November

JMA temperature forecast for the next 30 days

It was a hot summer in Japan and the warmer than normal temperatures continued through October and are expected to continue through to December. On Thursday, the Japan Meteorological Agency updated it's temperature forecast for the next 30 days, Nov 2 thru Dec 1, in Japan [LINK]. There is no JMA commentary on the forecast. JMA is calling for above normal temperatures for all of November. There is a +70% probability of above normal temperature occurrence everywhere except the Japan Sea Side of Hokkaido which has a 50% probability of above normal temperature occurrence, the Pacific Ocean Side of Hokkaido, and Tohoku both have a 60% probability of above normal temperature occurrence, and the Okhotsk Sea Side of Hokkaido which has a 40% probability of above normal temperature occurrence. We checked AccuWeather for Tokyo and, for November, there are forecasted daily highs in the 18-20C range and overnight lows from 8-12C. This will be pleasant daytime weather but potentially a little bit of electricity heating demand at night. Below is the JMA temperature forecast for the next 30 days.

Figure 14: JMA Average Temperature Outlook for Nov 2 – Dec 1



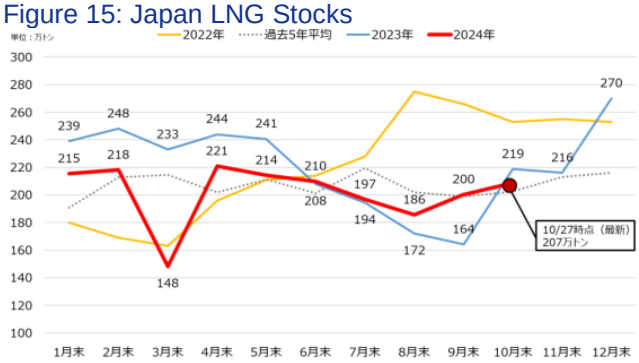
Source: Japan Meteorological Agency

Natural Gas: Japan LNG stocks down WoW, down YoY; up compared to 5-yr average

Japan LNG stocks down WoW

It's been a warm fall in Japan, which means no significant weather driven electricity demand. Japan's LNG stocks are down WoW, are down YoY, and are up when compared to the 5-year average. On Wednesdays, Japan's METI releases its weekly LNG stocks data [LINK]. LNG stocks on October 27 were 9.9 bcf, down -4.6% WoW from October 20 of 10.4 bcf, and down -5.5% from 105.2 bcf from a year ago. Stocks are up compared to the 5-year average of 97.0 bcf. Below is the Japanese LNG stocks graph from the METI weekly report.

Figure 15: Japan LNG Stocks



Source: METI

Natural Gas: Russia continues to ship NatGas despite Ukraine control of Sudzha

Ukraine captures key Russian gas infrastructure

It's been over a few month since Ukraine invaded the Russian region of Kursk and took over control of the Sudzha natural gas intake station in Russia for transport on the last remaining open natural gas intake station in Russia for transport on the last remaining open natural gas pipeline allowed to export Russian natural gas to central European countries. Europe TTF gas prices were up 5% when Ukraine took over Sudzha on fears of supply interruption. However, since then Gazprom has confirmed almost daily, if not daily, that there has been no interruption in natural gas supplies. The latest confirmation we saw the Bloomberg Nov 1 report that Gazprom continues to ship the same volume of natural gas of 1.50 bcf/d via Sudzha. That shouldn't surprise because if Gazprom stops natural gas from entering the pipeline at Sudzha, they will be forsaking any export natural gas revenues and Russia needs every dollar it can get. And, at the same time, Ukraine continues to take the transit fees revenue. So, for now at least, it looks like a reminder from Ukraine to Russia that they can cut off Russian natural gas at any time. Below is a 2018 map from Oxford Institute for Energy Studies showing Sudzha.

Figure 16: The Ukrainian pipeline system

Source: Oxford Institute for Energy Studies

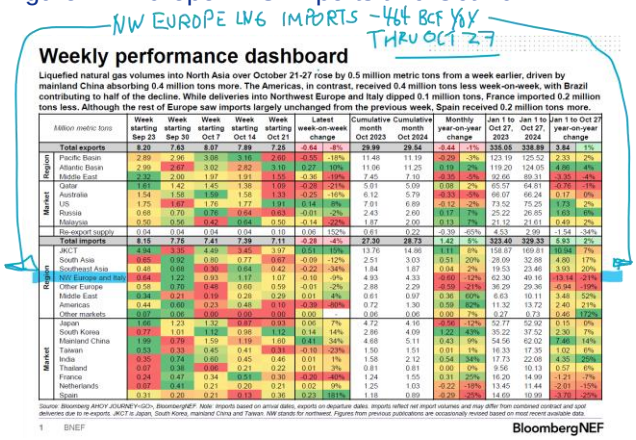
Natural Gas: NW Europe LNG imports down big -464 bcf, -1.54 bcf/d YoY thru Oct 27

Europe LNG imports down big in 2024

On Friday, we tweeted [LINK] "*NW Europe #LNG imports -0.50 bcf/d WoW to 5.40 bcf/d in Oct 21-27 week. Storage would be full if NW EU hadn't cut back LNG imports in Q2/Q3. YTD Oct 27, NW EU #LNG imports -464 bcf or -1.54 bcfd YoY to 5.78 bcfd. If not for Israel/Iran or*

RUS/UKR risk, EU #NatGas prices would be lower going into winter. Thx @BloombergNEF #OOTT." The LNG market story is also the risk to LNG market if an Israel/Iran escalates impacts LNG and oil tanker traffic thru the Straight of Hormuz or Israel's Mediterranean Sea natural gas production was impacted or if Russia/Ukraine escalates to impact Europe winter natural gas supply. But, if not for this escalation risk, we have been highlighting that there is a big holdback to Europe natural gas prices; that being, Europe's gas storage would be way worse if it hadn't significantly reduced LNG imports over Q2 and Q3 due to the possibility of storage being full early. LNG imports into NW Europe are down big YoY in 2024. On Tuesday, BloombergNEF posted its LNG Trade Weekly. BloombergNEF estimates NW Europe LNG imports were -0.50 bcf/d WoW to 4.40 bcf/d for the Oct 21-27 week. And NW Europe LNG imports that are down -464 bcf YoY or -1.54 bcf/d YoY for YTD Oct 27. Our tweet included the below BloombergNEF chart.

Figure 17: Europe LNG Imports thru Oct 20



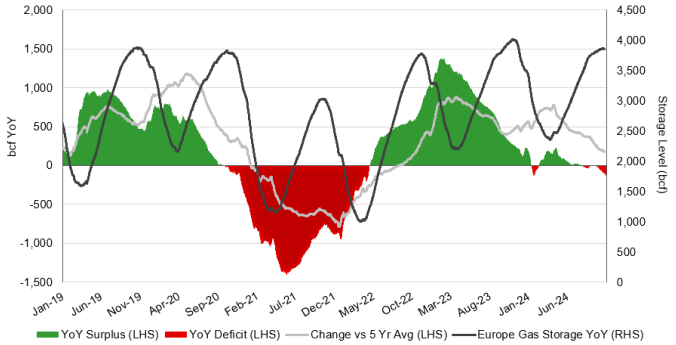
Source: BloombergNEF

Natural Gas: Europe storage down -0.07% WoW to 95.15% full, down -4.16% YoY

Europe gas storage

As noted above, Europe gas storage would be effectively full if they hadn't cut back on LNG imports in Q2 and Q3. We have been highlighting that a big LNG theme in Q2 and Q3 was how NW Europe reduced LNG imports because storage was very high YoY leaving winter 2023/24. Europe gas storage is now 95.2% full. We remind that we didn't'expect Europe gas to get to 100% full. It's not like going to a gas station where you fill up your car to the limit. Rather, getting to mid 90%'s was what we considered to be effectively full. This week, Europe storage was down -0.07% WoW to 95.15% vs 95.22% on October 25. Storage is now down -4.16% from last year's levels of 99.31% on October 24, 2023, but up huge against the 5-year average of 92.60%. Below is our graph of European Gas Storage Level.

Figure 18: European Gas Storage Level

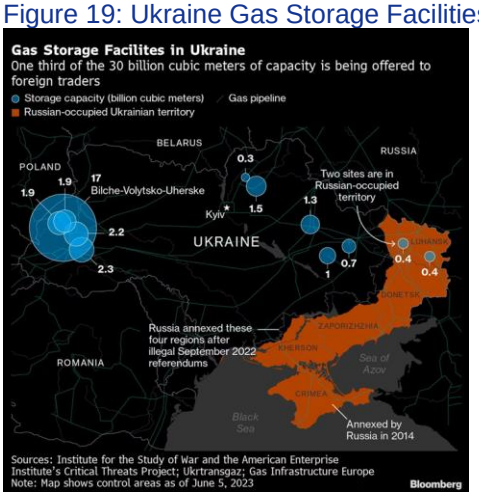


Source: Bloomberg, SAF

Ukraine storage is currently ~8% of total Europe gas storage volume

We have been breaking out Ukraine gas storage levels since the Mar/Apr Russian bombing of the Ukraine natural gas storage, which only impacted some above ground natural gas infrastructure. But it also reminded that of the risk to Europe gas storage from Russia attacks. We broke out the Ukraine storage data from the above Europe data we monitor weekly from the GIE AGSI website [LINK], and, on October 30, natural gas in Ukraine storage was at 27.2% of its total capacity, flat compared to 27.12 of its total capacity on October 23. Last year, Ukraine storage started the winter on Nov 1, 2023, at 39.38%. Right now, Ukraine makes up ~8% of Europe's natural gas in storage and, at the beginning of winter 2023/24, it was ~10% of Europe's natural gas in storage. Below is a map of Ukraine's major gas storage facilities.

Figure 19: Ukraine Gas Storage Facilities as of June 2023



Source: Bloomberg

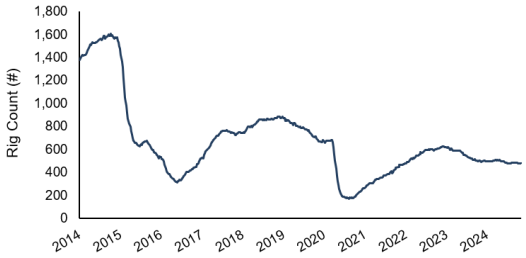
Oil: U.S. oil rigs down -1 rig WoW and down -17 rigs YoY to 479 oil rigs

US oil rigs down -1 WoW

On Friday, Baker Hughes released its weekly North American drilling rig data. (i) Note Baker

Hughes no longer breaks out the basin changes by oil vs gas rig type. (ii) Total U.S. oil rigs were -1 rigs WoW to 479 oil rigs as of November 1, 2024. US oil rigs are now only down -17 oil rigs YoY. The smaller YoY difference is because, in 2023, US oil rigs went below 520 rigs on Aug 25, 2023 and then were lower in the 490-510 rigs for several months. But then dropped down to 477 on July 19, 2024, which was the lowest oil rig count since December 2021. U.S. Oil rigs are currently down -17 YoY, and nearing the recent lows in July 2024 (iii) Note we can see the basin changes but not by type of rig; the WoW basin changes were Barnett up +1 rig WoW to 2 rigs, Eagle Ford -1 rig WoW to 48 rigs, Permian down -1 rig WoW to 303 rigs, "other" down by -1 rig to 95 rigs, and Marcellus up +1 rig WoW to 23 rigs. (iv) The overlooked U.S. rig theme is the YoY declines, which have begun to taper as Q4 2023 saw activity leveling off, however, it is still important to note the YoY change. Total U.S. gas and oil rigs are down -33 rigs YoY to 585 rigs including US oil rigs -17 oil rigs YoY to 479 oil rigs. And for the key basins, the Permian is -7 rigs YoY, Haynesville is -5 rigs YoY, DJ Niobrara is -6 rigs YoY, Marcellus -5 rigs YoY, Williston up +3 rigs YoY, Arkoma Woodford up +2 YoY, Granite Wash is down -2 rigs YoY, Eagle Ford is down -3 rigs YoY, and Cana Woodford +7 rigs YoY. (v) US gas rigs were up +1 rig this week to 102 gas rigs. It is important to note that U.S. gas rigs must increase over the next several months as more U.S. LNG capacity comes onstream in 2025. Lastly, U.S. miscellaneous rigs are flat WoW, and flat YoY.

Figure 20: Baker Hughes Total US Oil Rigs



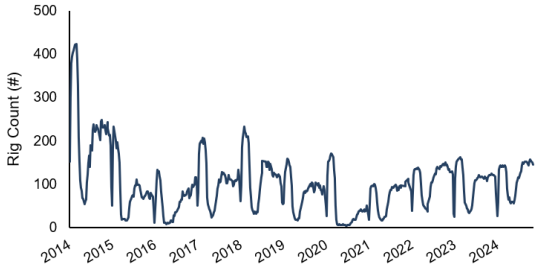
Source: Baker Hughes

Oil: Total Cdn oil rigs down -4 WoW on Friday, with gas rigs +1 WoW

Cdn rigs -3 WoW

On Friday, Baker Hughes released its weekly North American drilling rig data. This week's total oil and gas rig count was down -3 rigs WoW from 216 rigs on October 25. Every year, Canadian rigs typically increase until mid-October, where remain relatively flat until late November when they begin ramping up until the end of December. This week is on par with that theme, as we have seen ups and downs prior to kicking off the December ramp up. Cdn oil rigs were down -4 rigs WoW this week to 146 rigs and are up +24 rigs YoY. Gas rigs are up +1 rig WoW to 67 rigs and are down -7 rigs YoY, and miscellaneous rigs are flat WoW and YoY at 0 rigs total. As a reminder Baker Hughes changed their reporting format which does not allow us to see the provincial breakouts.

Figure 21: Baker Hughes Total Cdn Oil Rigs



Source: Baker Hughes

Oil: US weekly oil production flat WoW at 13.500 mmb/d

US weekly oil production

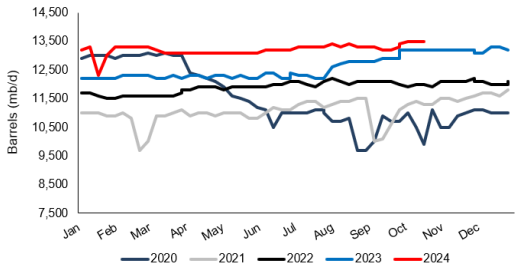
We don't place as much emphasis on the EIA weekly oil supply estimates as others do because we recognize the near impossibility for anyone to post an accurate estimate on a Wednesday for the totality of US oil production for the week ended the prior Friday [LINK]. We have to give the EIA credit for putting out weekly oil supply estimates for the prior week. That can't be easy so no one should be surprised that the EIA weekly oil supply estimates, based on the Form 914 actuals, will regularly require re-benchmarking; sometimes the re-benchmarking can be significant and other times, it is relatively small. The EIA's weekly oil supply estimates had been essentially unchanged for the last nine months ranging from 13.100 to 13.300 mmb/d with the weekly estimates in July all at 13.300 mmb/d. This week's estimate came is slightly above the previous range, flat WoW at 13.500 mmb/d for the week ending October 25. On October 8, the EIA released its October STEO and the EIA provides the backup monthly estimates for US oil production, and they are more or less in line with July at 13.200 mmb/d, August at 13.360 mmb/d, and September at 13.250 mmb/d. This week, the EIA's production estimates were flat WoW at 13.500 mmb/d for the week ended October 25. Alaska was up +0.009 WoW to 0.435 mmb/d, compared to 0.426 mmb/d last week. Below is a table of the EIA's weekly oil production estimates.

Figure 22: EIA's Estimated Weekly US Field Oil Production (mb/d)

	Week 1		Week 2		Week 3		Week 4		Week 5	
Year-Month	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
2023-Jan	01/06	12,200	01/13	12,200	01/20	12,200	01/27	12,200		
2023-Feb	02/03	12,300	02/10	12,300	02/17	12,300	02/24	12,300		
2023-Mar	03/03	12,200	03/10	12,200	03/17	12,300	03/24	12,200	03/31	12,200
2023-Apr	04/07	12,300	04/14	12,300	04/21	12,200	04/28	12,300		
2023-May	05/05	12,300	05/12	12,200	05/19	12,300	05/26	12,200		
2023-Jun	06/02	12,400	06/09	12,400	06/16	12,200	06/23	12,200	06/30	12,400
2023-Jul	07/07	12,300	07/14	12,300	07/21	12,200	07/28	12,200		
2023-Aug	08/04	12,600	08/11	12,700	08/18	12,800	08/25	12,800		
2023-Sep	09/01	12,800	09/08	12,900	09/15	12,900	09/22	12,900	09/29	12,900
2023-Oct	10/06	13,200	10/13	13,200	10/20	13,200	10/27	13,200		
2023-Nov	11/03	13,200	11/10	13,200	11/17	13,200	11/24	13,200		
2023-Dec	12/01	13,100	12/08	13,100	12/15	13,300	12/22	13,300	12/29	13,200
2024-Jan	01/05	13,200	01/12	13,300	01/19	12,300	01/26	13,000		
2024-Feb	02/02	13,300	02/09	13,300	02/16	13,300	02/23	13,300		
2024-Mar	03/01	13,200	03/08	13,100	03/15	13,100	03/22	13,100	03/29	13,100
2024-Apr	04/05	13,100	04/12	13,100	04/19	13,100	04/26	13,100		
2024-May	05/03	13,100	05/10	13,100	05/17	13,100	05/24	13,100	05/31	13,100
2024-Jun	06/07	13,200	06/14	13,200	06/21	13,200	06/28	13,200		
2024-Jul	07/05	13,300	07/12	13,300	07/19	13,300	07/26	13,300		
2024-Aug	08/02	13,400	08/09	13,300	08/16	13,400	08/23	13,300	08/30	13,300
2024-Sep	09/06	13,300	09/13	13,200	09/20	13,200	09/27	13,300		
2024-Oct	10/04	13,400	10/11	13,500	10/18	13,500	10/25	13,500		

Source: EIA

Figure 23: EIA's Estimated Weekly US Oil Production



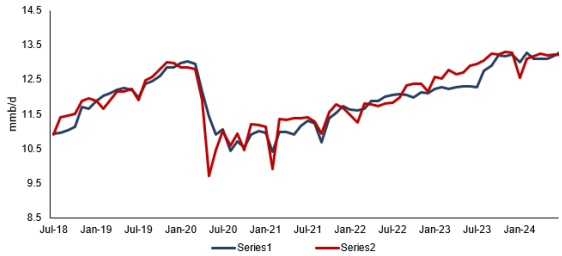
Source: EIA

Oil: EIA Form 914 – US August oil production up MoM, and up YoY

EIA Form 914 August

On Monday, the EIA released its Form 914 data [LINK], which is the EIA's "actuals" for August US oil and natural gas production. (i) This month, the EIA made as small as revision as possible to July oil production, increasing +0.001 mmb/d from 13.205 mmb/d to 13.206 mmb/d. As a result, the July actuals were -0.110 mmb/d vs the average weekly supply estimate of 13.316 mmb/d. (ii) The EIA Form 914 reported August "actuals" at 13.401 mmb/d, which was up +0.072 mmb/d against the weekly supply estimate average of 13.329 mmb/d. (iii) August "actuals" of 13.401 mmb/d are up +0.195 mmb/d MoM vs 13.206 mmb/d in July. On a YoY basis, "actuals" are up +0.354 mmb/d YoY vs August 2023 at 13.047 mmb/d. Below is a chart of monthly actuals vs. weekly estimates. Our Supplemental Documents package includes an excerpt from the Form 914 figures.

Figure 24: EIA Form 914 US Oil Production vs Weekly Estimates



Source: EIA, SAF

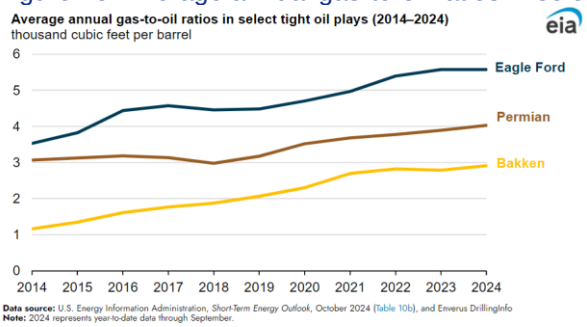
Oil: EIA, US tight "oil" plays get gassier over time

US tight "oil" plays get gassier

This should not surprise anyone to see the EIA remind that the share of natural gas production in US tight oil plays has increased over the last decade. We have been highlighting this concept for a decade or more of oil and gas fundamentals for oil wells that produce associated natural gas. And this is what we see for the "oil" plays in the Permian, Eagle Ford, Bakken, Niobrara. As any oil well that produces associated natural gas produces over time, the producing zone loses pressure and that means the more freely moving associated natural gas will increase in proportion of the hydrocarbons moving into the wellbore. Ie. the gas to oil ratio increases. On Thursday, the EIA posted a blog "*Share of natural gas production in U.S. tight oil plays increased over the last decade*" [LINK]. The EIA wrote "*Natural gas produced from the three largest tight oil-producing plays in the United*

States has increased in the last decade. Natural gas comprised 40% of total production from the Bakken, the Eagle Ford, and the Permian compared with 29% in 2014. Combined crude oil and natural gas production from these plays more than doubled over this period as hydraulic fracturing—also known as fracking—and horizontal drilling have allowed producers to access and extract more crude oil and natural gas from tight formations. However, production of associated natural gas, which is natural gas produced from predominantly oil wells, has increased more rapidly from these tight oil plays. Natural gas production from these plays more than tripled—an increase of 22 billion cubic feet per day (Bcf/d)—over the period compared with crude oil output, which more than doubled—an increase of 4 million barrels per day (b/d)." And "A*s more oil and natural gas are released within a well, the GOR tends to progressively increase, increasing the volume of associated natural gas produced per every barrel of oil. Pressure within the reservoir declines as more oil is brought to the surface, which allows more natural gas to be released from the geologic formation. The pressure will also decrease as more wells are concentrated within an area."* Our Supplemental Documents package includes the EIA blog.

Figure 25: Average annual gas-to-oil ratios in select tight oil plays 2014-2014



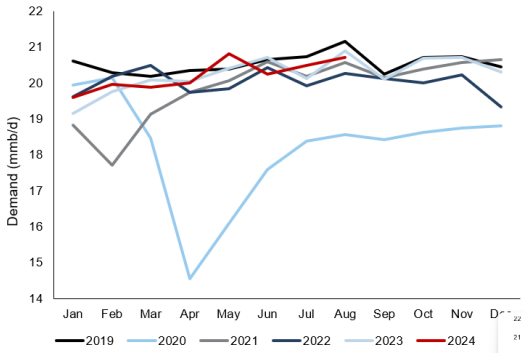
Source: EIA

Oil: US oil demand in August was +0.290 mmb/d above EIA STEO forecast for August

US oil demand

One of the overlooked items from the EIA actuals for August is that oil demand is higher than in their STEO forecast for August. On Thursday, the EIA posted its "actuals" oil data for August, which includes oil and products demand. In October, the EIA posted its monthly Short Term Energy Outlook and their backup data includes splitting their 2024 forecast into the monthly splits so we can compare how the actuals compare to the monthly forecast. On Wednesday, the EIA posted the "actuals" for August demand at 20.711 mmb/d, which is +0.290 mmb/d above the STEO forecast for August of 20.421 mmb/d6. The below graph shows the EIA's reported monthly crude demand for the last 5 years.

Figure 26: EIA's Monthly US Oil Demand



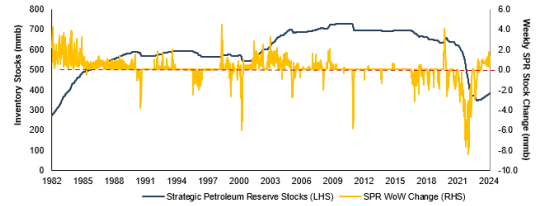
Source: EIA

Oil: US SPR less commercial reserve deficit narrows, now -39.678 mmb

US SPR reserves

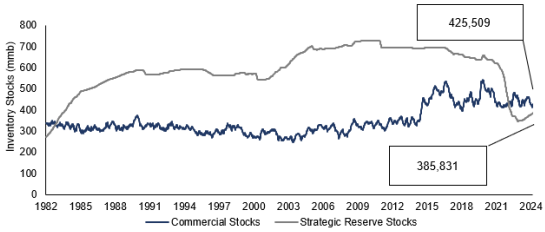
The US Strategic Petroleum Reserves (SPR) continues to be much lower than total US commercial crude oil reserves. The SPR went back below commercial for the first time since 1983 in the Sep 16, 2022, week. This week, we saw a build on the SPR side and a draw on the commercial side. The EIA's weekly oil data for October 25, [LINK] saw the SPR reserves increase +1.189 mmb WoW to 385.831 mmb, while commercial crude oil reserves decreased -0.515 mmb to 425.509 mmb. There is now a -39.678 mmb difference between SPR reserves and commercial crude oil reserves. The below graphs highlight the difference between commercial and SPR stockpiles, along with the weekly changes to SPR stockpiles.

Figure 27: Strategic Petroleum Reserve Stocks and SPR WoW Change



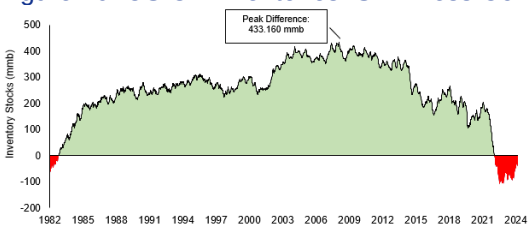
Source: EIA

Figure 28: US Oil Inventories: Commercial & SPR



Source: EIA

Figure 29: US Oil Inventories: SPR Less Commercial



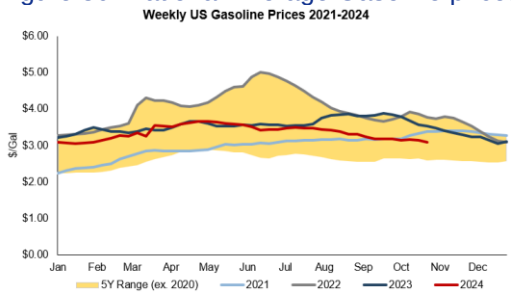
Source: EIA

US gasoline prices

Oil: AAA reports US national average gasoline price -$0.03 WoW to $3.11 on Nov 2

Yesterday, we tweeted [LINK] "*AAA National average prices -$0.03 WoW to $3.11 on Nov 2, -$0.09 MoM & -$0.34 YoY. California average prices -$0.05 WoW to $4.55, -$0.13 MoM & -$0.66 YoY. US election is Nov 5. National average prices were ~$3.80 at time of 2022 mid-terms. Thx @AAAnews #OOTT."* Yesterday, AAA reported that US national average prices were $3.11 on Nov 2, which was -$0.03 WoW, -$0.09 MoM, and -$0.34 YoY. Yesterday, AAA also reported California average gasoline prices were $4.55 on Nov 2, which was -$0.05 WoW, -$0.13 MoM and -$0.66 YoY. Below is our graph of Bloomberg's National Average weekly gasoline prices.

Figure 30: National Average Gasoline prices



Source: Bloomberg

Crack spreads closed at $16.82

Oil: Crack spreads -$0.09 WoW to $16.2, WTI -$2.29 WoW to $69.49

On Friday, we tweeted [LINK] "*321 crack spreads -$0.09 WoW to $16.82 on Nov 1. WTI -$2.29 WoW to $69.49. WTI'-$2.29 with crack spreads ~flat reinforces WTI is impacted more by global markets than by cracks. $16.82 cracks not high enough to incentivize refineries to take extra crude. Thx @business #OOTT."* Cracks spreads were -$0.09 WoW to $16.82 on Nov 1 and WTI was -$2.29 WoW to $69.49. Our tweet highlighted how WTI is more impacted by global events than crack spreads, whether it be WTI underperforming or, like last week's case, outperforming crack spreads. Over the past month, WTI has been driven more, both up and down, by China economy views in response to the stimulus and Israel/Iran risk. Crack spreads at $16.82 are in line with the middle of the pre-Covid $15-$20 range, and generally not high enough to incentivize refineries to take any more crude than necessary. Crack spreads of $16.82 on Nov 1, followed $16.91 on Oct 25, $16.92 on Oct 18, $17.42 on Oct 11, $16.65 on Oct 4, $15.82 on Sept 27, $15.57 on Sept 20, $14.30 on Sept 13, $14.79 on Sept 6, $17.06 on Aug 30, $17.10 on Aug 23, $20.75 on Aug 16, $22.92 on Aug 9, and

$23.77 on Aug 2.

Crack spreads normally point to near term oil moves, explaining 321 cracks

Thie last five weeks are a good example that global oil and market items impact WTI more than crack spreads. As noted above, WTI -$2.29 WoW when crack spreads were only -$0.09 WoW is a good example of global oil items impacting WTI more than crack spreads. But, broad market factors aside, we have focused on crack spreads for since the 90s as they are an unchanged fundamental of refineries – wide/high crack spreads provide incentives for refineries to buy more crude because there are big profit margins to be made. We track US crack spreads but there is also an influence on global refining capacity on US crack spreads as the increasing global refining capacity has also tended to have downward pressure on US crack spreads especially with demand being less than most expect. Plus, this year, as noted below, we have less US refinery turnarounds to there is less refinery capacity offline this fall than prior years. So if crack spreads are wide/high, it is normally a positive for the very near term look ahead to WTI. Conversely, if crack spreads are narrow/low, it doesn't give refineries any real incentive to take more crude, which is normally softness for the very near term look ahead to WTI. 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 vs WTI that we put in our tweet where we marked the gaps where the crack spread normally drags up oil prices. 321 Crack spread closed at $16.82 on Friday Nov 1.

Figure 31: Cushing Oil 321 Crack Spread & WTI Nov 1, 2014 to Nov 1, 2024

Source: Bloomberg

Oil: Cdn oil plays keep getting bigger and better with new emerging value

Cdn oil plays keep getting better

On Tuesday, we tweeted [LINK] "*Cdn #Oil plays keep getting better with new emerging value. Big growth potential for industry in Mannville heavy oil stack. PSK sees growth from 150 kbd back to 90s level of 350 kbd. New, previously uneconomic Mannvile heavy stack zones are now economic. New oil plays in Southern Alberta from the 90s are being reopened up with*

fracking. Waterflood in the Clearwater is expanding & also polymer flooding (tertiary recovery) is working. See 👇$PSK CEO Q3 Q&A. #OOTT." PrairieSky held its Q3 call on Tuesday. (i) There were some relatively new or underappreciated developments in the Cdn oil plays. This means there is likely some hidden or newly emerging value in some of the Cdn oil producers and that also means some near-term strength in Cdn heavy/medium oil production. (ii) Big production growth potential for industry in the Mannville heavy oil stack. PrairieSky sees growth from 150,000 b/d, back to 90s level of 350,000 b/d. These are the multiple heavy oil zones that are being opened up by the tightly spaced multi leg no frack wells. Mgmt said "*And then, the Mannville Stack, obviously, I think that -- you know, that's an area of the basin that once produced 350,000 barrels, it's down to 150. We think it has the easy ability to get back there, and we're the largest line owner in that place. So that's one that will be in the multi thousand barrels a day of net royalty production*." (iii) There are some new, previously uneconomic Mannvile heavy stack zones that are now economic with successes from the tightly spaced multi leg no frack wells. PrairieSky said "*Continued refinement of both drilling techniques as well as fluid systems has not only improved economics and recovery factors, but also opened up potential on a number of new zones within the Mannville Stack that were previously uneconomic*." (iv) Waterflood in the Clearwater is expanding and also polymer flooding (tertiary recovery) is working. Ie. lower effective decline rates. Mgmt said "*Water flood activity across the Clearwater has continued to show positive response, lowering our declines and ultimately increasing recovery factors in this play*." And this means lower decline rates and longer production lives. 25% of Clearwater is under waterflood and an unspecified is under polymer floods. Polymer as in tertiary. It's another reminder of advantages for the Cdn no-frack plays. Waterflood and now polymer flood are working. It is important to note that tertiary recovery has been implemented since the 90s. (v) Some new oil plays from the 90s are being reopened up with small fracking in southern Alberta. Just like the Mannville heavy oil stack that was a big play in the 30 to 40 years ago, industry is going back to another 80's/early 90's play area – oil in southern Alberta. In the Q&A, mgmt replied "*A couple of areas where we've seen some new well results are kind of Southern Alberta, people taking kind of more modern South fracs to the tighter Mannville sands like the basal quartz and seeing some really good results."* (vi) Continue to see growth potential in the Duvernay.

10/24/22; Upside to many Cdn oil from tightly spaced multi leg no frac wells

The success of the tightly spaced multi leg no frac wells was to be expected. We have been following this development for years primarily from former oil industry coworkers/competitors in the 80s/90s. And it made it apparent that this drilling technique would be applicable to a wide range of Cdn oil plays and for big and small producers. And it is a drilling technique that should be able to done effectively by every producer, no matter the size. Here is what we wrote in our Oct 30, 2022 Energy Tidbits memo. "*We think its worth noting this "technology" development from that is applicable to a wide range of oil plays for a wide range of Cdn oil producers. This should provide upside to many Cdn oil and gas oil plays. On Wednesday, we tweeted [LINK] "It's Working! Upside is applicable to many Cdn #Oil plays by small/big producers. See 👇$CPG tightly spaced multi-leg horizontal wells without need for fracking cost/execution. Works in Viewfield, looking at Shaunavon & "see if "can apply it throughout our other assets". #OOTT". Crescent Point held its Q3 call*

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

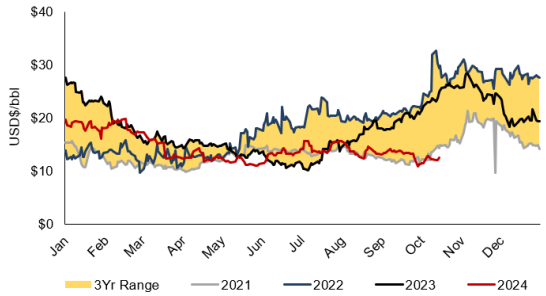
Oil: Cdn heavy oil differential widens +$0.65 WoW to close at $12.45 on Nov 1

WCS differential widens slightly

WCS less WTI differentials widened this week +$0.65 WoW to close at $12.45 on November 1. As noted in the following item, we have been saying that the real test for WCS less WTI

differentials will be in Sept/Oct as to how much the startup of the 590,000 b/d TMX expansion will impact WCS less WTI differentials. And it looks like TMX is working as hoped, if not better, in keeping WCS less WTI differentials way lower than would be expected at this time of year. Sept/Oct/Nov is when we normally see a seasonal significant widening of the WCS less WTI differentials. And WCS less WTI differentials has remained much lower and has not widened meaningfully this fall. But even with the TMX startup, there will always be the unexpected impact on WCS less WTI differentials from other items like refineries up and downs, wildfires, etc. Below is graph showing WCS-WTI differentials that shows this normal seasonal trend of narrowing WCS-WTI differentials that normally widens into or through October. The WCS less WTI differential closed on November 1 at $12.45 which was a widening of +$0.45 WoW vs $11.90 on October 25.

Figure 32: WCS less WTI oil differentials to November 1 close

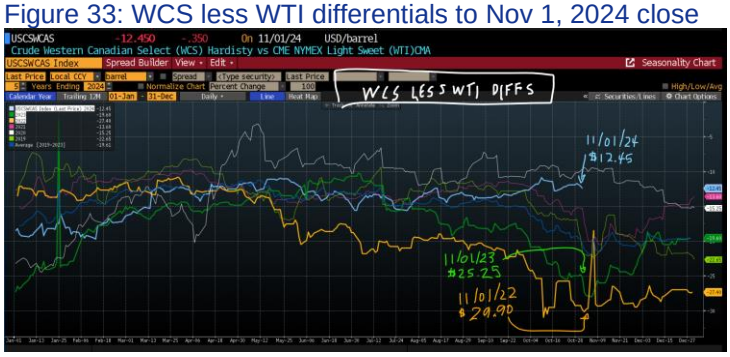


Source: Bloomberg

TMX impact: WCS less WTI diffs not seasonally widening as in 2022 & 2023

It looks like TMX is having, at least so far, the expected big impact of keeping WCS less WTI differentials a lot narrower than what is normally seen in the normal seasonal widening in Sept/Oct/Nov. WCS less WTI differentials are approx. $13 narrower vs a year ago and approx. $17 narrower than two years ago. That is a big win for Cdn oil producers. For the past few months, we have been saying that the big test for the impact of the start of the 590,000 b/d TMX expansion on WCS less WTI differentials will be in late Aug, Sept and Oct when differentials normally start to widen with seasonal refinery turnarounds. On Friday, we tweeted [LINK] "*Big positive to Cdn #Oil Q4/24 cash flows. Ramp up of volumes on 590,000 b/d TMX has, at least so far, kept WCS less WTI differentials from normal Sept/Oct/Nov widening. WCS less WTI diffs: 11/01/24: $12.45. 11/01/23: $25.25. 11/01/22: $29.90. Thx @garquake @business #OOTT."* Our tweet included the below chart that shows how WCS less WTI differential have been stronger this summer, been fairly flat in Aug/Sept/Oct/Now and how differentials were widening in Sept/Oct/Nov in 2022 and 2023.

Figure 33: WCS less WTI differentials to Nov 1, 2024 close



Source: Bloomberg

Oil: Oil exports by tanker from Western Canada now 398,000 b/d in Oct

Cdn oil exports by tanker rise in Oct

On Thursday Bloomberg reported on Vortexa tanker tracker data or oil exports by tanker from western Canada in October. Tanker loadings continue to increase as volumes on the new 590,000 b/d TMX expansion ramp up. In October oil exports from Western Canada by tanker rose +88,000 b/d MoM to 398,000 b/d, compared to 310,000 b/d in September. On Friday we Tweeted [LINK] "*Cdn #Oil tanker exports new record as 590,000 b/d TMX expansion ramps up. Oil exports by tanker from BC up to 398 kbd in Oct vs 310 kbd in Sept reports @roberttuttle @Vortexa It's why WCS less WTI differentials ~$12 instead of normal big widening in Oct. See 👇Oct 25 tweet. #OOTT*". A primary destination of the increased exports was China, which increased +84,803 b/d MoM to 207,480 b/d in October from 122,677 b/d in September. This has been a significant driver of the narrowing WCS-WTI differential. Below is the Bloomberg table which shows Canadian tanker exports. Our Supplemental Documents Package includes the Bloomberg article.

Figure 34: Canadian tanker exports by destination

DESTINATION COUNTRY	MoM Change	Oct	Sep	Aug
Brunei	-17,245	0	17,245	0
China	84,803	207,480	122,677	89,733
Ecuador	1,455	1,455	0	0
Japan	0	0	0	16,662
South Korea	0	0	0	79,720
United States	18,863	188,828	169,965	182,665

Source: EIA

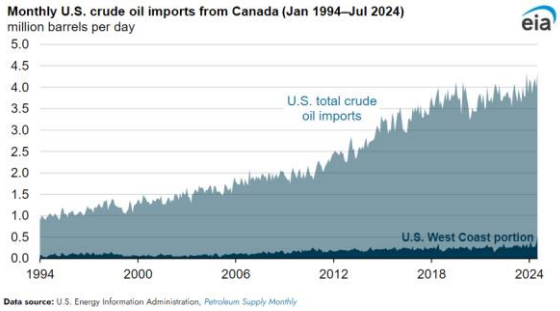
Oil: EIA reports Cdn crude imports to the U.S. have reached a record high in July

Cdn crude imports to U.S. reach record high in July

On Wednesday the EIA posted an "In-Brief Analysis" that noted that crude imports to the U.S. from Canada reached a record high in July. Following the start-up of the TMX pipeline in May, U.S. imports of Canadian crude oil hit a record high in July, reaching 4.3 mmb/d. We have previously noted that the expansion project increased the pipeline capacity from 0.3 mmb/d to ~0.9 mmb/d. This significant increase in capacity has allowed more Canadian crude to reach Pacific Ocean buyers, as well as refiners in the U.S. west coast. The EIA said "*Since TMX came online in May, early data indicate that refiners on the U.S. West Coast*

have been key buyers of the new export volumes. Between June and September, the U.S. West Coast accounted for just over half of all maritime crude oil exports out of Western Canada, with the rest going to destinations in Asia, according to data from Vortexa Analytics. The U.S. West Coast imported 498,000 b/d of crude oil in July 2024, according to our PSM, a record high for the region and an increase of 115% compared with July 2023." The report also commented on the narrowing of the WCS-WTI differential which has occurred in tandem with the TMX start-up. Our Supplemental Documents Package includes the EIA In-Brief Analysis.

Figure 35: U.S. imports of Canadian crude



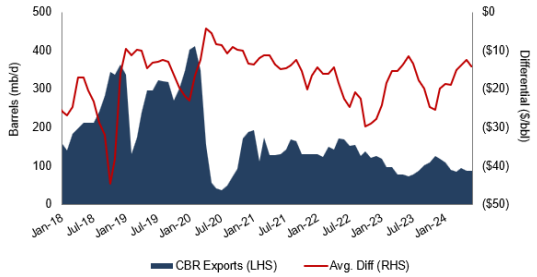
Source: EIA

Oil: CER reports Cdn crude by rail exports at 79,200 b/d in August, down -4.8% YoY

Cdn crude by rail up YoY in August

As a reminder, the CER reports crude by rail exports to the US and these are normally higher than the EIA reported crude by rail imports from Canada. Normally this is because the EIA excludes Cdn crude by rail that is exported down to the Gulf Coast for immediate loading onto tankers for export i.e. the EIA doesn't include crude by rail from Canada that doesn't stay in the US. This is the normal situation but that isn't always the case. Last week, the CER released their Canadian crude exports by rail figures for August [LINK]. August crude exports by rail were 79,200 b/d, which is down -4.8% MoM from 83,201 b/d in July and down -9.7% YoY from 87,693 b/d in August 2023. The CER doesn't provide any explanation for the MoM changes. Below is our graph of Cdn crude by rail exports compared to the WCS–WTI differential.

Figure 36: Cdn Crude by Rail Exports vs WCS Differential



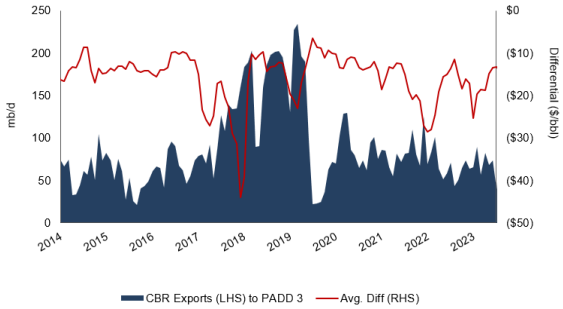
Source: Canadian Energy Regulator, Bloomberg

Oil: Total Cdn crude by rail imports -33,677 b/d MoM to 60,484 b/d in Augustn

EIA Cdn crude by rail imports

On Thursday, the EIA posted its "*Movements of Crude Oil and Selected Products by Rail*" [LINK], which includes the EIA data on US imports of Cdn crude by rail. EIA estimates total US imports of Cdn crude by rail were 60,484 b/d in August, which is down -33,677 b/d MoM from 94,161 b/d (revised) in July. The EIA estimates Cdn crude by rail into PADD 3 (Gulf Coast) were 38,968 b/d in August, which is down -27,516 b/d MoM from 66,484 b/d (revised) in July. We have been highlighting how the EIA imports of oil by rail from Canada have normally been less than the CER estimates of Cdn oil exports by crude to the US. The EIA August data is once again less then the CER August figures. The CER reported that 79,200 b/d of crude was exported by rail out of Canada during August vs the EIA estimates of 60,484 b/d of Cdn oil imported by rail in August. There is no explanation given; we believe the reason for why the EIA reports lower numbers than the CER is that the difference is due to Canada crude by rail exports that go directly to US Gulf Coast ports for exports i.e. do not stay in the US. Below is our graph of Cdn CBR exports to the Gulf Coast and WCS differential over time.

Figure 37: US Imports of Canada CBR to US Gulf Coast vs WCS Differential



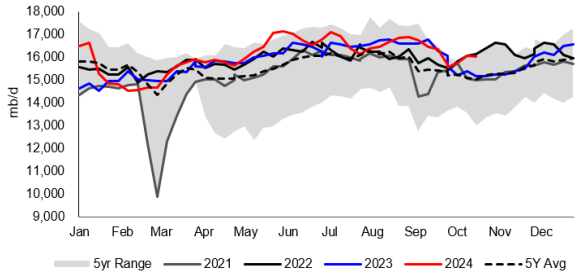
Source: EIA, Bloomberg

Oil: Refinery Inputs down -0.030 mmb/d WoW to 16.053 mmb/d

Refinery inputs -0.030 mmb/d WoW

There are always unplanned refinery items that impact crude oil inputs into refineries. And there is always different timing for refinery turnarounds; generally late October is when refineries have come out of fall turnarounds and are ramping up crude oil inputs as they change from summer to winter fuel blends. However, as noted in our Sept 22, 2024 Energy Tidbits memo, US refinery maintenance is expected to be less this year, which means that, on average, turnarounds will be shorter than normal i.e. less extra maintenance. Although there are more refineries available to receive crude, we may see refineries reduce runs given the low crack spreads. On Wednesday, the EIA released its estimated crude oil input to refinery data for the week ended October 25 [LINK]. The EIA reported crude inputs to refineries were down -0.030 mmb/d this week to 16.053 mmb/d and are up +0.802 mmb/d YoY. Refinery utilization was down -0.4% WoW to 89.1% and was up +3.7% YoY.

Figure 38: US Refinery Crude Oil Inputs

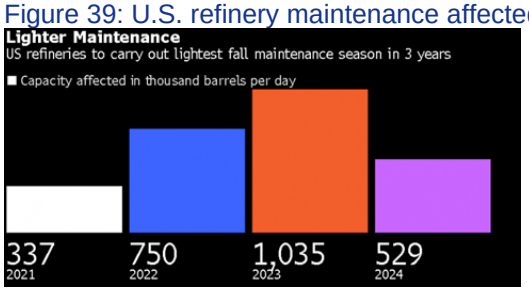


Source: EIA, SAF

US refinery preventative maintenance in fall 2024 was less YoY

US refinery crude oil inputs continue to be at or near the high of the 5-year range. Here is what we wrote in September 22, 2024, Energy Tidbits memo. "*On Thursday, Bloomberg posted a good reminder that US refineries are expected to have a light preventative maintenance season this fall according to IIR Energy data. Note they focused on "preventative maintenance" and didn't use the word turnarounds. Refineries have turnarounds to allow the refinery to switch from summer blend to winter blend fuel mix. Normally refineries schedule preventative maintenance at the same time as a turnaround. If preventative maintenance is less than normal, it means that the downtime for refineries will be less. They forecast that only 0.529 mmb/d of crude-processing capability is estimated to go offline during the fall, which is -0.506 mmb/d less than the fall of 2023, which saw 1.035 mmb/d go offline during the same period. However, this fall's capacity reduction of 0.529 mmb/d, is still +0.192 mmb/d when compared to the fall 2021 capacity that went offline of 0.337 mmb/d. If 321 crack spreads were high, we would expect to see the refineries run at high utilization rates to make the big profits. But with 321 crack spreads low, we would expect refineries to not run at high utilizations rates. Below is the Bloomberg chart.*"

Figure 39: U.S. refinery maintenance affected capacity



Source: Bloomberg, IIR Energy

Oil: US net oil imports down -0.605 mmb/d WoW as oil exports up +0.149 mmb/d

The EIA reported US "NET" imports were down -0.605 mmb/d to 1.714 mmb/d for the week of October 25. US imports were down -0.456 mmb/d to 5.975 mmb/d, while exports were up +0.149 mmb/d to 4.261 mmb/d. Top 10 were down -0.348 mmb/d. (i) Previously we have

US net imports down -0.605 mmb/d WoW

noted that the EIA did not report weekly Venezuela imports, however, this month the EIA resumed reporting imports from Venezuela. Give the EIA credit for putting out weekly oil import estimates, but it's a reminder that we must 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) Canada was down -0.059 mmb/d to 3.660 mmb/d, which is likely due to seasonal US Midwest refinery turnarounds ending. Weekly imports have been higher of late with the increased Cdn crude coming off TMX and hitting west coast US refineries. (iii) Saudi Arabia was down -0.137 mmb/d to 0.013 mmb/d (iv) Mexico was up +0.363 mmb/d to 0.621 mmb/d. Oil imports from Mexico lately have been significantly lower than prior year's levels with the new Olmeca (Dos Bocas) refinery ramping up and Pemex's other refineries increasing crude oil processing; however, this week Mexico refineries saw refinery utilization fall to 43.9% in September, from 50.4% in August. Notably, Dos Bocas did not process any crude in September. (v) Colombia was down -0.215 mmb/d to 0.150 mmb/d. (v) Iraq was down -0.021 mmb/d to 0.216 mmb/d. (vi) Ecuador was down -0.071 mmb/d to 0.067 mmb/d. (vii) Nigeria was up +0.020 mmb/d to 0.145 mmb/d. (iix) Venezuela was down -0.039 mmb/d to 0.250 mmb/d.

Figure 40: US Weekly Preliminary Imports by Major Country

	Sep 6/24	Sep 13/24	Sep 20/24	Sep 27/24	Oct 4/24	Oct 11/24	Oct 18/24	Oct 25/24	WoW
Canada	4,026	4,155	3,912	3,799	3,499	3,537	3,719	3,660	-59
Saudi Arabia	326	210	291	145	285	314	150	13	-137
Venezuela	0	0	0	297	315	134	289	250	-39
Mexico	510	420	499	448	382	406	258	621	363
Colombia	229	121	295	347	149	223	365	150	-215
Iraq	222	155	265	152	241	70	237	216	-21
Ecuador	103	54	4	253	228	35	138	67	-71
Nigeria	175	264	135	84	44	134	125	145	20
Brazil	113	306	0	186	134	154	285	88	-197
Libya	83	0	0	77	28	0	81	89	8
Top 10	5,787	5,685	5,401	5,788	5,305	5,007	5,647	5,299	-348
Others	1,080	637	1,055	840	934	522	784	676	-108
Total US	**6,867**	**6,322**	**6,456**	**6,628**	**6,239**	**5,529**	**6,431**	**5,975**	**-456**

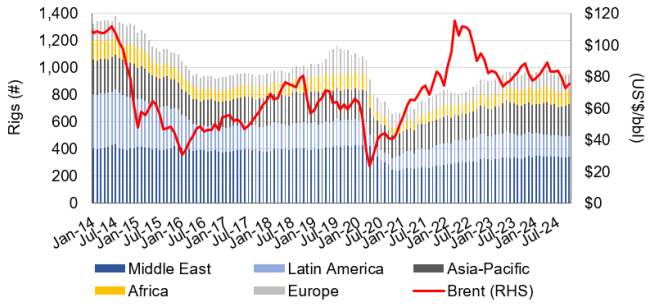
Source: EIA, SAF

Oil: Baker Hughes International +3 rigs MoM to 950 rigs in October, down -1% YoY

International rigs +3 MoM in October

On Friday, Baker Hughes posted its monthly update to international rigs, in total, rigs in September increased +3 rigs MoM. (i) Note that Baker Hughes has changed its report format which doesn't allow us to break out all country-by-country information. (ii) Total international rigs increased by +3 rigs MoM to 950 rigs in October, and total rigs are now up +144 rigs from the recent low of 806 in April 2022. The MoM rig count is as follows: Africa -6 rigs, Asia-Pacific +5 rigs, Europe up +1 rig MoM, Latin America -2 rigs, and the Middle East is +5 rigs MoM. The YoY rig count is as follows: Africa -11 rigs, Asia-Pacific +14 rigs, Europe flat MoM, Latin America -20 rigs, and the Middle East is +5 rigs MoM. (iii) We were not able to summarize the MoM data by country due to Baker-Hughes' new format. (iv) September's count of 950 rigs was down -1% YoY from 962 in October 2023, and down -12% vs pre-Covid February 2020 of 1,085 rigs. Below is our graph of international rigs by region and avg monthly Brent price.

Figure 41: Baker Hughes International Rig Count and Brent Price



Source: Baker Hughes, Bloomberg, SAF

Oil: Russia refinery maintenance ending means less oil exports in Nov

Russian refineries coming off maintenance

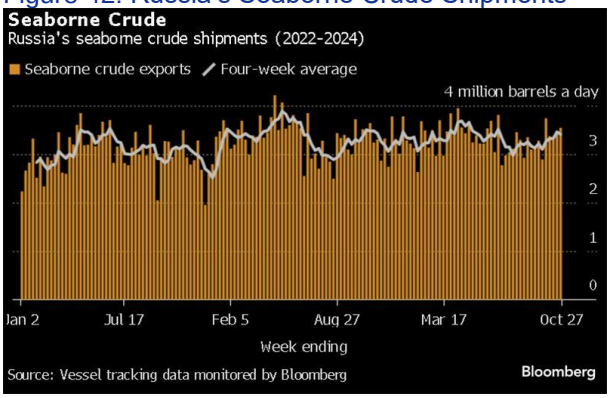
Here is what we wrote in last week's (Oct 27, 2024) Energy Tidbits memo on some Russian refineries coming out of turnaround. "*On Thursday, Reuters reported that crude exports from Russia's western ports to fall MoM in November as refinery maintenance ends [LINK]. As we approach the end of fall turnarounds and maintenance for refineries, Russian oil exports from western ports are expected to fall -13.0% MoM to 1.95 mmb/d; this is because as more refineries come back online, there will be less crude for export. Reuters reported "Exports from Russia's western ports of Primorsk, Ust-Luga and Novorossiisk are closely watched by market participants including the Organization of the Petroleum Exporting Countries (OPEC) members because they are the most volatile flows and heavily affected by the domestic refinery intake." Another factor to watch out for which may affect refining rates in November, is the weak refinery margins, which if deemed unprofitable will drive further exports."*

Oil: Russia's seaborne crude oil exports rise for second consecutive week

Russia's seaborne crude exports

This week, the four-week average for Russia's seaborne crude exports rose for the second consecutive week, marking the highest levels in a month. It's hard to know exactly how much Russian refining capacity is on or off and how much extra oil is freed up for export. As noted above, there were Russian refineries coming off maintenance that mean a reduction in oil exports from western Russia in Nov. As a reminder if Russian refineries are in maintenance or turnaround, then that means less Russian oil is processed in Russia, which means more Russian oil is available for export. We previously noted that, in line with the seasonal trend for fall turnarounds, the beginning of October saw Russian refining fall to the lowest since mid-March which has allowed for more exports. Generally, when Russian refining capacity gets hit, it allows for more oil for export. The four-week average fell to 3.41 mmb/d for the week to October 27. Bloomberg reported "*four-week average cargoes slipped by 50,000 barrels a day to 3.41 million in the period to Oct. 27, the first decline in five weeks. The drop reflected a spike in exports seen in the week to Sept. 29 falling out of the calculation. But shipments on this basis remained above the 3.4 million marker, a level exceeded only four times since mid-May.*" Russia made significant output cuts in May, June, and July; however they were still slightly above their promised targets. Notably, in last OPEC JMMC, the committee confirmed the cooperation of Russia in complying with these cuts going forward. Our Supplemental Documents package includes the Bloomberg report.

Figure 42: Russia's Seaborne Crude Shipments



Source: Bloomberg

Russia oil exports to China fall back below April levels

It's been about five months where Russia's oil exports to China have been down. Russia oil shipments to China averaged 1.360 mmb/d for the first half of April. But they were down thereafter with the reports that Russia had cut its discounts to China, meaning China was taking less Russian oil. Bloomberg's above report this week highlighted the four-week average of Russia oil shipments to China were down -0.120 mmb/d to 1.240 mmb/d for the week ending October 27, 2024, down from last week's 1.360 mmb/d for the week of October 20, 2024. The week up to September 15 was the first figure to come in above 1.300 mmb/d in months. We have not seen any reports of pricing discount, but we have to believe Russia has given some sort of discount to China. We have been highlighting that the warning that China oil imports from Russia were being hit on April 22 by one of our favorite commentators on the Gulf Intelligence Daily Energy Podcasts is Victor Yang, Senior Analyst JLC Network Technology. He is based in China, so we like to hear his on-the-ground views on oil, natural gas and markets in China. Here is what we wrote in our April 28, 2024 Energy Tidbits memo referencing Yang's comments from our April 22, 2024 tweet [LINK] that included a transcript we made of Yang's comments. "*And for the second quarter, we see a lot of refinery maintenance, is imports will actually come down. And for now, the premium for Russian cargoes have strengthened this year, from -0.5 barrels to -0.3 barrels. And now it's flat to Brent, meaning 0 now. So, this has dampened refiners, particularly independents, interest in Russian crude. Their margins for imported crude, including Russian crude, actually turned negative late last month and the beginning of this month. So, it's now kind of [inaudible] slightly above the breakeven point. So, the interest in this has been dampened too. So, we are not expecting imports to grow much in the second quarter, yes."* Below is the table from Bloomberg's Russia oil exports report this week.

Figure 43: Russian Crude Exports to Asia

Crude Shipments to Asia
Shipments of Russian crude to Asian buyers in million barrels a day

4 weeks ending	China	India	Other	Unknown Asia	Other Unknown	Total
September 22, 2024	1.27	1.61	0.04	0.03	0.00	2.94
September 29, 2024	1.40	1.64	0.04	0.03	0.00	3.11
October 6, 2024	1.34	1.75	0.00	0.05	0.00	3.14
October 13, 2024	1.24	1.80	0.00	0.05	0.00	3.09
October 20, 2024	1.36	1.68	0.00	0.08	0.03	3.15
October 27, 2024	1.24	1.55	0.00	0.14	0.19	3.12

Source: Vessel tracking data compiled by Bloomberg — Bloomberg

Source: Bloomberg

Oil: Bloomberg OPEC production +0.370 mmb/d MoM to 26.900 mmb/d in October

OPEC +0.370 mmb/d MoM in October

On Friday, Bloomberg posted its monthly survey of OPEC production. (i) The Bloomberg survey estimates OPEC production in October was +0.370 mmb/d MoM to 26.900 mmb/d. (ii) September estimate as revised down by 80,000 b/d from 26.610 mmb/d to 26.530 mmb/d. Revisions were Libya revised -70,000 b/d to 0.530 mmb/d. Iran revised +60,000 b/d to 3.400 mmb/d. UAE revised -40,000 b/d to 3.180 mmb/d. and Iraq revised -30,000 b/d to 4.220 mmb/d (iii) The largest MoM changes in October vs September were: Libya +500,000 b/d MoM to 1.030 mmb/d as the forced shut down was ended. Iraq -90,000 b/d MoM to 4.130 mmb/d as they move to comply with their cuts. Nigeria +40,000 b/d MoM to 1.510 mmb/d. Saudi Arabia -40,000 b/d MoM to 8.950 mmb/d. Below is the Bloomberg survey table.

Figure 44: Bloomberg Survey OPEC production (mmb/d)

Production ('000 b/d)		Oct	Sep	Chg	Capacity
▾ Total OPEC		26,900	26,530	+370	33,490
Algeria		900	900	0	1,060
Congo, Republic		240	240	0	300
Equatorial Guinea		50	60	-10	120
Gabon		230	210	+20	220
Iran		3,360	3,400	-40	3,830
Iraq		4,130	4,220	-90	4,800
Kuwait	ⓘ	2,440	2,450	-10	2,820
Libya		1,030	530	+500	1,200
Nigeria		1,510	1,470	+40	1,600
Saudi Arabia	ⓘ	8,950	8,990	-40	12,000
U.A.E.		3,170	3,180	-10	4,650
Venezuela		890	880	+10	890

Source: Bloomberg

Oil: Will oil demand -1.2 mmb/d QoQ in Q1/25 force Saudi to not add barrels until Q2/25

Can OPEC add back oil in 2024?

It was another week of analysts and OPEC commentators discussing whether Saudi et all will continue with their stated plan to start adding back the voluntary cut barrels on Dec 1.We have been surprised that we haven't seen analysts and OPEC commentators focus on the key oil demand fundamental that we see shaping that decision. Or at least should be shaping that decision - oil demand in Q1/25 is estimated to be seasonally lower by -1.2 mmb/d vs Q4/24. On Thursday, we tweeted [LINK] "*The oil fundamental that can/should cause Saudi et al to push back the Dec 1, 2024 start of adding back voluntary barrels - #Oil*

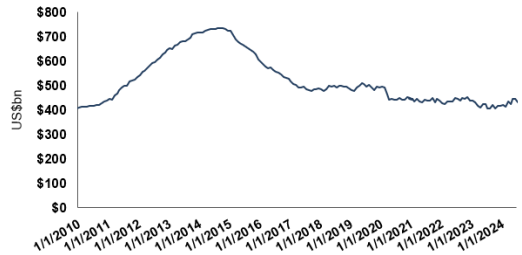
demand in Q1/25 seasonally declines -1.2 mmb/d QoQ vs Q4/24. Challenge is that it could push back return to Q2/25. #OOTT." We have been highlighting this oil demand fundamental for months – oil demand is always seasonally lower in Q1 each year vs the preceding Q4. So if Saudi et al didn't start adding back barrels on Oct 1 (as originally planned), then they would be adding back barrels into a declining oil demand period unless they wait until Q2/25. We find it hard to believe Saudi will want to add more oil into a declining oil demand period. Our exception is as noted later in the memo is if Trump wins and notes he plans to do as he did during his first term and enforce the sanctions on Iran and Venezuela. But apart from that scenario our tweet included an excerpt from OPEC's Monthly Oil Market Report Oct 2024, which forecasts Q4/24 oil demand at 105.61 mmb/d then decreasing 1.20 mmb/d QoQ to Q1/25 demand at 104.41 mmb/d. Our Supplemental Documents package includes the excerpt from the OPEC Oct MOMR on oil demand.

Saudi net foreign assets

Oil: Saudi nest egg, its net foreign assets were down -$13.0b MoM in September

In the last year, we have seen big MoM swings, both up and down in Saudi net foreign assets. For September, there was a big MoM decrease of -$13.0bn. On Wednesday, the Saudi Central Bank (SAMA) released its Monthly Statistical Bulletin for the month of September [LINK]. Our long-stated view is that the #1 financial theme for Saudi Arabia in the 2020s will be their continued, and increasing, use of Other People's Money as they try to fund MBS's Vision 2030. It continues to play out as expected. We believe this has been obvious with how Saudi Arabia's net foreign assets dropped by -41% or -$303.7b since the peak of $737.0b on Aug 31, 2014. We are surprised that markets and oil watchers did not 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. Recently we have been seeing much larger MoM changes, both up and down. In September there was a -$13.0b MoM decrease to Saudi Arabia's net foreign assets which are now $433.3b vs $446.3b in August. Last month's data saw an increase of +$16.4b MoM for August. The thesis and big picture remains, Saudi net foreign assets as of September 30 of $433.3b is a decline of ~-41% or $303.7b from its peak of $737.0b on Aug 31, 2014. That is an average of $2.5b per month for the last 121 months since the peak. Saudi Arabia is far from going broke but there has been a huge decline in the last 10 years. 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 September data.

Figure 45: Saudi Arabia Net Foreign Assets



Source: Bloomberg

Oil: Is it bluster or what does Iran have to deliver a "crushing response" to Israel?

Khamenei warns "crushing response" to Israel

For some reason, Iran has stepped up its threats to deliver a "crushing response" over the past two days. We may never know how much damage Israel did in it Iran retaliation and if their messaging on it being a targeted response was in anyway limited by Iran air defense systems. But we also wonder if the US and Israel know exactly what nuclear capability Iran has at this time for their own program or if they have been able to acquire one. We wonder given the talk the last two days from Iran on delivering a "crushing response" to Israel. And so far, Israel, with the US, has shown its defense systems have been extremely successful against Iran's ballistic missiles and drone waves. So we have to wonder where they are in their nuclear program in light of their new threats or is it just bluster? Yesterday morning, we tweeted [LINK] "*Iran Supreme Leader Khamenei 👇tweets this morning. "The US and the Zionist regime will definitely receive a crushing response for what they do against Iran and the Resistance Front" #OOTT."* On Friday, PressTV (Iran state media) reported [LINK] "*The Iranian nation has not yet revealed its full capabilities to the Zionist enemy," stressed Head of the Basij Organization Brigadier General Gholamreza Soleimani on Friday while addressing thousands of Basij forces in Sari, Mazandaran Province. "As the Islamic Revolution Leader highlighted, the regime has made a miscalculation, and soon these errors will lead to a devastating blow to the regime," he added."* Yesterday, Tasnim News Agency (news agency affiliated with the IRGC) reported [LINK] "*In response to questions about potential changes to Iran's nuclear doctrine, Kharrazi indicated that such changes are possible, especially if Iran encounters an "existential threat". He asserted that Iran has the technical capabilities to produce nuclear weapons and encounters no significant obstacles in this regard. However, he emphasized that the Fatwa issued by Leader of the Islamic Revolution Ayatollah Seyed Ali Khamenei serves as the sole constraint preventing Iran from pursuing nuclear armament."* Even if Iran has the ability to deliver a nuclear weapon attack from their own work or if they have been able to acquire one, we still believe Iran wouldn't use one to attack Israel because it would mean Israel would use their long rumored nuclear weapon and we expect the US would likely join in ie. it would be a mutual self destruction scenario. But we still have to wonder if it's just bluster or what does Iran really have?

Oil: Houthis Red Sea shipping diversions helping drive HSFO consumption & price

HSFO price rally

Maersk held its Q3 call on Thursday and there was no change to their earlier October notices that they will continue their Red Sea shipping diversions into 2025. Mgmt said "*Meanwhile, the situation in the Red Sea remains entrenched with the threat level still high*." In the Q&A of the Q3 call, mgmt reminded that shipping networks are sailing at full speed ie. maximizing bunker fuel consumption. And moving at full speed because the networks are so busy also means emissions get sacrificed as emissions reduction from shipping comes when ships slow steam. In the Q&A, mgmt replied "*The second thing is that, networks today are sailing at full speed. There is significant both costs and fuel consumption, environmental impact, upsides in taking a lot of the capacity that is going to come and plug it into, into slow steaming or slow slowing, lower lowering the speed. Sorry, of the, of the network*." On Thursday, Bloomberg reported "*One of World's Dirtiest Fuels Is Staging a Price Rally . One of the dirtiest corners of the global oil market is staging a spectacular rally, boosted by surging demand from ships sailing longer voyages to avoid unrest in the Middle East. The relative price of shipping fuel with a high sulfur content, an undesirable and pollutive contaminant, strengthened sharply in recent weeks, according to data compiled by Bloomberg. At one of*

the world's biggest bunker refueling hubs of Singapore, so-called high-sulfur fuel oil prices soared more than a widely referenced crude benchmark in the region, signaling bullishness. HSFO was at a discount of about $1 a barrel to Dubai crude prices on Wednesday afternoon in Singapore, Bloomberg fair value data showed, compared with an $11 discount in early-September." Below we posted HSFO vs Brent oil price and you can see how see how HSFO outperformed during Covid and again now since the shipping companies have had to redirect away from Red Sea.

Figure 46: HSFO and Brent oil price

Source: Bloomberg

Oil: Libya oil + condensate production of 1.333 mmb/d is back to Aug 1 levels

Libya oil + condensate production 1.333 mmb/d

Libya oil production returned to Aug 1 levels a week ago and continues to be stable at those levels. On Monday, the Libya National Oil Corporation tweeted [LINK] "*Over the past 24 hours: Total oil and condensate production averaged 1,332,924 barrels per day. The average daily production of crude oil and condensates during the past 24 hours amounted to 1,332,924 barrels, while gas production amounted to 181,552 barrels equivalent."* This is right in line with the NOC Aug 1 production update of 1.324 mmb/d. In the last three updates, the NOC has not provided a split of oil vs condensate in the 1.333 mmb/d. In our Oct 13, 2024 Energy Tidbits memo, we wrote "*One item to keep in mind is that the NOC is not splitting out oil vs condensate volumes. But a decent rule of thumb is that condensate is probably about 50,000 b/d of the combined oil + condensate. Yesterday, we tweeted [LINK] "LIbya #Oil has been quickly restored and almost back to Aug 1 levels. Note Libya NOC isn't splitting out oil vs condensate. Today: oil + condensate is back to 1.279 mmb/d. Aug 1: oil + condensate was 1.324 mmb/d (1.271 oil, 0.053 condensate). #OOTT."* It is fair to use an approximate 50,000 b/d of condensate production included in the NOC reporting of total crude oil + condensate production ie. the current 1.333 mmb/d is 1.283 mmb/d of crude oil and 0.050 mmb/d of condensate.

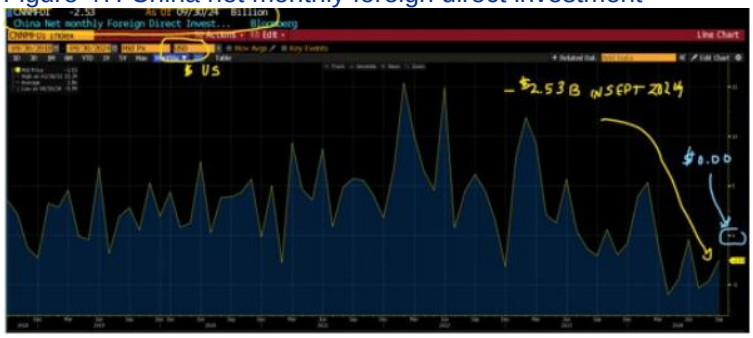
Oil: September sees 7th consecutive negative net monthly FDI into China

Negative net monthly FDI into China

The China story in the past six weeks has been the huge stimulus that initially drove a big positive change in investor sentiment to China but that pulled back a bit over the past couple weeks. However, one of the negative themes for China continues – negative net monthly foreign direct investment in China, and since, and this has continued, despite the announced stimulus. Since last November, we have highlighted a major negative indicator for the China economy – China went from years of net monthly foreign direct investment inflows to the recent months of net monthly foreign direct investment outflows. China needs more foreign

investment capital, not less foreign investment capital. This week, we saw this negative indicator for China's recovery – Net monthly foreign direct investment in China was negative for the 7th consecutive month and now for 9 of the last 11 months. On Thursday, we tweeted [LINK] "*Negative indicator for China recovery. Despite stimulus, 7th consecutive month of negative net monthly foreign direct investment flows. US $ B Sept: -2.53 Aug: -4.58 July: -5.32 June: -0.44 May: -4.50 Apr: -5.99 Mar: -0.9 Feb: 5.3 Jan: 3.9 Dec: -0.8 Nov: -2.0 Thx @business #OOTT".* Foreign direct investment has been a huge driver of China over the decades and that is no longer a strength, at least for now. The negative net monthly Foreign Direct Investment into China in September was a negative -$2.53b. Here is what we wrote in our May 12th, 2024, Energy Tidbits memo on the first month of this latest now six-month streak of negative net monthly FDI: *"This was a reversal of what happened to start 2024, which saw positive inflows during January and February. However, recall before that in the months to close 2023, four of the five months saw negative net monthly direct investment in China."* Our tweet included the below Bloomberg graph, and we also included a table showing the actual net monthly foreign direct investment by month for the last two years. Below is the Bloomberg graph and the historical table, the notation is in US$.

Figure 47: China net monthly foreign direct investment



Source: Bloomberg

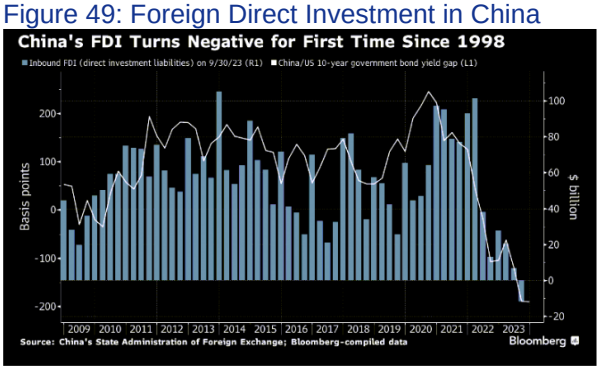
Figure 48: Historical table of China's net monthly foreign direct investment

Source: Bloomberg

11/08/23: Q3/23 was 1st net outflow of net foreign direct investment in China

Here is what we wrote in our Nov 12, 2023 Energy Tidbits memo. "*There is a big negative to the China recovery that we haven't been tracking – the net inflow or outflow of foreign direct investment in China. And likely because it never got much attention because there has always been a net inflow. FDI is significant as foreign companies disproportionately contribute to trade, generated more tax revenue and urban employment. But this week, we saw the first ever net outflow of FDI since records have been kept in 1998. On Wednesday, we tweeted [LINK] "Here's why China recovery is slow. Huge exodus in foreign direct investment in China & more FDI flowing out for 1st time. Q3/23 saw $11.8b outflow, vs recent $101b in Q1/22. Foreign co's drive disproportionate trade, tax revenue & urban employment. Thx @business #OOTT." Bloomberg wrote "China is struggling in its attempt to lure foreigners back as data shows more direct investment flowing out of the country than coming in, suggesting companies may be diversifying their supply chains to reduce risks. Direct investment liabilities in the country's balance of payments have been slowing in the last two years. After hitting a near-peak value of more than $101 billion in the first quarter of 2022, the gauge has weakened nearly every quarter since. It fell $11.8 billion in the July-to-September period, marking the first contraction since records started in 1998."*

Figure 49: Foreign Direct Investment in China



Source: Bloomberg

Oil: Big outflows from US listed ETFs investing in China

Big outlows from China ETFs

It wasn't unexpected to see some weekly outflows from US listed ETFs investing in China following the massive inflows as China was announcing its series of stimulus. On Monday, we tweeted [LINK] "*More investors move to sidelines on China. Outflows from US listed ETFS for wk end Oct 25. "China had the biggest outflow, of $162.2 million, following withdrawals of $211 million from the $10.3 billion iShares China Large-Cap — its largest weekly withdrawal since May 2020" @thatsleda #OOTT."* Our tweet included the below graph. Bloomberg had reported "*Investors yanked money out of exchange-traded funds that buy Chinese stocks last week, halting a streak of inflows as the latest stimulus measures failed to impress investors. Outflows from U.S.-listed emerging market ETFs that invest across developing nations as well as those that target specific countries totaled $594.1 million in the week ended Oct. 25, compared with gains of $465 million in the previous week, according to data compiled by Bloomberg. So far this year, inflows have totalled $19.4 billion.*

China had the biggest outflow, of $162.2 million, following withdrawals of $211 million from the $10.3 billion iShares China Large-Cap — its largest weekly withdrawal since May 2020. "Gradual easing and fiscal stimulus that lacks consumption support misses the mark," said Brendan McKenna, an emerging-market economist and strategist at Wells Fargo. "Some of the constructive sentiment after September is starting to unwind due to markets digesting an underwhelming policy response."

Figure 50: Big weekly outflow in China ETF

Source: Bloomberg

Oil: China new home sales up YoY in Oct, first YoY increase since June 2023

China new home sales volumes up

It's only one month but looks like there could be some sentiment change to the positive for the Chinese consumer. For months, we have highlighted how the most important asset for Chinese consumer, their home values, keep declining MoM. We haven't yet seen the data for October home values but, on Friday, Xinhua (state media) reported on how China new home sales transactions in Oct were up YoY and this was the first YoY increase since June 2023. So we would think this is likely to translate into some value increase to new homes. The question is will it stop the streak of 16 consecutive months of MoM declines in home values. Earlier this morning, we tweeted [LINK] "*Will values of China's homes stop going down? "Transaction volume of new homes in China went up 0.9 percent year on year in October, reversing a decline since June last year" reports Xinhua. If increased YoY volume leads to increased home values, it should change Chinese consumer sentiment. See 👇10/17 tweet, China new & used home values have declined MoM for >16 months. #OOTT."* Xinhua reported "*Transaction volume of new homes in China went up 0.9 percent year on year in October, reversing a decline since June last year, as the government introduced a series of measures to prop up the market, the latest figures showed on Friday. Second-hand home transactions rose for the seventh month by 8.9 percent year on year in October, the Ministry of Housing and Urban-Rural Development said..On a monthly basis, transaction volume of new homes increased 6.7 percent and that of second-hand homes moved up 4.5 percent in October."* Our Supplemental Documents package includes the Xinhua report.

China home prices continue to lose value, 16 mths for new & 17 mths for old

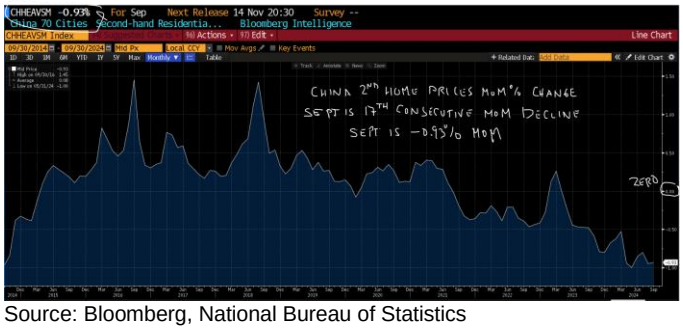
Our tweet this morning included the China home values for Sept. Here is what we wrote in our Oct 20, 2024 Energy Tidbits memo. "*We continue to believe the a key to China recovery will be when Chinese consumers can see their home values not gong down in value every month and see their value return to some growth, even if only*

modest. Here is what we wrote in last week's (Oct 20, 2024) Energy Tidbits memo on Chinese consumer's most important asset – their home values. "One of the most important priorities for China in their stimulus is to stop home values from declining. On Thursday we tweeted [LINK] "Chinese consumer's most important asset, their home values keep going lower. New home prices: 16th straight MoM % drop. Sept -0.71%. Aug -0.73%. July -0.65%. 2nd hand home prices: 17th straight MoM % drop. Sept -0.93%. Aug -0.95%. July -0.80%. Can China stimulus change this? Thx @business #OOTT". China home prices continue to lose value – new home prices fell for the 16th straight month, and second-hand home prices fell for the 17th straight month. One of the most significant drivers of negative sentiment among Chinese consumers, is that they keep losing value in their homes, which means their biggest asset value keeps decreasing month after month. Just like in North America, the home is the most important asset for most Chinese people, and they have seen the value of their homes decline month after month with no end in sight. In September, Chinese new home and 2nd home prices were down MoM vs August. China new home prices were down -0.71% MoM and that is the 16th consecutive month of MoM declines. China second hand home -0.93% MoM and that is the 17th consecutive MoM decline in prices. The November release, which will be data for the month of October, will be much anticipated to see if the recent stimulus has supported home values through boosting consumer sentiment. Below are the Bloomberg graphs with the August data."

Figure 51: China new home prices MoM % change incl Sept 2024

Source: Bloomberg, National Bureau of Statistics

Figure 52: China 2nd hand home prices MoM % change incl Sept 2024



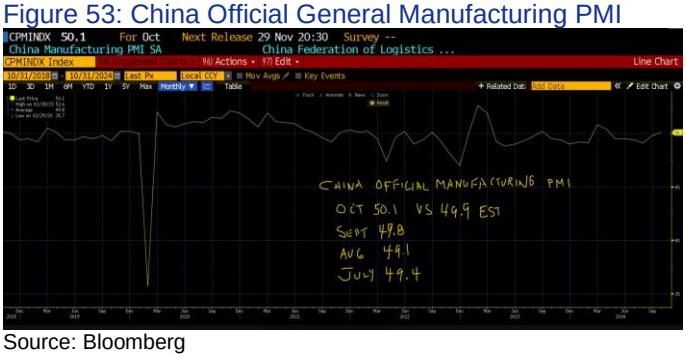
Source: Bloomberg, National Bureau of Statistics

Oil: China official Oct Manufacturing PMI sees expansion after 5 months of contraction

China official Manufacturing PMI

The China story has been around stimulus. It is still early to gauge the economy response but the October official manufacturing PMI figures are the first release that give some sort of snapshot of post stimulus China. On Wednesday night (North America time), the China official manufacturing PMI for Oct was released and it was the 1st expansion after 5 consecutive months of contraction. As a reminder, there are two China manufacturing PMI data reports that come out each month, The Official Manufacturing PMI that the National Bureau of Statistics publishes, and the Caixin Manufacturing PMI from S&P Global. The Caixin Manufacturing PMI is for more smaller, export-oriented companies. The Official Manufacturing PMI normally comes out a day or two before the Caixin Manufacturing PMI data that we track, and, Wednesday night MT, the Official Manufacturing PMI was released. On Wednesday night, we tweeted [LINK] "*1st month of expansion after 5 mths of contraction for China "official" manufacturing PMI. also 1st snapshot post the China stimulus. Oct 50.1 vs est 49.9. Sept 49.8 Aug 49.1 July 49.4 Jun 49.5 May 49.5 Apr 50.4 Smaller, more export oriented Caixin manufacturing PMI is tomorrow night. #OOTT".* The October figures came in at 50.1 which is up +0.3 points MoM compared to September's figure of 49.8. Below is the Bloomberg chart of China official general manufacturing PMI.

Figure 53: China Official General Manufacturing PMI



Source: Bloomberg

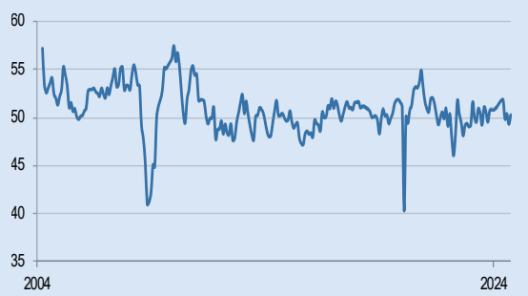
Oil: Caixin Manufacturing PMI returns to expansion in Oct; exports fell for 3rd month

Caixin Manufacturing October PMI

Out of the two China manufacturing PMI data reports that come out each month, the Official Manufacturing PMI that the National Bureau of Statistics publishes, and the Caixin Manufacturing PMI from S&P Global, we have focused on the Caixin Manufacturing PMI. The Caixin Manufacturing PMI is viewed as more of a leading indicator for how the China recovery is doing. In addition to this, it primarily focusses on smaller Chinese companies who are export-oriented PMI and exports have been the big driver of China for the past 20 years. Commenting on the Caixin manufacturing PMI on Sunday, we tweeted [LINK] "*Headline: China smaller & export oriented firms back to expansion in Oct. BUT "External demand, however, remained weak. The gauge for new export orders stayed in contractionary territory for the 3rd consecutive month..." China Caixin Manufacturing PMI: Oct 50.3 vs Est 49.7 Sep 49.3 Aug 50.4 Jul 49.8 Jun 51.8 May 51.7 Apr 51.4 Mar 51.1 Feb 50.9 Jan 50.8 Dec 50.8 Thx @SPGlobalPMI 50".* The Caixin Manufacturing PMI for October was released Thursday night [LINK]. The seasonally adjusted headline Caixin PMI was 50.3 in October, up from September's 49.3, which was the lowest reading since July 2023. October marked a return to expansion, however, the report noted that exports fell for the third consecutive month.

However, the report noted "*Operating conditions in China's manufacturing sector improved at the start of the final quarter of the year. Higher new work inflows led to an acceleration in production growth. Firms also raised their purchasing activity and inventory holdings as confidence about future output heightened. That said, manufacturers remained cautious regarding workforce numbers, with employment falling again*". Our Supplemental Documents package includes the China Caixin Manufacturing PMI report.

Figure 54: China Caixin General Manufacturing PMI



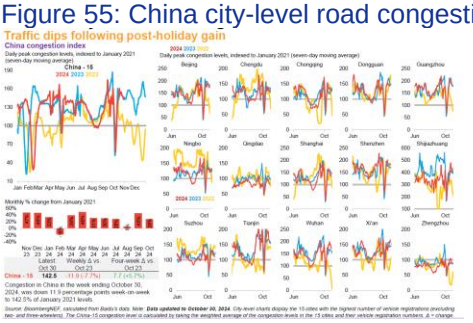
Source: S&P Global

Oil: Baidu China city-level congestion slows after the rebound from the holiday season

China city-level road congestion eases

On Wednesday, BloombergNEF posted its China Road Traffic Indicators Weekly Oct 31 report, which includes the Baidu city-level road congestion for the week ended Oct 30. Golden Week was Oct 1 thru Oct 7 and we saw a significant fall in congestion during the period, which was followed by a big rebound as people returned to work, and the congestion has since slowed. BloombergNEF reported Baidu city-level road congestion was down by -7.7% WoW to 142.5% of Jan 2021 levels. October MTD saw average daily peak congestion down -2.3% YoY when compared to October 2023. Note that this report was formerly titled Road Traffic indicators, and is now China Road Traffic Indicators, but the content of the report is unchanged. BloombergNEF's report was titled "*Congestion eases after rebound*". Below are the BloombergNEF key figures.

Figure 55: China city-level road congestion for the week ended October 30, 2024



Source: Bloomberg

Figure 56: China city-level road congestion for the week ended October 30, 2024

Indexed to January 2021 = 100														Indexed to the same month in previous year = 100											
	Oct 23	Nov	Dec	Jan 24	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Oct 23	Nov	Dec	Jan 24	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
China-15	130	146	146	133	81	138	148	130	129	127	104	144	127	126	155	187	151	55	100	114	110	96	104	87	94	98
Beijing	159	167	161	145	73	151	169	143	141	146	123	171	147	149	214	275	135	42	92	113	103	93	106	90	95	92
Chengdu	121	123	116	120	68	134	140	125	119	126	98	135	112	117	131	124	144	51	106	107	115	91	116	85	104	93
Chongqing	112	122	116	111	80	112	138	122	129	119	75	119	119	130	395	224	136	64	101	125	125	112	113	85	94	106
Dongguan	130	141	144	121	52	129	138	138	138	126	103	141	122	108	104	156	258	41	99	127	120	108	108	101	96	94
Guangzhou	160	178	181	161	76	171	195	174	170	162	158	179	158	146	317	307	199	45	99	127	127	107	107	106	98	99
Ningbo	118	146	142	127	79	144	146	120	128	121	94	140	115	95	101	127	203	59	115	140	121	112	106	81	110	98
Qingdao	92	99	103	78	51	71	78	72	75	91	80	87	78	96	124	195	175	62	94	97	98	87	95	76	82	85
Shanghai	127	155	150	115	79	146	152	130	132	119	93	151	118	115	93	172	156	54	98	117	105	101	98	76	93	93
Shenzhen	151	169	170	149	68	160	164	172	163	162	155	184	157	108	97	156	189	41	96	120	132	99	113	106	102	104
Shijiazhuang	343	491	461	494	350	400	390	311	329	334	308	364	347	120	459	258	156	69	93	85	81	77	89	70	75	101
Suzhou	108	127	136	118	79	134	137	113	112	105	96	115	104	91	88	157	171	60	111	130	117	97	99	88	86	96
Tianjin	150	169	190	133	85	160	165	145	132	106	98	186	150	109	137	244	136	60	114	121	119	100	96	86	107	100
Wuhan	143	159	159	167	105	174	171	146	144	141	117	168	153	199	192	187	151	55	94	100	97	85	95	86	88	107
Xi'an	135	156	155	152	98	141	147	129	123	135	107	145	132	149	139	152	132	66	110	112	105	91	110	97	96	98
Zhengzhou	80	97	108	110	85	95	96	80	78	86	66	91	82	171	294	164	119	76	98	102	90	82	98	72	86	102

Source: BloombergNEF calculations based on Baidu data. Note: Data updated to ***October 30, 2024. 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.*

Source: Bloomberg

Oil: Kpler tanker tracking shows Iran oil exports to China to hit record ~2 mmb/d in Oct

China imports 2 mmb/d of Iran oil

As we noted in last week's (Oct 27, 2024) Energy Tidbits memo, official China customs data still shows China importing zero barrels of oil from Iran and that we keep seeing Iranian oil being rebranded as Malaysian oil. It looks like Iran oil into China should hit a record ~2 mmb/d in October. On Monday, Bloomberg reported on Kpler tanker tracking data that showed "*China's imports of Iranian oil are poised to reach a record of ~2m b/d this month, according to data from Kpler. * That figure would top the previous peak of 1.75m b/d set in August, according to Kpler figures, which extend back to January 2013 ** The daily total in September 2024 was 1.57m b/d."* Bloomberg also reported Kpler floating storage of Iran oil "*Separately, Iranian oil in floating storage off Singapore and Malaysia fell to less than 1m bbl in mid-Oct. down from 9.4m bbl in mid-April, according to data from Muyu Xu, senior crude oil analyst at Kpler. Since then, the figure rebounded to ~6.6m bbl in the week to Oct. 27, she added."*

Figure 57: Kpler tanker tracking data Iran oil into China

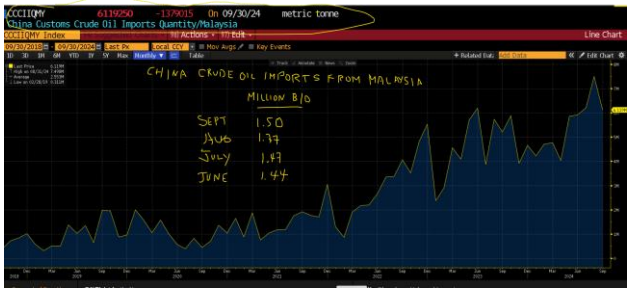
Source: Bloomberg

Kpler data fits Iran oil is being rebranded as Malaysian oil into China

The Kpler tanker tracking data noted above estimated China imported 1.57 mmb/d of Iran oil in Sept. That is almost exactly what the China customs data reported for oil imports from Malaysia for Sept. Here is what we wrote in last week's (Oct 27, 2024) Energy Tidbits memo on China oil imports from Malaysia in Sept. "*Last Sunday night, we tweeted [LINK] "Iran #Oil keeps getting rebranded as Malaysia oil.*

China customs official data is zero oil imports from Iran since June 2022. BUT China oil imports from Malaysia in Sept was 1.50 mmb/d vs OPEC Secondary Sources total Malaysia production of 0.348 mmb/d. #OOTT. Bloomberg had just posted the China customs data of crude oil imports by country for Sept. We checked Iran and there was no changes to China customs not showing any oil imports from Iran since June 2022. But then we looked as usual at Malaysia and the China customs data shows China crude oil imports from Malaysia were 1.50 mmb/d in Sept, which followed 1.77 mmb/d in Aug, 1.47 mmb/d in July and 1.44 mmb/d in June. Our tweet also included the OPEC Monthly Oil Market Report October 2024, which included Secondary Sources estimate that Malaysia only produced 0.348 mmb/d in Sept ie. China is importing oil from Malaysia that is equal to over four times Malaysia total country production. Below is the Bloomberg graph of China oil imports from Malaysia that was attached to our tweet."

Figure 58: China crude oil imports from Malaysia



Source: Bloomberg

05/09/24: Malaysia recognizes UN, not individual country sanctions

Here is what we wrote in our May 12, 2024 Energy Tidbits memo. "*One of the oil trade themes in the past year is how we see Iran oil rebranded as Malaysia oil and then shipped to China and likely other markets. That will be continuing as Malaysia has said they don't follow individual country sanctions like US on Iran but follow all UN sanctions. The Straits Times reported [LINK] "Malaysia rebuffs US on Iran oil sales, says it recognises only UN sanctions. Malaysia will recognise sanctions imposed by the United Nations only and not by individual countries, said Home Minister Saifuddin Nasution Ismail on May 9, following claims by a top US official that Iran has relied on Malaysian service providers to sell US-sanctioned oil in the region. "I emphasised that we will only recognise sanctions if they are imposed by the United Nations Security Council. "The delegation from the US respected our stance," Datuk Seri Saifuddin told reporters following a meeting with the US Treasury Department's top sanctions official Brian Nelson, who was visiting Kuala Lumpur." We hadn't realized the trade level between Malaysia and the US. The Straits Times closed their report "Still, the "US would also not want to lose the support of Malaysia, which is one of its key Asean partners, as the country will assume the role of Asean chair next year", he said. Malaysia is among the US' top 20 trading partners, with bilateral trade between the two nations amounting to US$78.3 billion (S$106 billion) in 2022." Our Supplemental Documents package includes the Straits Times report*.'

Oil: Would a Trump win lead to the expected oil price weakness with drill baby drill?

Will Trump move to cut Iran & Venezuela oil exports

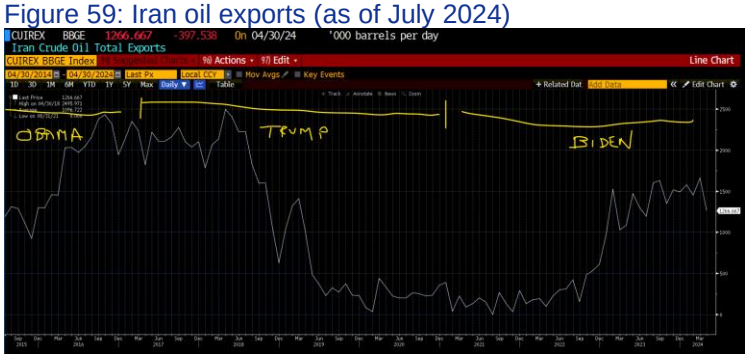
There are so many issues that will affect markets and oil with the US election on Tuesday. But we were asked on Thursday if we believe if Trump's drill baby drill to let industry crank up production will do as Trump says and lead to way lower oil, gasoline and diesel prices. (i) The caveat was that there are so many other factors that will impact oil than just his drill baby drill. (ii) We don't see oil companies cranking up drilling as suggested. There will be some increase with a view of a better operating environment, but we don't see a big jump up in the near term. We said we don't agree with the how it seems everyone is interpreting it and talking about it. The US sector and, more importantly, investors and banks allocating capital to oil and gas, have moved away from a growth model to a new norm of focusing on returns and returning capital to stakeholders. And if US were to crank up drilling to accelerate production, if it leads to lower prices, the oil and gas companies won't see the returns so won't just go back and crank up drilling no mater the returns. So the way everyone is talking about it, they are assuming the oil sector abandons their returns model and cranks up drilling so oil prices go lower. And if they are cranking up capex with lower prices, it has to mean they companies will cut back dividends and share buybacks. We just don''t see that. (iii) However, we can make the case for US oil players cranking up drilling and oil prices not changing much. It is something we have noted several times but, for some reason, analysts aren't talking about. So the case can be made for drill baby drill and not lower oil prices. Simply Trump goes back to his 2016 playbook and enforces sanctions on Iran and Venezuela. This will take probably 2 mmb/d off global oil markets., which will increase prices and allow US companies to drill more. But it won't necessarily meet Trump's other promise to lower gasoline prices. (iv) Russia and Saudi Arabia would be the big winners. No question, going back to his playbook of cutting out Iran and Venezuela oil exports will allow for US oil companies to drill baby drill. But perhaps of even more significance to Trump, it would allow for his most significant global relationships Saudi Arabia and Russia to add back oil without crashing oil prices. There would be a void that would allow the voluntary cuts of Saudi Arabia, Russia and others to add back oil without sending oil down. Absent Trump forcing Iran and Venezuela oil exports back to where it was under his Administration, we don't see how oil prices can be more or less protected to encourage US oll companies to drill, baby drill and maintain their returns models. And similarly allow Saudi, Russia, et al to add back their voluntary cuts without hitting oil prices. (v) Israel would also benefit as Iran's cash flow would be cut down hugely by probably >$100 million a day hit to cash flow. (vi) So Trump enforcing sanctions on Iran and Venezuela would be a win for his Saudi, Russia and Israel relationships, which is why we have been highlighting this as the most significant way Trump can impact oil markets. And do so while taking care of his relationships. But we don't see it reducing oil and gasoline and diesel prices. (vii) The caveat is that there is much more that impacts oil prices but Trump going back to his prior playbook of cutting Iran and Venezuela oil exports would likely be a net positive to oil prices and not a net negative even if US oil industry increases oil drilling. (viii) This is not a new position, rather we have highlighted multiple times in our Energy Tidbits memo that Trump returning to his prior stance on Iran and Venezuela would be the biggest impact on oil prices.

Trump's big impact on oil will be from what he does on Iran and Venezuela

Please note that both Iran and Venezuela have increased oil production since we wrote the following comments. Here is the last time, we wrote on Trump on Iran and

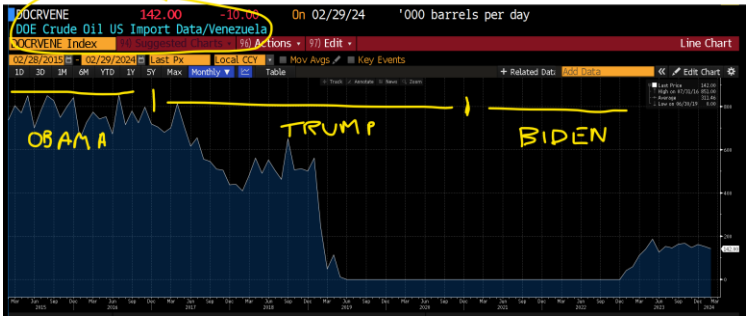
Venezuela in our July 21, 2024 Energy Tidbits memo. "*We recognize that the market is focused on Trump's big impact on oil being his "drill, baby, drill" for the US oil industry that he said twice in his acceptance speech on Thursday. Trump was clear that he says unleashing oil drilling in the US will lead to lower oil prices. We continue to believe that Trump's big impact on oil will be from what he does on Iran and Venezuela, and if he will go back to what he did in enforcing sanctions and bringing their oil exports down to almost nothing. Trump did not address Venezuela oil in his acceptance speech but did highlight how he was forcing Iran to run out of money by enforcing the sanctions. Here is what Trump said on Thursday night "Iran was broke. Iran had no money. Now Iran has $250 billion. They made it over the last two-and-a-half years. They were broke. I watched the other day on a show called De-Face the Nation. Has anyone seen it? And they had a congressman who is a Democrat say, well, whether you like them or not, Iran was broke dealing with Trump. I told China and other countries, if you buy from Iran, we will not let you do any business in this country and we will put tariffs on every product you do send in or 100 percent or more. And they said to me, well, I think that's about it, they weren't going to buy any oil. And they were ready to make a deal, Iran was going to make a deal with us. And then we had that horrible, horrible result that we'll never let happen again, the election result. We're never going to let that happen again. They used COVID to cheat. We're never going to let it happen again. And they took off all the sanctions and they did everything possible for Iran. And now Iran is very close to having a nuclear weapon, which would have never happened. This is a shame what -- what this administration -- the damage that this administration has done." Whether you like Trump or not, he was responsible for cutting Iran's oil exports down to effectively zero and squeezing Iran's cash. Here is what we wrote in our May 19, 2024 Energy Tidbits memo. "There were a number of comments on Trump reportedly promising to work with the oil industry, but we believe the bigger impact that Trump will have on oil prices is he moves back to enforcing sanctions on Iran and Venezuela sanctions If he goes back to what he did, he will be knocking a million b/d or Ifan oil exports off global oil markets and likely at least 150,000 b/d of Venezuela oil out of US oil imports."*

Figure 59: Iran oil exports (as of July 2024)



Source: Bloomberg

Figure 60: US oil imports from Venezuela (as of July 2024)



Source: Bloomberg

Oil: Saudi Arabia, upstream needs 60% of cash flow to offset decline rates

Sadui warns on decline rates

As noted later in the memo, I am not on the side that Trump's drill baby drill will lead to a big ramp up in US drilling and production and lower oil prices. So absent a Trump wildcard, oil markets for 2025 will continue to be worried about how Saudi et al can add back their voluntary cuts in the face of continued China economy weakness. It's why we said Saudi Energy Minister Abdulaziz warnings on decline rates is a post 2025 issue. On Monday, we tweeted [LINK] "*THE #1 Overlooked #Oil supply fundamental post 2025 from Abdulaziz. "Well, there is something called natural declines. And if you don't attend to that, you lose over time. And if you don't continue spending 60% of an upstream company on maintaining potential, you lose that potential." At 6% average decline, world needs to add 6 mmbd of new oil supply to stay flat. May not be an issue for 2025 BUT becomes an increasing concern especially as these same people push out their peak oil demand forecasts. #OOTT."* Abdulaziz warned that most overlook that oil production declines and that means upstream companies have to spend 60% of their cash flow just to maintain their productive capacity. This is the concept we have highlighted for decades – oil declines and every year oil companies have to add new production capacity just to stay flat. Our tweet included the transcript we made of Abdulaziz's comments. At 18:40 min mark, Abdulaziz "*we are also committed to maintaining 12.3 million of crude capacity. We're proud of that, But look at what it takes to maintain that capacity. And there are so many people who claims to be understanding oil. If Saud Arabia has to go through these investments to maintain potential, I would tell some of the, well for the purpose of respect, I will tell those people who talk about, this country's going to increase this, this country's going to increase that, and the total number is 7 million. Well, there is something called natural declines. And if you don't attend to that, you lose over time. And if you don't continue spending 60% of an upstream company on maintaining potential, you lose that potential. However, there are good people that take these things slightly. But, anyway. as [xxx xxx] was saying once, in one of his [xxx] only time and patience will prove the country."*

Abdulaziz points to Saudi oil decline is ~3.5%

On Friday, we tweeted [LINK] "*Saudi Energy Minister straight talk points to approx 3.5% decline rate for Saudi oil productive capacity. Adding 550kbd Marjan/Berri, 600 kbd Zuluf & 75 kbd Damman for total 1.225 mmbd to maintain 12.3 mmbd MSC thru 2027. Consistent with my 👇05/07/24 tweet on Aramco Q1. #OOTT."* Our Monday

tweet on Saudi Energy Minister Abdulaziz's warning on decline rates included his slide on what Saudi is doing to maintain its 12.3 maximum sustainable capacity that included adding 550,000 b/d at Marjan/Berri in 2025, 600,000 b/d at Zuluf in 2026 and 75,000 b/d at Damman in 2027 for a total adds of 1.225 mmb/d to maintain its 12.3 MSC thru 2027 ie. infers an approx. 3.5% annual decline rate. Our tweet noted that this is the same as we tweed on May 7 on Saudi Aramco's Q1/24 disclosure.

Figure 61: Saudi Arabia oil projects to maintain 12.3 mmb/d MSC

Source: Saudi Arabia Energy Minister

05/07/24: Aramco points to a 3.5% Saudi oil decline rate

As noted in our Friday tweet, Saudi Energy Minister Abdulaziz listing of the projects to maintain Saudi Maximum Sustainable Capacity at 12.3 mmb/d are in line with Saudi Aramco Q1 disclosure. Here is what we wrote in our May 12, 2024 Energy Tidbits memo. "*Saudi Aramco reported Q1 on Tuesday. (i) Aramco didn't come out and talk about Saudi Arabia oil decline rates but in reading the Q1 highlights, the numbers seemed to point to an oil decline rate in Saudi Arabia of ~3.5%. (ii) On Tuesday, we tweeted [LINK] "#Oil 101: Need to add ~6-7 mmbd new oil supply/yr to stay flat. Aramco Q1 👇: Damman, Marjan, Berri & Zuluf to add 1.225 mmbd to "maintain MSC at 12.0 mmbpd". Saudi ~3.5% oil decline would fit Aramco 👇12/07/23 tweet global conventional + unconventional decline of 7%. #OOTT." (iii) in the Q1, Aramco highlighted they were given the directive to maintain MSC at 12.0 mmbpd. And "This directive will have no impact on announced, nearterm projects including the Dammam development and the Marjan, Berri, and Zuluf crude oil increments. Production from these projects will be used to maintain MSC at 12.0 mmbpd, which provides operational flexibility to increase production and supports Aramco's unique ability to rapidly respond to changing market conditions." So Damam, Marjan, Berri and Zuluf will maintain MSC at 12 mmb/d. (iv) Aramco then detailed these projects would add 1.225 mmb/d over 2025, 2026 and 2027. Adding 1.225 mmb/d over 3 years would effective offset 1.26 mmb/d assuming a 3.5% decline rate. That is just the math. Damman is to add 25 mb/d in 2024 and 50 mb/d in 2027. Marjan is to add 300 mb/d and Berri is to add 250 mb/d, both by 2025. Zuluf is to add 600 mb/d by 2026. (v) Our tweet linked to the below Dec 7, 2023 Saudi Aramco CEO view that overall global conventional + unconventional oil decline rate was 7%. Our Supplemental Documents package includes the excerpt from the Saudi Aramco Q1 report."*

12/07/23: Aramco global conventional + unconventional oil decline rate is 7%

Here is what we wrote in our Dec 10, 2023 Energy Tidbits memo. "*Aramco CEO global conventional + unconventional oil decline rate is 7%. We recognize that no one is really thinking about mid-term oil outlook given the oil price weakness now going into Q1/24. For months, we have been warning that the key factor driving why Saud would continue its voluntary 1 mmb/d cuts thru Q1/24 was that global oil demand is always seasonally down in Q1 every year vs the preceding Q4. That is the big problem, the normal seasonal decrease in oil demand in Q1 vs Q4 that is approx. 1.5 mmb/d. So no one is focused beyond 2024 but, for those that care, on Thursday, we tweeted [LINK] "For anyone looking at #Oil in 2025+. #Aramco CEO "If you look at existing fields today & the level of maturity that we're seeing in conventional and unconventional resources, you're looking at a 7% decline" ie. 7 mmbd has to be replaced each yr to stay flat. Thx @jcgnana #OOTT." The headlines on the Platts story were "COP28: Saudi Aramco CEO says fossil fuel investment more viable than renewables to meet demand. HIGHLIGHTS Fossil fuel investment down 40% from 2014 levels: Nasser. Q4 2023 oil demand set to be higher than Q4 2019. Renewables, hydrogen not viable in the short term, he says." [LINK]. But what caught our eye were Nasser's comments on global oil declines. Platts wrote "Saudi Aramco's chief called for more investment in fossil fuels while dismissing the short-term viability of renewables due to what he suggested were higher costs and low demand for clean energy. "I think we need more investment," Nasser said citing a 40% decline in investment in fossil fuels from 2014 levels. "If you look at existing fields today and the level of maturity that we're seeing in conventional and unconventional resources, you're looking at a 7% decline," he added." Nasser is reminding the combined global conventional + unconventional oil decline rate is 7%, which means that, on a combined global basis, if spending were to stop oil production would be down 7 mmb/d. The reminder is that the first challenge for the global oil industry is to do the work to replace 7 mmb/d just so global oil production can stay flat. That is why there is the first capital every year to basic production maintenance, development drilling, field extensions, etc to replace the 7% decline. The 7% is an average decline rate across the world, which takes into account the way higher decline rates in the 13 mmb/d of US production. Our Supplemental Documents package includes the Platts report*."

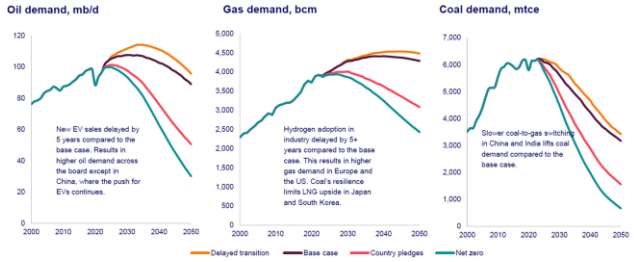
Oil: WoodMac's Delayed Transition Scenario see peak oil demand in 2033 at 114 mmbd

WoodMac's new peak oil scenario

We are expecting to see more analysts and agencies push back their peak oil demand timing in the coming months. Here is what we wrote in last week's (Oct 27, 2024) Energy Tidbits memo on what reminded us of this view. "*Even if the IEA reinforced its view that peak oil demand will happen by 2030, we haven't changed our longstanding expectation for peak oil demand by 2030 forecasters to push back the timing of peak oil demand and that means they also then have to increase how much oil is consumed at that pushed out peak oil demand date. (i) We raise this issue as we expect to see any increase peak oil demand forecasts are most likely to come out in the next two months. The other timing reality is that it is the end of October. And major research shops and agencies will soon be posting their 2025 outlooks, which will be based on a recap of 2024. So that puts the time window for these type of changes to peak oil demand will be over the next two months or so. (ii) On Thursday, we tweeted [LINK] "Will moving peak #Oil demand higher & later be the craze in 2025 outlooks?*

Wood Mackenzie "energy transition scenario" raises peak oil demand from 108 mmbd in 2030 to 114 mmbd in 2033. Vs base case, this scenario assumes slower penetration rates on EVs, green hydrogen, etc. Sounds like what is happening in 2024? #Oil #NatGas #Coal will be needed for longer. #OOTT." (iii) On Thursday, Wood Mackenzie distributed its new Delayed Transition Scenario that started "The energy transition isn't moving anything like fast enough. Achieving global net zero by 2050 looks increasingly in doubt. To reflect the uncertainty, we added a Delayed Energy Transition Scenario to our existing range of potential outcomes which is quite positive for fossil fuels. With slower displacement by EVs, oil demand continues to increase year-on-year, reaching a peak of 114 million b/d in 2033 (compared with a 108-million b/d peak in 2030 in the base case). Gas demand carries on growing until 2045. There are significant implications for the development of new supply, price and the strategic positioning of the industry at large." Wood Mackenzie clear states this is a scenario and not their base case. But they are clearly showing how this "scenario" would have a huge impact on oil demand over the next eight years. (iv) Our tweet highlighted how the assumptions for this delayed energy transition scenario sound like what is happening today. They are really the items we track and why we have been saying for years that peak oil demand will be pushed back and at higher oil demand levels. Wood Mackenzie writes "On the other hand, it'll take longer for low-carbon technologies to be scaled. The penetration rate of nascent technologies that require government support, such as EVs, green hydrogen and CCUS, lag the base case by five years. Renewables, already competitive with alternative sources of power generation, will continue to grow, albeit at a slower pace." Wood Mackenzie's conclusion for this delayed transition scenario is to push back peak oil demand from 108 mmb/d in 2030 to 114 mmb/d in 2033. And Natural gas demand growing until 2045. We can't help feel this is the set up scenario for Wood Mackenzie to change its official forecast for peak oil demand in the coming weeks but not until after COP29 on Nov 11-22. COP29 will likely be a catalyst with the argument that governments aren't accelerating or are backing off energy transition policy. (v) When we see this "scenario, it feels like it will be the first of many to come where major forecasters finally reflect all the items we have been following for the past year on how all the major energy transition items are nowhere near meeting the aspirations embedded in the Net Zero assumptions. We feel that the data points in 2023/24 are just too many for peak oil demand by 2030 people to ignore. (vi) And if other major forecasters do the same, this should get more people to believe in stronger oil for longer. Below is Wood Mackenzie's comparison on their Base Case vs Delayed Transition Scenario. Our Supplemental Documents package includes the Wood Mackenzie send-out."

Figure 62: Wood Mackenzie Delayed Transition Scenario vs Base Case



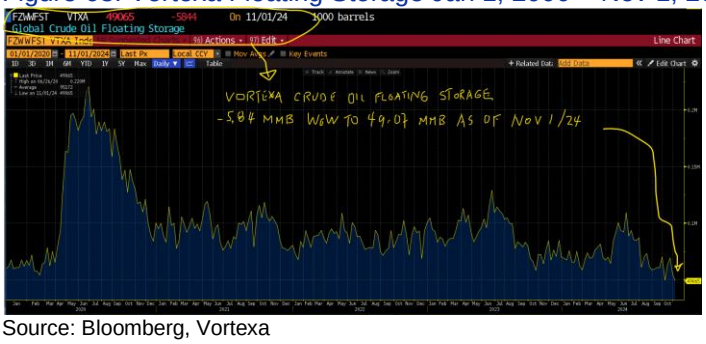
Source: Bloomberg

Oil: Vortexa crude oil floating storage est 49.07 mmb at Nov 1, -5.84 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 26 at 9am MT. (i) Yesterday, we tweeted [LINK] "*Floating Oil Storage. Vortexa crude #Oil floating storage -5.84 mmb WoW to 49.07 mmb at Nov 1. Only 2nd wk below 50 mmb since Covid, other was Oct 4/24 of 49.63 mmb. Last 7 wk moving average is 59.57 mmb and last 4 wks are only times 7-wk moving average <60 mmb since Covid. Thx @vortexa @business #OOTT.*" Floating storage has been below 70 mmb for ten of the last eleven. (ii) As of 9am MT Nov 2, Bloomberg posted Vortexa crude oil floating storage estimate for Nov 1 at 49.07 mmb, which was -5.84 mmb WoW vs revised up small Oct 25 of 54.91 mmb. Note Oct 25 at 54.91 mmb was revised +1.58 mmb vs 53.33 mmb originally posted at 9am on Oct 26. (iii) Nov 1 at 49.07 mmb is only the 2nd week below 50 mmb since Covid. Also note Oct 4 of 49.63 mmb was revised up small by +1.45 mmb vs 48.18 mmb posted a week ago, but remains the first week in the 40s since Covid. (iv) Revisions. Only two revisions over 2 mmb were Oct 18 revised +4.53 mmb and Sept 27 revised +2.63 mmb. Here are the revisions for the past seven weeks compared to the estimates originally posted on Bloomberg at 9am MT on Oct 26. Oct 25 revised +1.58 mmb. Oct 18 revised +4.53 mmb. Oct 11 revised +1.15 mmb. Oct 4 revised +1.45 mmb. Sept 27 revised +2.63 mmb. Sept 20 was not revised. Sept 13 revised -0.40 mmb. (v) There is a wide range of floating storage estimates for the past seven weeks, but a simple rolling average for the last seven weeks is 59.57 mmb vs last week's then seven-week rolling average of 59.77 mmb. The last four weeks are the only times the 7-week moving average has been below 60 mmb. (vi) Also remember Vortexa revises these weekly storage estimates on a regular basis. We do not track the revisions through the week. Rather we try to compare the first posted storage estimates on a consistent week over week timing comparison. Normally we download the Vortexa data as of Saturday mornings around 9am MT. (vii) Note the below graph goes back to Jan 1, 2020 to show the run up to Covid and then how Covid started to impact Covid in March/April 2020. (viii) Nov 1 estimate of 49.07 mmb is -80.15 mmb vs the 2023 peak on June 25, 2023 of 129.22 mmb. Recall Saudi Arabia stepped in on July 1, 2023 with its voluntary cuts. (ix) Nov 1 estimate of 49.07 mmb is -22.98 mmb YoY vs Nov 3, 2023 at 72.05 mmb. Below are the last several weeks of estimates posted on Bloomberg as of 9am on Nov 2, Oct 26, and Oct 19.

Figure 63: Vortexa Floating Storage Jan 1, 2000 – Nov 1, 2024, posted Nov 2 at 9am MT



Source: Bloomberg, Vortexa

Figure 64: Vortexa Estimates Posted 9am MT on Nov 2, Oct 26, and Oct 19

Posted Nov 2, 9am MT

FZWWFST VTXA Inde

01/01/2020 - 11/01/2024

Date	FZWWFST VT... Last Px
Fr 11/01/2024	49065
Fr 10/25/2024	54909
Fr 10/18/2024	69263
Fr 10/11/2024	63415
Fr 10/04/2024	49630
Fr 09/27/2024	70159
Fr 09/20/2024	60566
Fr 09/13/2024	60928
Fr 09/06/2024	59278
Fr 08/30/2024	58594
Fr 08/23/2024	61621
Fr 08/16/2024	73061

Oct 26, 9am MT

FZWWFST VTXA Inde

01/01/2020 - 10/25/2024

Date	FZWWFST VT... Last Px
Fr 10/25/2024	53326
Fr 10/18/2024	64731
Fr 10/11/2024	62271
Fr 10/04/2024	48181
Fr 09/27/2024	67534
Fr 09/20/2024	60569
Fr 09/13/2024	61326
Fr 09/06/2024	60235
Fr 08/30/2024	58281
Fr 08/23/2024	64015
Fr 08/16/2024	75076
Fr 08/09/2024	74271

Oct 19, 9am MT

FZWWFST VTXA Inde

01/01/2020 - 10/18/2024

Date	FZWWFST VT... Last Px
Fr 10/18/2024	55613
Fr 10/11/2024	61728
Fr 10/04/2024	46225
Fr 09/27/2024	64904
Fr 09/20/2024	59427
Fr 09/13/2024	61647
Fr 09/06/2024	60364
Fr 08/30/2024	59405
Fr 08/23/2024	64488
Fr 08/16/2024	76543
Fr 08/09/2024	75587
Fr 08/02/2024	63002

Source: Bloomberg, Vortexa

Oil: Vortexa crude oil floating storage WoW changes by regions

Vortexa floating storage by region

Bloomberg posts the Vortexa crude oil floating storage in key regions, but not all regions of the world. The regions covered are Asia, North Sea, Europe, Middle East, West Africa and US Gulf Coast. We then back into the "Other" for rest of world. (i) As noted above, last week's Oct 25 was revised +1.58 mmb. There were no revisions by region to note. (ii) Total floating storage at Nov 1 of 49.07 mmb was -5.84 mmb WoW vs the revised up small Oct 25 of 54.91 mmb. The major WoW changes were Asia -4.71 mmb WoW and North Sea +2.26 mmb WoW. (iii) Nov 1 estimate of 49.07 mmb is -80.15 mmb vs the 2023 high on June 23, 2023 of 129.22 mmb. Recall Saudi Arabia started its voluntary 1 mmb/d production cuts on July 1, 2023. The major changes by region vs the last year June 23, 2023 peak are Asia -53.13 mmb and Other -23.47 mmb. (iv) Below is the table we created of the WoW changes by region posted on Bloomberg at of 9am MT yesterday. Our table also includes the "Original Posted" regional data for Oct 25 that was posted on Bloomberg at 9am MT on Oct 26.

Figure 65: Vortexa crude oil floating by region

Region	Nov 1/24	Oct 25/24	WoW	Original Posted Oct 25/24	Recent Peak Jun 23/23	Nov 1 vs Jun 23/23
Asia	20.16	24.87	-4.71	23.81	73.29	-53.13
North Sea	3.19	0.93	2.26	0.93	5.30	-2.11
Europe	2.72	3.26	-0.54	3.39	5.63	-2.91
Middle East	8.72	8.62	0.10	8.02	6.76	1.96
West Africa	5.51	6.73	-1.22	6.73	7.62	-2.11
US Gulf Coast	0.64	1.41	-0.77	1.27	1.02	-0.38
Other	8.13	9.09	-0.96	9.18	29.60	-21.47
Global Total	49.07	54.91	-5.84	53.33	129.22	-80.15
Vortexa crude oil floating storage posted on Bloomberg 9am MT on Nov 2						
Source: Vortexa, Bloomberg						

Source: Bloomberg, Vortexa

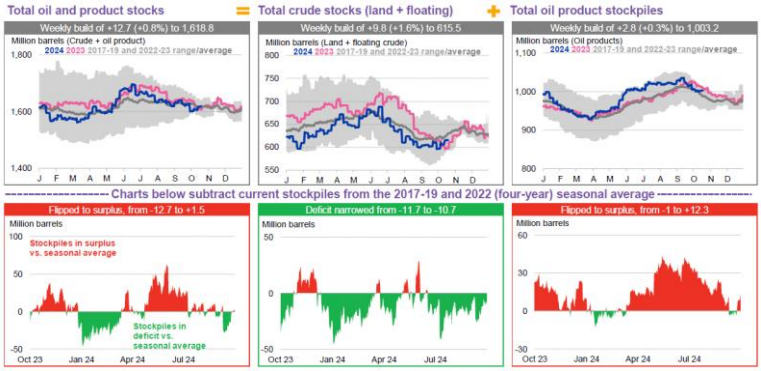
Oil: Global oil & product stocks deficit flips to surplus: +1.500 mmb from -12.700 mmb

Bloomberg Weekly Oil Indicators

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 + 2022-2023, and other times using a five-year average 2017-2019 + 2022-2023. In both cases they do not include 2020 and 2021 in the averages. (ii) The global

stockpile for crude oil and products deficit flipped to a surplus of +1.500 mmb for the week ending October 18, from a deficit of -12.700 mmb for the week ended October 11. (iii) Total crude inventories (incl. floating) saw a build of +1.6% WoW to 615.500 mmb, while the stockpiles deficit narrowed, from a deficit of -11.700 mmb to a deficit of -10.700 mmb. (iv) Land crude oil inventories increased +0.8% WoW to 547.700 mmb, widening their deficit from -16.000 mmb to -18.600 mmb against the five-year average (2017-2019 + 2022-23). (v) The gas oil, and middle distillate stocks decreased -0.9% WoW to 223.900 mmb, with the deficit against the four-year average narrowing to -1.700 mmb from -3.200 mmb. Jet fuel consumption by international departures in the week starting October 29, is set to increase by +0.077 mmb/d WoW, while consumption by domestic passenger departures is forecast to decrease by -0.029 mmb/d WoW. Below is a snapshot of aggregate global stockpiles.

Figure 66: Aggregate Global Oil and Product Stockpiles



Source: BloombergNEF

Oil: Bloomberg Oil Demand Monitor, *Market Frets Over China; OPEC+ Faces Choice*

Bloomberg oil demand monitor

The Bloomberg Oil Demand Monitor is a good recap of key oil demand indicators around the world. This week's report discusses the importance of next week's China legislative body meeting, as traders look for any indicators of stimulating the Chinese economy, market watchers are also paying attention to whether OPEC+ will maintain delays or begin producing and risk potential surpluses in 2025. Bloomberg reported: "*Traders will be keeping a watchful eye on a meeting of China's top legislative body next week, eager for any news on efforts to stimulate the biggest oil importer's lackluster economy. The gathering of the National People's Congress Standing Committee, scheduled for Nov. 4-8, will conclude after the US election on Nov. 5, a vote that could redefine Washington's relationship with Beijing. The Asian nation's muted oil demand and the battle for the White House are among factors being weighed by the OPEC+ alliance as it wrestles with a looming decision on whether to press on with, or further delay, plans to restore some production in December. Adding barrels to the market could bolster what many analysts expect to be a global surplus early next year*". The U.S. total oil products supplied rose by +8.9% YoY to 21.640 mmb/d as of October 25. Our Supplemental Documents package includes the Bloomberg Oil Demand Monitor.

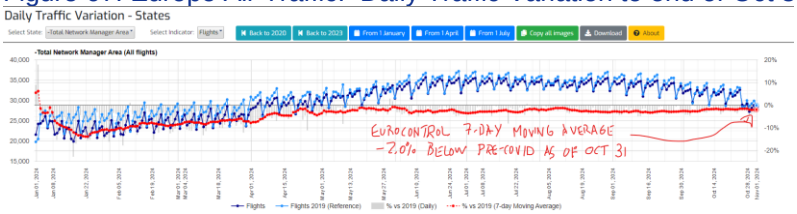
Oil: Europe airports daily traffic 7-day moving average is -2.0% below pre-Covid

Europe airports daily traffic

Yesterday, we tweeted [LINK] "*Daily Europe air traffic close but still stuck below pre-Covid. 7-day moving average as of: Oct 31: -2.0% below pre-Covid. Oct 24: -1.6%. Oct 17: -1.9%. Oct*

10: -1.7%. Oct 3: -2.9%. Sept 26: -2.9%. Sept 19: -2.8% Sept 12: -3.0%. Sept 5: -2.8%. Aug 29: -3.1%. Thx @eurocontrol #Oil #OOTT." Other than over Christmas, European daily traffic at airports has been stuck just a little bit below pre-Covid. The 7-day moving average has got close to pre-Covid including -0.8% below pre-Covid as of May 30, but the 7-day moving average is now -2.0% below pre-Covid as of Oct 31, which followed -1.6% as of Oct 24, -1.9% as of Oct 17, -1.7% as of Oct 10, -2.9% as of Oct 3, -2.9% as of Sept 26, -2.8% as of Sept 19, -3.0% as of Sept 12, -2.8% as of Sept 5, and -3.1% as of Aug 29. Please note that we try to pull the data early Saturday mornings for a consistent weekly comparison. Eurocontrol updates this data daily and it is found at [LINK].

Figure 67: Europe Air Traffic: Daily Traffic Variation to end of Oct 31



Source: Eurocontrol

Oil: IATA global domestic air travel new record, international below pre-Covid

September air travel up YoY

On Thursday, we tweeted [LINK] *"Air travel is back to the most part. @IATA Sept air passenger data. Overall, industry total RPK was +7.1% YoY "reaching an all-time high for the month of Sept" Domestic > pre-Covid. Domestic RPH +3.7% YoY "establishing a new record for the industry." International: No total vs pre-Covid but infers is less given Within Asia and Europe/Asia both below pre-Covid. #OOTT."* On Thursday, the International Air Transport Association (IATA) released air passenger data for September 2024 [LINK]. As noted in our tweet, overall, "*Industry total Revenue Passenger-Kilometer (RPK) grew 7.1% year-on-year (YoY), reaching an all-time high for the month of September*." Domestic air travel was above pre-Covid. "*Record-setting domestic traffic in September. In September 2024, domestic RPK increased 3.7% over the previous year, establishing a new record for the industry."* International air travel seems still below pre-Covid. Unfortunately, the IATA did not give a specific comment or data on how total global international travel was doing relative to pre-Covid. So we can't calculate or see where it is relative to pre-Covid. But, if it was above pre-Covid, we are sure the IATA would have described total international air travel as setting a new record and it made no such reference. Rather all they did was comment on regions without provide the regional data. The only reference to record was for record load factor ie. bums in the seats. But that doesn't mean record RPKs. And when we see the regional comments, it seems like the net impact is that international RPKs would be below pre-Covid. Asia is down big where other regions are up. Our Supplemental Documents package includes the IATA passenger report.

Figure 68: September 2024 Air Passenger Market

	World share [1]	September 2024 (% year-on-year)				September 2024 (% year-to-date)			
		RPK	ASK	PLF (%-pt)	PLF (level)	RPK	ASK	PLF (%-pt)	PLF (level)
TOTAL MARKET	100.0%	7.1%	5.8%	1.0%	83.6%	11.3%	9.7%	1.2%	83.4%
International	60.1%	9.2%	9.1%	0.1%	83.8%	14.7%	14.5%	0.2%	83.1%
Domestic	39.9%	3.7%	0.7%	2.4%	83.3%	6.3%	2.7%	2.8%	83.9%

[1] % of industry RPKs in 2023

Source: IATA

Oil: Asia/Pacific intl Sep passenger air travel up +18.8% YoY but down -2.5% vs 2019

Asian Pacific air traffic in September

On Monday, the Association of Asia Pacific Airlines released its September traffic results [LINK] which is comprised of aggregate data across a total of 40 Asia Pacific airline carriers. (i) Air travel. International passenger air travel on the 40 airlines is up big YoY, but still -2.5% below 2019 levels. The AAPA reports preliminary September 2024 travel figures were up +18.8% YoY from September 2023. The AAPA wrote *"The region's airlines registered an 18.8% year-on-year growth in the number of international passengers carried to a combined total of 29.2 million in September. Traffic volumes averaged 97.5% of the corresponding month in 2019. Demand as measured in revenue passenger kilometres recorded a 19.3% year-on-year increase, reflecting strength on long haul travel markets. The average international passenger load factor edged 0.4 percentage points higher to 80.5% in September, following an 18.7% expansion in available seat capacity."* (ii) Air cargo was up +8.9% YoY, measured in Freight Tonne Kilometres (FTK), and the load factor fell by -0.3% to 60.2%. Meanwhile, headline capacity measured in Available Seat Kilometres (ASK) rose +18.7% YoY. (iii) Subhas Menon, Director General of the AAPA, said *"during the first nine months of the year, the number of international passengers carried by Asia Pacific airlines rose by 34% to an aggregate total of 269 million, while international air cargo demand registered a 14% increase compared to the same period last year."* Below is a snapshot of the APAA's traffic update.

Figure 69: APAA Preliminary International Air Traffic Data

International	Sep-24	Sep-23	% Change
Passengers (Thousand)	29,246	24,612	+ 18.8%
RPK (Million)	105,813	88,724	+ 19.3%
ASK (Million)	131,471	110,715	+ 18.7%
Passenger Load Factor	80.5%	80.1%	+ 0.4 pp
FTK (Million)	6,075	5,578	+ 8.9%
FATK (Million)	10,091	9,225	+ 9.4%
Freight Load Factor	60.2%	60.5%	- 0.3 pp

Source: AAPA

Oil: IATA, global air cargo Sep was 14th consecutive month of YoY growth

IATA September global air cargo

We look at international air cargo as the data that affirms the level of export orders and trade. On Thursday, the International Air Transport Association (IATA) announced cargo data for the month of September [LINK]. September global air cargo, measured through Cargo Tonne-Kilometers, increased 9.4% YoY. This marks the fourteenth consecutive month of YoY growth. The IATA wrote "*Total demand, measured in cargo tonne-kilometers (CTKs*), rose by 9.4% compared to September 2023 levels (10.5% for international operations) for a 14th consecutive month of growth. Capacity, measured in available cargo tonne-kilometers (ACTKs), increased by 6.4% compared to September 2023 (8.1% for international*

operations). This continued to be largely related to the growth in international belly capacity, which rose 10.3%--extending the trend of double-digit annual capacity growth to 41 consecutive months". Willie Walsh, IATA's Director General, commented "*September performance brought continued good news for air cargo markets. With 9.4% year-on-year growth, cargo volumes continued to mark all-time highs for demand. Yields are also improving, up 11.7% on 2023 and 50% above 2019 levels. All this points to a strong finish for this year. For longer-term trends, the air cargo world will be closely following the outcome of the US election for indications of how US trade policy will evolve*" Our Supplemental Documents package includes the official IATA report.

Figure 70: September 2024 Air Cargo Market

	World share [1]	September 2024 (% year-on-year)				September 2024 (% year-to-date)			
		CTK	ACTK	CLF (%-pt)	CLF (level)	CTK	ACTK	CLF (%-pt)	CLF (level)
TOTAL MARKET	***100.0%***	**9.4%**	**6.4%**	**1.3%**	**45.6%**	**12.6%**	**8.4%**	**1.7%**	**45.2%**
International	*86.6%*	10.5%	8.1%	1.1%	50.8%	13.5%	10.8%	0.2%	50.6%

Source: IATA

Oil & Natural Gas: Q3 will be worse for Cdn natural gas producers than Q2

AECO Q3/24 $0.66

Q3 reporting has started for Cdn oil and gas companies and, no surprise, one of the key themes is the weak AECO gas price in Q3/24. This should not suprise anyone as it was one of the known themes for Cdn oil and gas producers will be that Q3 will show lower oil and gas prices than for Q2 reporting, in particular for natural gas prices. Below is our table that shows the final prices to the end of Q3/24. The big negative vs Q2 is AECO averaged $0.66 in Q3/24 vs $1.12 in Q2/24 and $2.23 in Q1/24. The issue for analysts will be twofold. Reflecting the actuals in their model and what price forecast to use in their valuations. Below is our table of oil and gas prices.

Figure 71: Oil & natural gas prices

Period	Brent	WTI	EDPAR	WCS	HH	AECO
Q1/19	US$ 62.90	US$ 54.72	US$ 50.55	US$ 44.11	US$ 2.92	C$ 2.42
Q2/19	US$ 69.19	US$ 59.93	US$ 54.39	US$ 47.34	US$ 2.56	C$ 1.05
Q3/19	US$ 62.23	US$ 56.41	US$ 52.35	US$ 43.84	US$ 2.38	C$ 0.96
Q4/19	US$ 64.19	US$ 56.98	US$ 50.75	US$ 37.94	US$ 2.39	C$ 2.34
Q1/20	US$ 51.63	US$ 46.10	US$ 39.04	US$ 28.10	US$ 1.92	C$ 1.93
Q2/20	US$ 29.71	US$ 27.97	US$ 22.25	US$ 18.39	US$ 1.70	C$ 1.90
Q3/20	US$ 44.38	US$ 40.88	US$ 36.84	US$ 31.09	US$ 1.96	C$ 2.14
Q4/20	US$ 45.17	US$ 42.80	US$ 38.03	US$ 31.36	US$ 2.47	C$ 2.52
Q1/21	US$ 61.15	US$ 57.91	US$ 54.39	US$ 46.06	US$ 3.39	C$ 2.97
Q2/21	US$ 68.05	US$ 66.16	US$ 62.17	US$ 53.31	US$ 2.91	C$ 2.93
Q3/21	US$ 73.24	US$ 70.59	US$ 66.94	US$ 57.70	US$ 4.31	C$ 3.40
Q4/21	US$ 79.04	US$ 77.29	US$ 73.79	US$ 60.91	US$ 4.71	C$ 4.48
Q1/22	US$ 101.80	US$ 94.93	US$ 93.84	US$ 82.29	US$ 4.63	C$ 4.53
Q2/22	US$ 113.86	US$ 108.85	US$ 107.12	US$ 93.39	US$ 7.47	C$ 6.89
Q3/22	US$ 100.62	US$ 91.81	US$ 89.95	US$ 71.19	US$ 7.96	C$ 4.16
Q4/22	US$ 88.64	US$ 82.61	US$ 79.71	US$ 54.91	US$ 5.54	C$ 5.01
Q1/23	US$ 81.17	US$ 76.10	US$ 73.75	US$ 56.94	US$ 2.66	C$ 3.08
Q2/23	US$ 78.30	US$ 73.61	US$ 70.56	US$ 60.29	US$ 2.16	C$ 2.30
Q3/23	US$ 86.70	US$ 82.19	US$ 79.76	US$ 66.16	US$ 2.59	C$ 2.48
Q4/23	US$ 84.22	US$ 78.46	US$ 71.01	US$ 55.67	US$ 2.74	C$ 2.19
Q1/24	US$ 83.04	US$ 76.99	US$ 68.71	US$ 60.03	US$ 2.31	C$ 2.23
Q2/24	US$ 84.84	US$ 80.80	US$ 72.80	US$ 68.28	US$ 2.07	C$ 1.12
Q3/24	US$ 80.32	US$ 75.52	US$ 68.11	US$ 62.20	US$ 2.11	C$ 0.66

Source: Bloomberg

Source: Bloomberg, SAF Group

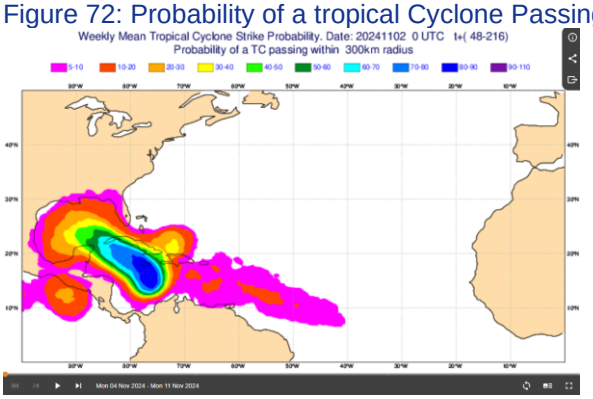
Oil & Natural Gas: Potential tropical depression into the Gulf of Mexico

Potential tropical depression

It's November so the probability for a Tropical Storm or stronger Hurricane isn't expected but the NHC and ECMWF both see the potential for Tropical Depression strength over the next week into the Gulf of Mexico. At 4:42am MT, the NHC places a 90% chance of cyclone formation in 7 days and "*a tropical depression is likely to form within the next couple days*

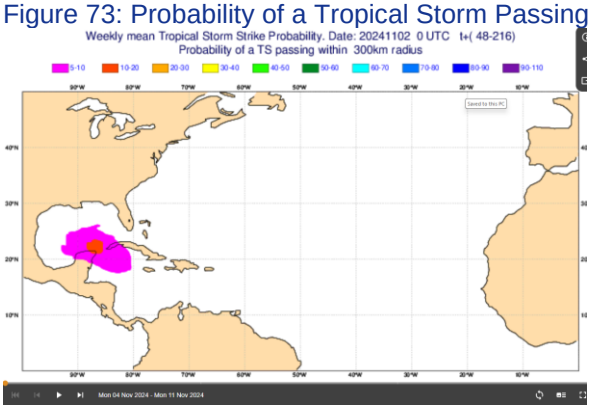
while moving generally northward to northwestward over the central and western Caribbean Sea." Below is the ECMWF (European Centre for Medium-Range Weather Forecasts) forecast from yesterday for probability of a cyclone passing within 300 km radius. And then the same map but for a forecast of a tropical storm strength passing with 300 kim and the ECMWF only sees a 10-20% for this to be reach tropical storm strength.

Figure 72: Probability of a tropical Cyclone Passing with 300 km



Source: ECMWF

Figure 73: Probability of a Tropical Storm Passing with 300 km



Source: ECMWF

Rare for Atlantic hurricanes to make landfall in Nov

It hasn't happened since 1985 for an Atlantic hurricane to make landfall in Nov and that was Hurricane Kate that made landfall as a Cat 2 at Mexico Beach (Florida) on Nov 22, 1985. The below table notes the six Atlantic hurricanes that made landfall in 2010 in the month of October.

Figure 74: Atlantic hurricanes making landfall post Sept 30 since 2010

Landfall Date	States Affected and Category by	Highest Saffir-Simpson U.S.	Central Pressure	Max Wind	Name
Oct 29, 2012	NY, 1	1	942	65	Sandy
Oct 8, 2016	FL, NE2; GA, 1; SC, 1; NC, 1	2	963	85	Matthew
Oct 7, 2017	LA 1, MS 1	1	983	65	Nate
Oct 10, 2018	FL, NW5; I-GA, 2	5	919	140	Michael
Oct 9, 2020	LA,2	2	970	85	Delta
Oct 26, 2020	LA,3; MS, 2; I-AL, 1	3	970	100	Zeta

Source: National Hurricane Center

Oil & Natural Gas – sector/play/market/global insights from Q3 calls

Sector insights from Q3 calls

This was a big week for Q3 reporting for oil companies including the supermajors. The oil and gas services companies were first to report, mostly last week, and we typically get some of the best macro insights from the services, pipelines, refineries and utilities. We find we get the best insights into a range of oil and gas themes/trends, sectors and plays form the conference calls. As a reminder, our Energy Tidbits memo does not get into the quarterly results, forecasts, or valuation. Rather the purpose of highlighting a company is to note themes/trends and plays that will help shape a reader's investment thesis to the energy sector. In the conference calls, we also tend to find the best insights from the Q&A portion as opposed to the prepared remarks.

Coterra: Continue to curtail ~0.33 bcf/d due to low prices

Coterra Energy held its Q3 call on Friday. We have been highlighting Coterra as one of the natural gas producers who have voluntarily shut in natural gas due to low prices. Coterra will continue to curtail its natural gas production. On the Q3 call, mgmt said "*We are continuing our month-to-month curtailment in the Marcellus with a planned 340,000 MMBtu per day gross and 288,000 MM Btu per day net shut-in for the month of November. This volume represents a part of our sales portfolio tied directly to northeast local pricing. We will continue to monitor pricing and make our curtailment decision one month at a time.*"

EQT: brought back curtailed gas that was 1 bcf/d at peak

EQT held its Q3 call on Wednesday. In the Q3 release, EQT said it's curtailed natural gas reduced Q3 production by approx. 0.4 bcf/d. In the Q&A, mgmt confirmed they had brought back on all of the curtailed volumes that had reached 1 bcf/d at its peak. And EQT had brought the curtailed volumes back in Sept and not in Oct as previously guided. Mgmt replied "*Yeah. So on that first question of what we have tail, we've been fully on line for several weeks, actually. So I wouldn't expect when you're looking at your gas balances that EQT is bringing back an additional I Bcf a day, which we had curtailed at the peak. That's already back. It's been back. And so I think as everyone is trying to look at their gas models. I think that's a pretty important factor. And look, we did that because the market showed that there is a need for that gas. It was above our price targets. And so as you look at our improved guidance for 04, a lot of that's because the assumptions we had previously made for curtailment in October just haven't played out. We just haven't needed to curtail in response to what the market has told us.*"

Precision Drilling: Active drilling heavy /medium oil and Montney

Precision held its Q3 call on Wednesday. (i) US Lower 48 "steady as she goes is the theme. "*Customer demand remains constrained by volatile oil prices, soft natural gas prices, customer consolidation and annual budget exhaustion*." (ii) Modest pickup in Lower 48 with new budgets. "*With 2025 budget reloads on the horizon, we are seeing signs of a modest rebound in U.S. activity as we've added seven term contracts since the end of the second quarter."* (iii) Very strong demand for their rigs for heavy/medium oil and Montney. "*Utilization for our Super Single rigs, drilling heavy oil and for our Super trilling -- Triple rigs, drilling Montney Gas and gas condensate are both at historic highs for these rig classes. Today we have 75 rigs operating in Canada and expect this pace to continue other than a short few days around Christmas as some customers may give rig crews a break before getting fired up to what looks like a very busy 2025 -- 2025. We expect winter activity to ramp up fast in early this year, beginning as soon as December 27. With our activity hitting high '70s or low '80s by the end of the first week of January. Peak activity this winter should exceed last year for Precision. Based on current customer plans, the seasonal spring breakup will be weather driven, not budget driven and we expect a busy spring breakup period similar to last year with many rigs on large multi-well pads operating through breakup."* Note PD's comment of the emerging trend over the past few years – more multi well pad drilling over spring breakup. (iv) Expect a pickup in natural gas drilling as LNG Canada Phase 1 starts, much like seen with heavy oil drilling with TMX start up. In the Q&A, mgmt replied "*That's a great question. And you'll notice my comments were a little brief on LNG in our prepared comments. First thing I'll say is we were -- you're surprised by how quickly customers responded to the takeaway capacity for the Trans Mountain pipeline. And I'd say the demand was probably 10% to 15% higher than we expected resulting from that pipeline expansion. So we're watching anxiously to see how LNG Canada fires up. We know the pipe gas is going into the pipe now to get the facility commissioned. We're still hearing the first shipments are going to be happening in -- at the end of the second quarter and 2025 for LNG Canada. So I think that -- I think that we'll see rig demand increase and it might be two or three rigs or it could be a little more maybe four or five rigs, but it feels like demand is in that kind of two to five rig range to balance out the needs for LNG Canada."*

Energy Transition: Saudi, definition of energy security changed & now incl materials

Energy security includes materials

Saudi Energy Minister Abdulaziz's key note speech on Monday also highlighted how Saudi Arabia is moving to develop more of its mining and minerals as they also look at the energy transition. Abdulaziz highlighted how the definition of energy security is changing under the energy transition. It's no longer just about having access to oil, it's also needing to access metals and raw materials ie. those critical materials for the energy transition. On Monday, we tweeted [LINK] ""*.. energy security – the definition will be changed to one that encompasses materials and raw materials" @MoEnergy_Saudi Energy Minister Abdulaziz. It's why Saudi is keeping #OIl capacity at 12.3 mmb/d, expanding #NatGas production AND developing its resources & mines. #OOTT."* Our tweet included the transcript we made of Abdulaziz comments made at the 32:59 min mark. Abdulaziz "*However, the direction has changed for too many purposes, especially supply chain resilience. And especially also to try to monetize more of our own resources, mines and what have you. And we honestly, going through the*

transition that we are going through, we do identify with the rest of the world that energy security – the definition will be changed to one that encompasses materials and raw materials. And those who will capture it first, will have the ability to say I do have an energy security. Those who are going to miss, I think they are going to miss it forever. So be careful, the world has transitioned in the definition of what we call it, energy security."

10/20/24: Many energy transition reality checks from Saudi Aramco CEO

Saudi Arabia via Saudi Aramco CEO Nasser outlined a number of energy transition reality checks. Here is what we wrote in last week's (Oct 27, 2024) Energy Tidbits memo on Nasser's Oct 20 keynote address. "*Even if someone is anti fossil fuels, we recommend reading Saudi Aramco CEO Nasser's keynote speech at the Singapore International Energy Week. [LINK]. It's not that we expect anti-fossil fuels to change their position. Raher Nasser's points on developing countries will at least get anti-fossil fuels, including western governments, to consider why the energy transition will take a lot longer than the aspirations. If so, it could help create realistic aspirations and help minimize energy cost escalation and volatility. (i) His fundamental big picture views are the energy transition isn't working as per aspirations and it's not an energy transition but an energy addition. (ii) Energy Transition has failed on its 3 core promised areas. Energy is not affordable. Progress is off the pace. And ""transition will be expensive for everyone, with estimates of between 100 and 200 trillion dollars required globally by 2050. For developing countries, almost 6 trillion dollars may be required each year." (iii) New energy will not replace old energy, it will just be added on. Nasser said "Gas demand has also grown, by almost 70 percent since 2000. So, rather than an energy transition, we are really talking about energy addition, where just the growth is mostly met by alternatives, instead of replacing conventional energy in any meaningful way." (iv) Transition isn't as simple as western leaders assume. Nasser said "Transition progress is far slower, far less equitable, and far more complicated than many expected" (v) The point that we encourage looking at is Nasser's comments on the assumptions that developing countries can effectively jump from very little or no energy to a world of new energy. On Monday, we tweeted [LINK] "2 overlooked #EnergyTransition thoughts from @aramco CEO keynote. How can OECD expect LDC to jump from no/little energy basics to Net Zero? OECD are creating an inevitable energy crisis in the coming years as "Planners must stop assuming the world can replace its conventional energy needs with half-baked alternatives, almost overnight, particularly in the Global South. This assumption is seriously discouraging investments in these crucial conventional sources" Lots more in this reality check. #OOTT." Our Supplemental Documents package includes the Saudi Aramco CEO speech."*

Energy Transition: Fossil fuels provide 63.7% of Dominion's power for data centers

Fossil fuels power Dominion's data centers

Bullish indicator for natural gas and coal from Dominion Energy, the global leader in providing power to data centers, from their Oct 15 filed 2024 Integrated Resource Plan. Dominion held its Q3 call on Friday. We flipped thru their Q3 slides and didn't see the words natural gas or coal, yet we know from our prior work. They also didn't mention natural gas or coal in their prepared comments and only did so when asked in the Q&A. So we went to their Oct 15 filed 2024 Integrated Resource Plan that shows the 2023 capacity by fuel and 2023 actual energy mix by fuel. And, similar to what we highlighted on their 2022 capacity and actual energy mix

in our March 4, 2024 Energy Tidbits memo, Dominion's actual power supplied is primarily dependent on fossil fuels and then nuclear. And renewables were 10.9% of Dominion's power capacity in 2023 but only delivered 5.0% of the actual power. Reminder that capacity is what Dominion notes is "*potentially available*" and energy mix is the "*sources of energy actually delivered.*" And Dominion noted that its power purchases were comprised of "*existing contracts with renewable energy and fossil based PPAs".* In their charts/tables, they specifically note Renewable purchases but then just put the rest in "*Other Purchases*", which must be the Fossil based PPAs. So even though they don't mention natural gas or coal Yesterday, we tweeted [LINK] "*Numbers don't lie! Dominion's huge data center growth in 2020s/2030s is bullish for #NatGas #Coal. Fossil fuels provided 63.7% of $D's power in 2023. 2024 IRP: 2023 capacity vs % of actual energy supplied: Renewables incl purchases: 10.9% vs 5.0%. Nuclear: 16.6% vs 29.2%. Fossil Fuels incl purchases: 63.4% vs 63.7%. Pumped storage: 9% vs 3%. #OOTT."* Even though Dominion doesn't want to mention fossil fuels, fossil fuels provided 63.7% of Dominion's total power. It is disappointing to see the machinations companies will go to avoid mentioning fossil fuels and, in Dominion's case, rounding up numbers to make renewables look a little better. Below is the table we created from Dominion's 2023 Integrated Resource Plan. Our column for actual energy mix adds up to 100.9% and that is because Dominion only provided rounded numbers for renewables instead of giving one decimal. So renewables are a rounded 8.0% but should have been 7.1% if Dominion had give one decimal like all other numbers. Our Supplemental Documents package includes the excerpts from the IRP that we attached to our tweet and that are the source of data for our table.

Figure 75: Dominion Energy 2023 Capacity & Energy Mix by Fuel Type

Dominion Energy 2024 Integrated Resource Plan Oct 15, 2024				
Fuel Source	Net Summer Capacity MW	% of Capacity	% of Actual Energy Mix	Actual vs capaicty
Nuclear	3,348	16.6%	29.2%	12.6%
Natural Gas	8,533	42.4%	36.0%	-6.4%
Pumped Storage	1,808	9.0%	3.0%	-6.0%
Coal	2,666	13.2%	5.0%	-8.2%
Oil	400	2.0%	0.0%	-2.0%
Renewable - solar, wind, hydro biomass	1,087	5.4%	3.0%	-2.4%
Energy Storage	20	0.1%	0.0%	-0.1%
Renewable Purchases	1,109	5.5%	2.0%	-3.5%
Other Purchases (Assume Fossil Fuels)	1,160	5.8%	22.7%	16.9%
	20,131	100.0%	100.9%	0.9%
1. The Energy Mix only provided rounded numbers for Renewables, Renewable Purchases and Pumped Storage				
2. Capacity represents "potentially avaialble contribution of ech type of generating resource"				
3. Power purchaes agreemens are "with renewable energy and fossil based PPAs"				
Source: Dominion Energy 2024 Integrated Resource Plan				
Prepared by: SAF Group https://safgroup.ca/insights/energy-tidbits/				

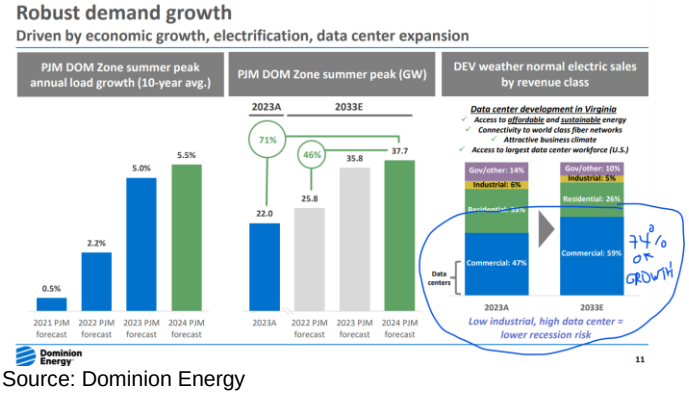
Source: Dominion Energy

03/01/24: Dominion Energy's data centers driven by fossil fuels & nuclear

Here is what we wrote in our March 3, 2024 Energy Tidbits memo on Dominion's 2022 capacity and energy mix by fuel type. "*We have been highlighting the stronger and earlier than expected electricity demand from data centers/AI and how they need 24/7 power ie. natural gas, nuclear and coal. Dominion Energy held its investor day on Friday, When we saw the released and slide deck on Friday morning, we tweeted [LINK] "Data centers/AI growth = massive need for 24/7, not ntermittent, power. $D highlights 74% of electricity growth is commercial driven by data centers/AI. Can do*

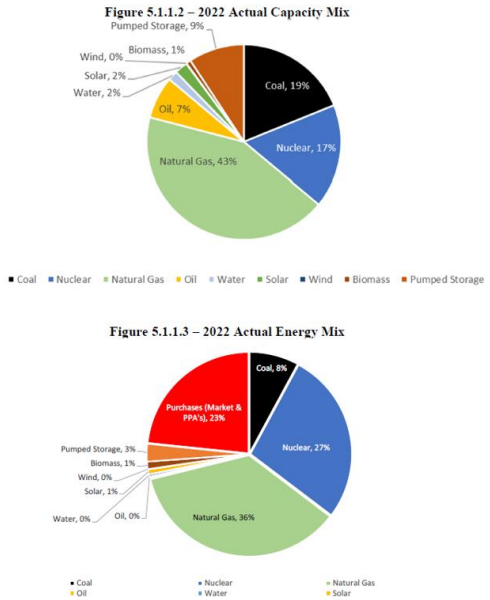
so only because of its #Nuclear #NatGas #Coal. Green energy was 14% of 2022 capacity but only 5% of actual. #OOTT." Dominion highlighted data center/AI power growth and how Virginia was the dominant place for data center/AI in the world. And how DEV (Dominion Energy Virginia) was the dominant player. Dominion forecasts big growth in electricity consumption in Virginia and "commercial" is 74% of the growth in demand in next 10 years. And commercial is driven by data centers/AI. Our tweet highlighted how Dominion is able to be the dominant player because it's electricity supply is 95% driven by 24/7 fuel from nuclear, natural gas and coal. In their 80 slides for the investor day, we didn't see anywhere their electricity capacity mix or their actual energy supply mix. However, our tweet included their filed data with the state of Virginia for their Virginal 2022 actuals for energy capacity mix and energy supply mix. In 2022, they had 14% of the energy capacity was clean energy. However in 2022, clean energy only supplied 5% of the actual energy supplied. Ie. data centers/AI need 24/7 power and Dominion is fortunate that 95% of its power was from nuclear, natural gas and coal. It reminds that natural gas will be needed for the stronger and earlier than expected growth in power demand from data centers/AI. For example, there is a good slide that shows how a data center supporting AI can required 2-3x the electricity that a typical data center with AI. We recommend reviewing the Dominion slides as they provide good overall sector background on data centers/AI."

Figure 76: Commerical is 74% of DEV electricity growth to 2033



Source: Dominion Energy

Figure 77: Dominion's Virginia 2022 actual energy capacity mix and actual energy mix



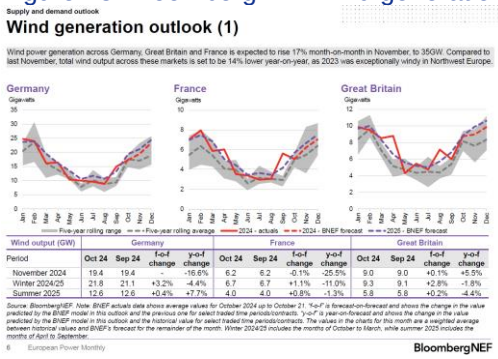
Source: Dominion Energy

Energy Transition: Europe wind and solar have offsetting seasonal peaks/troughs

Europe wind and solar seasonality

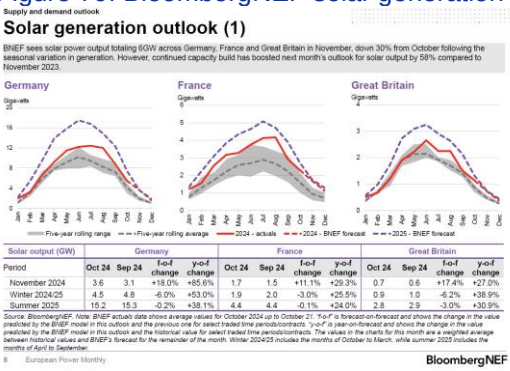
On Thursday, we tweeted [LINK] "*Wind & Solar 101. EU wind has big gains from summer trough to winter peak vs solar has big losses from summer peak to winter trough. Offsetting seasonality means adding solar + wind capacity doesn't add 1 +1 in terms of actual generation in EU. But a modest net up in winter ie. less demand for #NatGas generation especially if hot winters like 22/23 & 23/24. Thx @BloombergNEF. #OOTT.*" There was a good reminder from BloombergNEF's European Power Monthly that, in Europe, wind and solar power generation complement each other in terms of their seasonal peaks and troughs. Europe wind peaks in the winter and troughs in the summer whereas solar troughs in the winter and peaks in the summer. So wind and solar generation are affected by their daily intermittency and also by their seasonal highs and lows. So adding wind and capacity doesn't deliver 1+1 in actually delivering wind and solar generation. Rather it is probably more like 1+1 = 1.2 and not 2.0. Our tweet included the below graphs. Eyeballing the graphs, it looks like the net gains from wind moving to its winter peak more than offset the losses from solar moving from its summer peak to its winter trough. So the net impact into the winter is a modest negative to natural gas but that can be more if it's a hot winter like seen in 2022/23 and 2023/24. Below are the graphs for Germany, France and Great Britain. Our tweet also included similar graphs for Spain, Italy and Belgium. Our Supplemental Documents package includes all of the BloombergNEF graphs attached to our tweet.

Figure 78: BloombergNEF wind generation outlook



Source: BloombergNEF

Figure 79: BloombergNEF solar generation outlook



Source: BloombergNEF

Energy Transition: PHEV sales are the big China NEV growth area

China PHEV sales up big YoY

We suspect not very many people realize that PHEVs have overtaken BEVs in China for growth in sales and that China has sold. No one can deny China is the success story for BEVs in the world and it continues show strong YoY growth. But what often gets overlooked is that the big NEV growth area is PHEVs. That's understandable as most just refer to the NEVs in total. NEV stands for New Energy Vehicle and PHEV are part of NEV. Below is the table we created of China car sales in Sept splitting out NEV. Chinese PHEVs have been the big growth area in 2024 and more than 1 million PHEVs were sold YTD Sept 30. (i) Yesterday, we tweeted [LINK] "*China PHEV sales up >1 million YoY in 2024.Sept: BEV: +154,059 YoY or +32.2% YoY to 632,893. PHEV: +201,007 YoY or +131.4% YoY to 353,949. YTD Sept 30: BEV: +711,300 YoY or +21.0% YoY to 4,091,110. PHEV: +1,014,692 YoY or +89.3% YoY to 2,150,471. Haven't seen good estimates of % of PHEV kms in gasoline vs electric mode. Volvo 👇says their PHEVs are 50/50. #OOTT.*" (ii) BEV Sept sales continue strong at +32.2% YoY and +154,059 cars YoY to 632,893 BEVs in Sept. YTD Sept 30, BEV sales are +711,300 YoY or +21.0% YoY to 3,379,810 cars. (iii) PHEV sales are the big winner at +201,007 YoY or +131.4% YoY to 353,949 cars in Sept. YTD Sept 30, PHEV sales are+1,014,692 YoY or +89.3% YoY to 2,150,471 cars. For YTD Sept 30, PHEV sales are +283,914 vs BEV sales. (iv) Gasoline is the big loser and sales are down YoY.

Gasoline Sept sales were -239,243 YoY to 955,789cars. YTD Sept 30, gasoline sales were -1,512,973 to 8,122,790 cars. Below is the table we created and attached tour tweet.

Figure 80: China car sales in Sept 2024 by fuel source

China Car Sales

September 2024

	Sep-24	Sep-23	Volume change	*% change*	YTD Sep-24	YTD Sep-23	Volume change	*% change*
BEV	632,893	478,834	154,059	*32.2%*	4,091,110	3,379,810	711,300	*21.0%*
Range Extended BEV	119,984	62,846	57,138	*90.9%*	811,395	384,009	427,386	*111.3%*
PHEV	353,949	152,942	201,007	*131.4%*	2,150,471	1,135,779	1,014,692	*89.3%*
HEV	98,212	74,895	23,317	*31.1%*	684,799	653,921	30,878	*4.7%*
Gasoline	955,789	1,195,032	(239,243)	*(20.0%)*	8,122,790	9,635,763	(1,512,973)	*(15.7%)*
Diesel	1,623	1,247	376	*30.2%*	11,231	10,950	281	*2.6%*
Other	2,858	4,655	(1,797)	*(38.6%)*	26,998	39,915	(12,917)	*(32.4%)*
Total	**2,165,308**	**1,970,451**	194,857	***9.9%***	**15,898,794**	**15,240,147**	658,647	***4.3%***

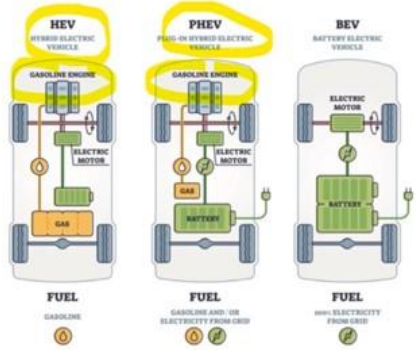
Source: Bloomberg
Prepared by SAF Group

Source: Bloomberg

HEVs & PHEVs are really just more fuel efficient ICE vehicles

As noted in our tweet, we have yet seen any good estimates for how much Chinese PHEVs are driven in gasoline vs electricity model. We noted our prior disclosure on Volvo saying their PHEVs are driven about 50/50 in gasoline vs electricity mode. In the western world, HEVs are the big winners as opposed to PHEVs in China. The emergence of HEVs and PHEVs is a win or at least a much lesser loss of gasoline/diesel consumption vs EVs. No one can deny an HEV will burn less gasoline or diesel than its ICE counterpart. However, we still find many don't understand that HEVs and even PHEVs are really just more fuel-efficient ICE vehicles and, in particular, for PHEVs that are generally lumped in with EVs for an electrified car group. HEVs and PHEVs run on gasoline or diesel for likely at least half of the time for PHEVs and probably 90% for HEVs. On Sept 4, we tweeted [LINK] "*HEV/PHEV 101 - They are really just more fuel efficient ICE. Ford: HEV F150 does 23 mpg vs ICE150 at 19 mpg. Volvo: PHEVs km driven are split 1/2 using battery, 1/2 using petrol/diesel. #OOTT."* Our tweet referenced Ford and Volvo data on HEVs and PHEVs. On Ford F150 Hybrid vs ICE mpg. Our tweet included the EPA rated mileage for the Ford F150 ICE vs Hybrid. The EPA rates the Hybrid fuel efficiency as being only 4 mpg more than the ICE. That increased fuel efficiency would be reduced if it was a full apples-to-apples comparison. The ICE has a much larger towing capacity. The F150 ICE 3.5L cyl F-150 does 19 MPG with a tow capacity of 13,500 lbs. The F150 HEV 3.5L 6 cyl F-150 does 23 MPG with a tow capacity of 11,200 lbs. On Volvo PHEVs, most just lump PHEVs in with EVs because both are electrified. But the reality is that a lot of PHEV is driven in ICE mode. As noted earlier, Volvo backed off its fully electric plans and its press released noted "*Volvo Cars' most recent data shows that around half of the kilometres covered by the latest plug-in hybrid Volvo cars are driven on pure electric power."* So based on the "most recent data", Volvo PHEVs are driven around 50/50 between km driven in battery mode vs ICE mode. Given the press release was Volvo having to back away from its electrified goals, we have to be believe the "around half" driven by PHEV is likely below half. We also believe that Volvo has likely picked the best time period for PHEVs driving in battery mode. We would assume the most recent data is referring to some spring/early summer period and it does not include winter months where the PHEVs will be driven more in their ICE mode.

Figure 81: HV vs PHEV vs BEV



Source: Engineering Infrastructure

Energy Transition: EVs are brutal for Ford, F-150 and ICE trucks are the key to results

Brutal EVs for Ford

Ford reported its Q3 on Monday and no should have been surprised to see the brutal EV results/guidance and how Ford says its ICE truck sales are the key to results. (i) On Monday, we tweeted [LINK] "*Good stuff in Ford's cautionary statement and not upfront in the Q3 message? Success depends on selling ICE trucks in US. "Ford's results are dependent on sales of larger, more profitable vehicles, particularly in the US". Big risk is all-about EVs. "Ford may face increased price competition or a reduction in demand for its products resulting from industry excess capacity, currency fluctuations, competitive actions, or other factors, particularly for electric vehicles". Note: Ford expects adjusted EBIT of ~$10b after Model e a full-year loss of about $5b. #OOTT #EVs."* (ii) EVs are brutal for Ford in 2024. No surprise as they already pre-announced the Q3 EV writeoffs. ""*Full-year EBIT for Ford Pro is now expected to be about $9 billion, Ford Blue about $5 billion, and Model e a full-year loss of about $5 billion. Earnings before taxes from Ford Credit are now expected to be about $1.6 billion"* Note the EVs $5b loss is after almost $1b in cost improvements YTD." "*Ford Model e reported an EBIT loss of $1.2 billion. The $500 million of year-over-year cost improvements were offset by expected industrywide pricing pressure. The segment continues to improve its profit trajectory, achieving almost $1 billion in cost improvements year-to-date. Ford continues to remove barriers to EV adoption by offering customers greater access to charging both at home, through the Ford Power Promise, and on the road through a growing charger network. And the nearly 3,000 Ford dealers now able to sell electric vehicles are a competitive advantage as Ford reaches new customers in areas of the U.S. that might otherwise be slow to adopt electric vehicles."* (iil) Gotta love they don't want to come out directly in the main mesasaging and say that Ford 's success is all about selling high margin ICE trucks in the US.. Rather the first paragraph in the press release talks about long-term success so it can include EVs. "*Ford reported third-quarter 2024 results that indicate the long-term value creation made possible by a winning lineup of internal combustion, hybrid and electric vehicles for retail and commercial customers combined with an advantaged strategy and global footprin*t." (iv) Ford didn't come out in the messaging and say their results really depend on selling ICE trucks in the US. Rather they buried that in th area that most don't read "*Cautionary Note on Forward-Looking Statements*", Ford writes "*Ford's results are dependent on sales of larger, more profitable vehicles, particularly in the United States;" And then they try to dampen highlighting EVs as the big risk by writing "Ford may*

face increased price competition or a reduction in demand for its products resulting from industry excess capacity, currency fluctuations, competitive actions, or other factors, particularly for electric vehicles" Our Supplemental Documents package includes the Q1 Cautionary Note on Forward-Looking Statements*."*

Ford pauses production of Ford F150 Lightning for six weeks

This didn't come out in the Q1 on Monday but, on Thursday, we tweeted [LINK] "*Breaking. Ford to halt production of its F-150 Lightning electric vehicle pickup trucks for 6 weeks from Nov. 18 to Jan. 6. "We continue to adjust production for an optimal mix of sales growth and profitability," a Ford spokesperson said." reports @davidshepardson [LINK]. See 👇10/28 tweet, Ford was clear, its results depend upon selling ICE pickup trucks. #OOTT."* Ford is stopping production of its F-150 Lightning electric pickup truck after the last shift on Nov 15 until the new year. This 7-week halt includes the already planned 1-week shutdown at Christmas ie. it's a 6-week production halt. The only general comment from Ford was the spokesperson saying "*we continue to adjust production for an optimal mix of sales growth and profitability."* The F150 Lightning electric vehicle was their signature Ford electric vehicle so it's a reflection that Ford is struggling to find buyers.

Capital Markets: Liberal govt safe as NDP won't support a motion to topple

Cdn election not likely in near term

It looks like there won't be a Cdn election in the near-term, which we believe means the earliest is a spring 2025 election. The Bloc Quebecois leader Blanchet had announced they would approach the other opposition parties to look at a non-confidence vote that would force a near-term Cdn election. But even though the Liberals only have a minority govt, any non-confidence vote would require all of the Bloc Quebecois, Conservatives and NDP to vote in favor. At least to many in the political world, no one was surprised NDP leader Jagmeet Singh said he wouldn't vote to topple the Liberal government as he didn't want to play games like the Bloc Quebecois and Conservatives. And he was well reported as saying ""*I will not let Pierre Poilievre, the 'king cut,' or the Bloc call the shots."* Our working assumption is that a federal election won't happen until after Feb 2025. Post Jagmeet Singh's well publicized tearing up of the support agreement with the Liberals in September, many politicians, including people like Ontario Premier Doug Ford, openly said they would be surprised if Singh supported any action that could force an election before Feb 2025. Their stated view was that was when he becomes eligible for his government pension as he became a MP in Feb 2019.

Capital Markets: BC NDP squeak out a majority in final BC election count

BC NDP remain in power

On Monday, we tweeted on the Elections BC final count announced that the BC NDP retained government with the narrowest possible majority. The final count was NDP 47 seats, Conservatives 44 seats and Green 2 seats. They picked up one seat from the preliminary count on election night of NDP 46, Conservatives 45 and Green 2. So that extra seat is the difference between having a majority government and having to involve the Green party in some sort support agreement. The real question will be how BC Premier David Eby leads the government considering they lost 18% of their seats from the pre-election majority of 57 seats down to 47 seats. His first tweet on Tuesday night was "*After a close and hard-fought campaign, British Columbians have asked us to keep working to make life better for*

them. That is exactly what we intend to do". Earlier in the memo, we noted the BC NDP election platform on oil and gas and LNG development.

Capital Markets: Trump trade seeing increasing interest rates

Trump trade

It's been a good week to see how fund managers and financial markets are viewing the impact of a Trump win. Earlier in the memo, we noted our differing view on Trump's biggest potential impact on oil markets. The last couple weeks have seen more financial people move to the expectation of a Trump win and, with that, the tracking of market indicators for a Trump win. One of these well discussed impacts is interest rates. On Monday we tweeted [LINK] *"US 10 yr now >4.28%. 8 days to Nov 5 election. thx @business #OOTT."* And we included the below Bloomberg TV graph.

Figure 82: Dollar, bond yields rising alongside Trump's betting odds

Source: Bloomberg

Capital Markets: USDA Consumer Price Index in Sep for food +0.4% MoM, +2.3% YoY

USDA CPI for food +2.3% YoY

We believe the USDA consumer food price index is supposed to be a much better indicator for grocery store prices than the UN's food commodity price index. But we continue to believe the actual prices at the grocery stores are way higher than indicated by the USDA inflation, or at least that is the view of consumers. And we highly doubt anyone who buys groceries, especially items like ground beef, would think grocery prices are only up +2.3% YoY. On Friday, the USDA posted its September Consumer Price Index for food [LINK], which reported the Consumer Price Index for all food (CPI) was +0.4% MoM and +2.3% YoY in September. The +2.3% YoY increase in the Consumer Price Index has a relative weighting for the various food categories. Beef and veal were up +0.3% MoM, +4.2% YoY, and are expected to increase +5.5% over 2024, fresh fruits are up +2.8% MoM, +1.6% YoY, and expected to increase +0.1% in 2024, retail eggs are up +10.0% MoM and +39.6% YoY, and expected to increase +8.8% in 2024. It is important to note the USDA said that the *"U.S. food prices are expected to continue to decelerate in 2024 compared to recent years. In 2024, prices for all food are predicted to increase 2.3 percent, with a prediction interval of 2.1 to 2.6 percent. Food-at-home prices are predicted to increase 1.2 percent, with a prediction interval of 0.9 to 1.6 percent. Food-away-from-home prices are predicted to increase 4.1 percent, with a prediction interval of 3.9 to 4.3 percent. In 2025, food prices are expected to increase more slowly than the historical average rate of growth. In 2025, prices for all food are predicted to increase 2.4 percent, with a prediction interval of -1.7 to 6.7 percent. Food-at-home prices are predicted to increase 1.6 percent, with a prediction interval of -4.6 to 8.0 percent. Food-away-from-home prices are predicted to increase 3.4 percent, with a prediction interval of 1.1 to 5.6 percent".*

Demographics: German birth rate crashed from 1.58 in 2021 to 1.35 children/woman

German birth rate crashed

On Oct 23, the ifo institute (Germany) posted "*ifo Dresden: Number of Births in Germany Decreasing Drastically*" [LINK]. The title says it all, the German birth rate is falling very quickly to very low levels. The general rule of thumb is that a birth rate of 2.1 children per woman is needed to keep populations flat or modestly grow. Germany was already below that and now the ifo reports the birth rate has crashed from 1.58 children per woman in 2021 and is now down to 1.35 children per woman. The ifo wrote "*Germany is currently experiencing a massive decline in births. In eastern Germany, in particular, far fewer children are being born than in the past. "The coronavirus crisis, the outbreak of war in Ukraine, and the subsequent drop in real income due to high inflation have clearly prompted many young families to put off having children for the time being," says Joachim Ragnitz from the Dresden branch of the ifo Institute. "Childbearing behavior, expressed by the birth rate, has changed massively in the past three years. It currently stands at just 1.35 children per woman, compared to 1.58 children per woman in 2021." Another part of the explanation is that the number of women aged between 27 and 36 in eastern Germany is in sharp decline, yet they account for the majority of births. The analysis shows that the decline in the birth rate already began in 2015 but has recently accelerated significantly. "Overall, almost 80,000 fewer children were born in 2022 and 2023 than would have been expected," adds Ragnitz."*

Global average birth rate driven by developing countries is 2.3 children/woman

All population forecasts call for increasing global population but that is really only because of developing growth rates in developing countries, in particular in Africa. The UN World Population Review 2024 [LINK] referenced World Bank data for 2022 , which estimates the global average in 2022 was 2.3 children per woman. But averages are deceiving. The developed countries most often highlighted for low birth rates in Asia are Taiwan at 1.09 and South Korea at 1.11. China is down to 1.5 and even India is only 2.1. Low birth rates iIn Europe are Italy at 1.24 and Spain at 1.29 . In North America, Canada is at 1.57 and US at 1.84. But then on the high end are developing countries Niger at 6.73, Angola at 5.76, DR Congo at 5.56, Mali at 5.45 and Benin at 5.39. Africa is driving world population growth, not Asia.

Twitter: Thank you for getting me to 11,000 followers

@Energy_Tidbits on Twitter

Last month, I went over 11,000 followers on Twitter/X. I really appreciate the support and, more importantly, some excellent insights and items to look at from Twitter followers. It helps me do a better job. For new followers to our Twitter, we are trying to tweet on breaking news or early views on energy items, most of which are followed up in detail in the Energy Tidbits memo or in separate blogs. Our Twitter handle is @Energy_Tidbits and can be followed at [LINK]. We wanted to use Energy Tidbits in our name since I have been writing Energy Tidbits memos for over 20 consecutive years. Please take a look thru our tweets and you can see we aren't just retweeting other tweets. Rather we are trying to use Twitter for early views on energy items. Our Supplemental Documents package includes our tweets this week.

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 food.

Wine of the week: Le Cheval Fou Hermitage 2005

In August, I started the wine of the week when I realized I had to get to opening up some wines bought 20 to 30 years ago that included some that, unfortunately, were getting past their prime. One of the negatives of the change in life from Covid was a huge absence of entertaining at home, which means there has been a big shortfall in wine drinking at our home. So am now making sure what, when I bought them 15-25 years ago, were some good wines and make sure bottles get opened especially as many are 20 to 40 years old. On Friday, I tweeted out the wine of the week, which was the Le Cheval Fou Hermitage 2005. I decanted it for a couple hours and it was still drinking well. It's a nice Syrah and wasn't as earthy as i remember if pre-Covid. And I don't feel the need to rush to drink the last couple bottles.

Figure 83: Le Cheval Fou Hermitage 2005

Source: SAF Group

Shannon Sharpe "*luck is what happens when preparation meets opportunity*"

The big highlight from last Sunday's NFL games was how the Washington Commanders beat the Chicago Bears on a Hail Mary as the clock ran out. Former NFL great, Shannon Sharpe, was on ESPN First Take on Monday talking about the Hail Mary and how the Bears DB Tyrique Stevenson was playing around with the crowd while the play was ongoing and then rushed back to tip the ball that ended up going to the Commanders Noah Brown. "*That is not luck. Luck is what happens when preparation meets opportunity. If you prepare for a situation, when the opportunity presents itself, it goes without a hitch*." Sharpe's words sound like something the old sports coaches would drill into your head as they worked you hard and harder, doing a drill over and over until you practiced it correctly. And then they would make you do it again. just to make sure. It's a great reminder for sports or business or anything. It's always better to be prepared.

Not the best bronze statue of Miami Heat great Dwayne Wade

Why is that the bronze statutes of sports stars seem to be hit or miss in capturing an athlete's face. The latest is 8-foot bronze statues of tree-time NBA champion Dwayne Wade from his championship days with the Miami Heat. At the unveiling this

week, the video clip shows looking back at the unveiled statue saying “Who is that guy?" The statute was generally perceived as someone around 50 when Wade was ~30 in his championship years. He is 42 now.

Figure 84: Dwayne Wade bronze

Source: NBC News, indy100