Energy Tidbits

December 1, 2024

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PHEV Taking Increasing Market Share from BEV Sales in China: +133.1% YoY to 306k in Nov vs BEV +16.4% YoY to 198k

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. PHEV sales are now 1.5x BEV sales and continue to take increasing market share for China's BYD. [click here]

2. Trump says on Jan 20 will sign all necessary documents to charge Canada a 25% tariff on ALL products coming into the US i.e. including oil, natural gas, electricity, etc. [click here]

3. OPEC delays today's meeting to Dec 5, we have to wonder if this to give Saudi Energy Minister more time to get consensus on something more than just delaying the add back of voluntary barrels on Jan 1. [click here]

4. Saudi Net Foreign Assets dropped $34.6b in Sept/Oct, largest 2-mth drop since $59.4b in Mar/Apr 2020 Covid. [click here]

5. Trump's National Security Advisor pick, Mike Waltz, clearly points to Trump cutting back Iran's oil exports & source of cash flow back to Trump 1st term. [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: -2 bcf draw in US gas storage; now +134 bcf YoY

-2 bcf draw in US gas storage

Three weeks' ago in our Nov 10, 2024, Energy Tidbits memo, we highlighted US gas storage started the traditional winter gas withdraw season at 3,932 bcf, which was +157 bcf YoY and +215 bcf above the 5-yr average. And this would have been way higher if producers hadn't shut in production in Q2 and Q3 due to low prices. This is now the third week of the traditional winter withdraw season, and the second week we have seen a draw, following a +42 bcf WoW build during the first week of November. For the week ending Nov 22, 2024, the EIA reported a -2 bcf draw [LINK]. Total storage is now 3.967 tcf, representing a surplus of +134 bcf YoY compared to a surplus of +141 bcf last week. Since Feb, 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 last week saw the storage once again rise above the max, and this week continued this trend. The week of Nov 22, 2024, saw storage come in +90 bcf above the previous 5-yr maximum of 3.877 tcf. Total storage is now +267 bcf above the 5-year average, above last week's +239 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 (11/22/23)		5-year average (2019-23)	
Region	11/22/24	11/15/24	net change	implied flow	Bcf	% change	Bcf	% change
East	929	931	-2	-2	916	1.4	895	3.8
Midwest	1,134	1,140	-6	-6	1,113	1.9	1,080	5.0
Mountain	292	293	-1	-1	253	15.4	221	32.1
Pacific	310	313	-3	-3	297	4.4	280	10.7
South Central	1,301	1,291	10	10	1,254	3.7	1,223	6.4
Salt	353	347	6	6	340	3.8	331	6.6
Nonsalt	948	944	4	4	915	3.6	893	6.2
Total	3,967	3,969	-2	-2	3,833	3.5	3,700	7.2

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

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
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
Nov/01	3,932	69	157	215
Nov/08	3,972	42	158	228
Nov/15	3,969	-3	141	239
Nov/22	3,967	-2	134	267

Source: EIA

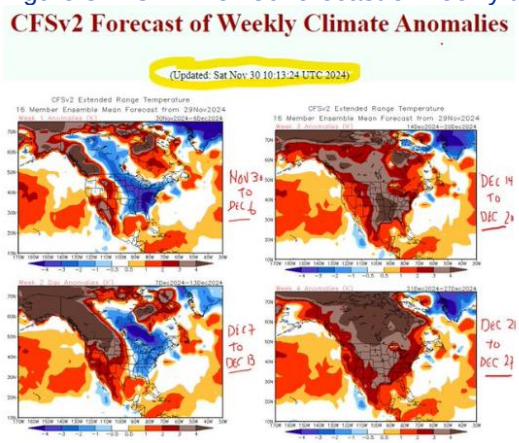
Natural Gas: Cold in US but turning much warmer than normal to after mid-Dec

Turning warmer than normal after mid Dec

It's been cold in the east and that has rallied HH and the cold weather in the populous east half of the US is expected to continue for the next 10 days. So there should be continued support for HH this week. Our concern is that if the updated weather forecasts are right, then the tone on natural gas will change with the updated forecasts for much warmer than normal temperatures from mid-Dec. Much warmer than normal temperatures in the 2nd half of Dec are never a positive for natural gas prices. Yesterday, we tweeted [LINK] "*Reason to be careful on #NatGas. If @NOAA updated weekly temperature anomalies are right, tone on #NatGas should turn negative after the next week or so. Cold this week in populous E1/2 of*

US. BUT much warmer than normal after mid-Dec. #OOTT." Below is the NOAA Nov 30 forecast of weekly temperature anomalies that was attached to our tweet. [LINK]

Figure 3: NOAA Nov 30 forecast of weekly temperature anomalies



Source: NOAA

Natural Gas: Tough for HH prices to catch up if 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. Unfortunately, that is what we have seen for the last years other than when Russia invaded Ukraine in 2022. Here is the Bloomberg weekly graph as of the Friday close that shows 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/Dec 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, as noted above, the cold weather to end Nov and start Dec is positive for natural gas prices but our concern is the NOAA's updated weekly forecast yesterday calls for much warmer than normal temperatures from mid-Dec. If the NOAA forecasts are right, then we would expect to see the current bullish tone to natural gas turn softer after the next week or so. It just adds up to a reason to be cautious on natural gas.

Figure 4: HH gas prices seasonal comparison to Nov 29, 2024 close

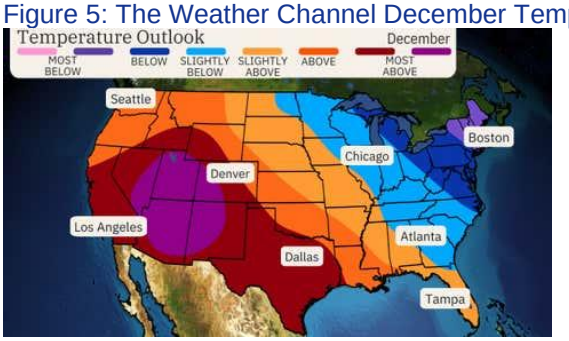
Source: Bloomberg

Natural Gas: The Weather Channel sees US Dec starts cold, much warmer 2nd half

Cold start to Dec

On Thursday, The Weather Channel released their December temperature forecast [LINK]. On Thursday we Tweeted [LINK] "*Caution on #NatGas? Cold to start Dec but "back half of the month will be much warmer than the first half" Average temperatures "over" the winter expected warmer than normal. 👇 @weatherchannel posted Dec and Winter temperatures outlook today. #OOTT*". The Weather Channel reported that they forecast a colder start to the winter but note that they expect a warmer second half of December. Overall, the East is expected to be much colder than the west as the west is expected to see a warmer winter. The report noted. "*The month will certainly start out cold in the East and South, lasting through at least the first, if not second, weeks of the month in most areas east of the Mississippi River. But that isn't expected to last, based on longer-range computer model forecasts, according to Atmospheric G2 Vice President of Meteorology, Todd Crawford. It is a fairly easy call to say the back half of the month will be much warmer than the front half, it's just a question of degree*". Our Supplemental Documents package includes the Weather Channel report.

Figure 5: The Weather Channel December Temperature Outlook



Source: The Weather Channel

Natural Gas: The Weather Channel sees a warmer than average winter

Warmer than normal U.S. winter

The Weather Channel also posted its Dec/Jan/Feb winter temperature forecast which is linked to its above Dec temperature forecast that calls for a cold start to Dec but a much warmer 2nd half of Dec. We recognize that temperature forecasts are never 100% accurate but, our concern is that if the colder start to Dec turns into a much warmer 2nd half of Dec, it will lead to a pullback in HH prices to end 2024 and that prices then keep getting held back until there is a return to normal temperatures. As we have been noting, withstanding a supply interruption, winter weather temperatures are the most significant factor on LNG and natural gas prices. On Thursday, the Weather Channel posted their winter 2024-25 outlook [LINK]. On Thursday, we Tweeted [LINK] "*Caution on #NatGas? Cold to start Dec but "back half of the month will be much warmer than the first half" Average temperatures "over" the winter expected warmer than normal. 👇 @weatherchannel posted Dec and Winter temperatures outlook today. #OOTT*". The Weather Channel reminded that the forecast is an average for the three months and that there will periods or colder than normal temperatures amidst their forecast for the US to have average Dec/Jan/Feb temperatures above averae in the US with the except of the Northwest. The warmer winter will be particularly strong in the South, and colder in the Pacific Northwest. Below we have included a screenshot of the U.S.

Temperature map from the Weather Channel report.

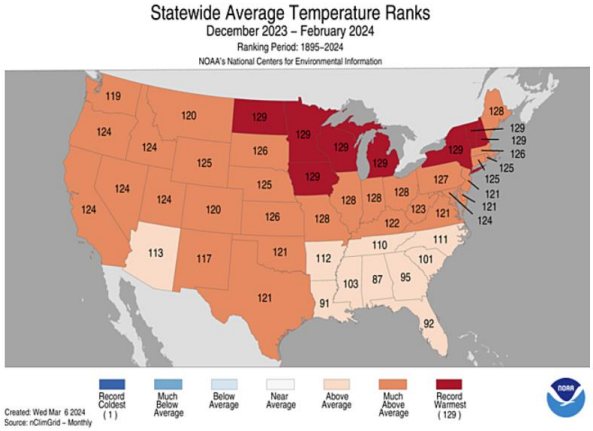
Figure 6: The Weather Channel Winter Temperature Outlook

Source: NOAA

NOAA, winter 2023/24 was the warmest on record

In any event, winter 2024/25 should be colder than last winter 2023/24, which was the warmest on record. Here is what we wrote in our February 18, 2024, Energy Tidbits about last winter, which was the warmest on record: "*On Friday, we tweeted [LINK] "No surprise HH #NatGas prices are $1.80 given @NOAA reminds it was the warmest winter on record. Would be <$1.50 if EQT, CHK & others weren't shutting in supply. Challenge for #NatGas is that shoulder season is starting ie. leave the windows open temperatures. #OOTT." On Friday, NOAA also posted its recap of US weather for Dec/Jan/Feb ie. Winter 2023/24. NOAA wrote "The 2023–24 winter season ranked warmest on record for the contiguous U.S. with eight states across the Upper Midwest, Great Lakes and Northeast each observing their warmest winter on record."*

Figure 7: NOAA Historical US Temperature Ranks by State – Dec/Jan/Feb 2023/24



Source: NOAA

Natural Gas: US September natural gas production -2.4 bcf/d YoY to 102.1 bcf/d

On Friday, the EIA released its Natural Gas Monthly [LINK], which includes its estimated

US September gas production

"actuals" for September dry gas production. Key items to note are as follows: (i) September was 102.1 bcf/d, which followed August's revised 103.2 bcf/d. This marks a turn to production under 103 bcf, after two consecutive months of production above 103 bcf/d, which followed a slump beginning in March. The EIA does not provide any explanation for the MoM change but the key reason for the MoM decline is the impact of hurricanes as Louisiana was -0.8 bcf/d MoM and Federal Gulf of Mexico was -0.4 bcf/d MoM. (ii) September at 102.1 bcf/d is down -2.4 bcf/d YoY, and down -4.3 bcf/d since Dec 2023. Dec 2023 was the record high of 106.5 bcf/d. (iii) August's data was revised down -1.2 bcf/d, to 103.2 bcf/d. (iv) September's production of 102.1 bcf/d was down -1.1 bcf/d MoM and down -2.4 bcf/d YoY from September 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 8: 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	104.2
Aug	66.9	72.4	74.3	72.2	74.7	85.9	94.4	90.4	95.0	100.9	104.5	103.2
Sept	66.8	72.4	74.7	71.7	76.0	87.3	94.8	91.3	95.7	102.4	104.5	102.1
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**	**103.1**

Source: EIA

Natural Gas: US natural gas pipeline exports to Mexico down -0.2 bcf/d MoM, up YoY

US to Mexico September natural gas exports

On Tuesday, the Department of Energy (DOE) posted its Natural Gas Imports and Exports Monthly [LINK], which includes its estimate for September natural gas exports via pipeline to Mexico. These are the same data points that came out four days later in the more referenced EIA Natural Gas Monthly which came out on Friday. Natural gas exports to Mexico were down -0.2 bcf/d to 6.9 bcf/d in Sept from 7.1 bcf/d in Aug and were up +0.2 bcf/d YoY from 6.7 bcf/d from Sept 2023. The revised Aug 2024 exports at 7.1 bcf/d, were +0.2 bcf/d higher than the previous the all-time high for pipeline exports of 6.9 bcf/d in Aug 2023. US natural gas pipeline exports to Mexico are now on average, +0.1 bcf/d higher than 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 9: 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	7.1
September	5.8	6.2	6.0	5.6	6.7	6.9
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 +0.4 bcf/d MoM to 12.1 bcf/d in September

US September LNG exports

The DOE's monthly natural gas imports and exports monthly also included the US LNG export data for Sept, which was the same data as in the more commonly referenced US LNG exports from the EIA's Natural Gas Monthly on Friday. 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] "*SB no impact on #NatGas or #LNG call from US Sep LNG export data Sep 2024: 12.1 bcfd Aug 2024: 11.7 Sep 2023: 11.6 Aug had some hurricane interruptions. This DOE data is same as EIA #NatGas Monthly actuals to be released on Nov 29. #OOTT*". US LNG exports were up +0.4 bcf/d MoM in Sept from 11.7 bcf/d in Aug, and up +0.5 bcf/d YoY from 11.6 bcf/d in Sept 2023. As we highlighted in our tweet, one of the reasons for the MoM increase, was lower US LNG exports in Aug due to hurricane interruptions. The top five country destinations for US LNG in Sept were Netherlands 1.6 bcf/d, Japan 1.1 bcf/d, China 1.1 bcf/d, India 1.1 bcf/d, and South Korea 0.8 bcf/d. The DOE did not comment on the MoM or YoY changes.

Figure 10: 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	12.1
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

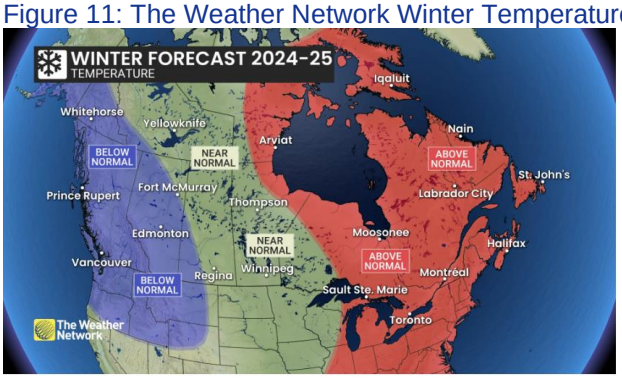
Natural Gas: The Weather Network Cdn winter forecast; colder west, warmer east

Forecast for a mixed winter in Canada

On Wednesday, The Weather Network released their Canadian Winter temperature forecast [LINK]. The Weather Network reported that they forecast mixed temperatures across Canada; with the west forecasted to expect below normal temperatures, and eastern Canada expected to see above normal temperatures. In the east, December is expected to be colder than normal, with January, and February being warmer, which results in an overall warmer

winter. We recognize that temperature forecasts are never 100% accurate but, until they change to looking to normal temperatures, the weather forecasts will be a holdback to HH prices as temperatures are a key driver of natural gas demand. The report notes, "*The focus of winter's fury will be in western Canada, where near-normal and colder-than-normal temperatures are expected to dominate this upcoming season. Meanwhile, eastern Canada will also have periods of cold weather, particularly in December; however, periods of milder weather are expected in January and February, resulting in above-normal temperatures for the season overall, although not as warm as last winter"*. Below is The Weather Network Canadian winter temperature forecast map.

Figure 11: The Weather Network Winter Temperature Outlook



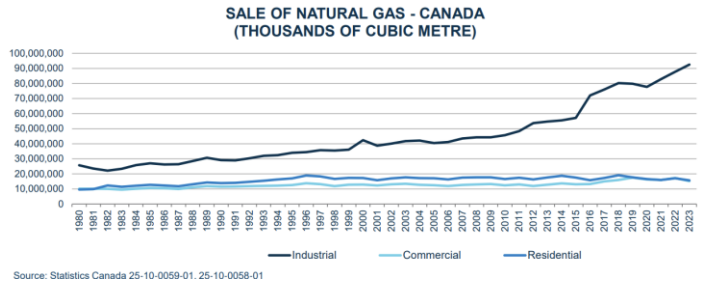
Source: The Weather Network

Natural Gas: Canada's natural gas consumption is 75.0% from industrial users

Canada natural gas consumption by user group

Cold weather in winter is important for natural gas consumption is Canada. And winter is when residential/commercial natural gas consumption is the highest so the average numbers over the year do not fairly represent the winter peak consumption for residential/commercial users. But it is also important to remember that 75.0% of Canada's natural gas consumption is to industrial users who, as a general rule, aren't as impacted by temperatures vs 12.7% for residential users and 12.3% for commercial users. For 2023, this was 11.95 bcf/d for Canada total natural gas consumption split 8.96 bcf/d for industrial users, 1.52 bcf/d for residential users and 1.47 bcf/d for commercial users. Below is the Canadian Gas Association's graph for Canada's natural gas consumption by user type – industrial, commercial and residential.

Figure 12: Canada natural gas consumption by end user type



Source: Canadian Gas Association

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

October NatGas production

Whether Mexico new President Sheinbaum likes it or not, any increasing Mexico natural gas consumption will continue to mean increasing natural gas and/or LNG imports. This week, Pemex posted its natural gas production data for October [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 October 2024 natural gas production of 4.503 bcf/d, which is down -9.0% YoY from 4.950 bcf/d in October 2023 and down -0.3% MoM from 4.515 bcf/d in September 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 13: 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	4.503	-9.0%
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		

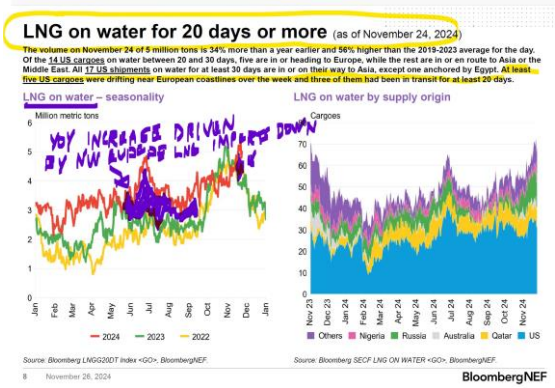
Source: Pemex

Natural Gas: LNG water for >20 days better but still up YoY

LNG water >20 days still up YoY

On Tuesday, we tweeted [LINK] "*Better but still need cold temps to support #LNG #NatGas prices. Big YoY gap up in #LNG on water >20 days in Q2/Q3 as big cuts in NW Europe LNG imports sent LNG cargos looking for a new home. LNG on water >20 days still up YoY but YOY gap is smaller. #OOTT Thx @BloombergNEF."* We had just seen the BloombergNEF table and tweeted how NW Europe LNG imports were down 548 bcf YoY or down 1.67 bcf/d YoY to 5.74 bcf/d YTD Nov 24 and then saws the below BloombergNEF chart "*LNG on water for 20 days or more*". LNG on water is only one indicator of LNG markets but it jumped out how the LNG on water gapped up YoY as NW Europe cut back on LNG imports in Q2 and Q3. This makes sense as LNG that would have been going to NW Europe would have been looking for a home and was likely, to a great extent, been longer on water while finding a new home. But then we note that the YoY gap up has narrowed and is currently a gap up but nowhere near as high as the Q2 and Q3 gap up. So it's only one indicator but one that suggests a little tighter LNG market but one that is still a gap higher. And that means a cold start to winter continues to be important. Note we shaded in purple the YoY gap in LNG on waer for 20 days or more.

Figure 14: LNG on water for 20 days or more (as of Nov 24, 2024)



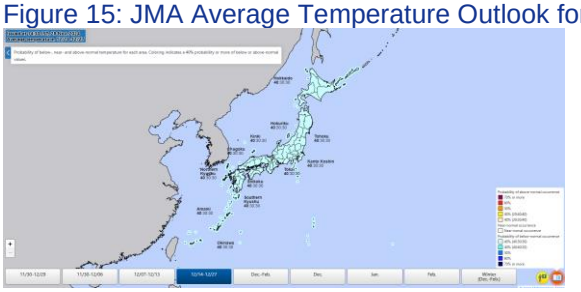
Source: BloombergNEF

Natural Gas: JMA forecasts colder than normal temperatures in Japan in Dec

JMA temperature forecast for next 30 days

It was a hot summer in Japan and warmer than normal temperatures continued into Nov expected for the first few days of Dec, but then JMA forecasts colder than normal temperatures for the rest of Dec. On Thursday, the Japan Meteorological Agency updated it's temperature forecast for the next 30 days, Nov 30 thru Dec 29, in Japan [LINK]. There is no JMA commentary on the forecast. JMA is calling warmer than normal temperatures for the first week of Dec and the remainder of the month to be colder than normal temperatures. During the period of Nov 30-Dec 29 there is a +40% probability of above normal temperature occurrence in Hokuriku, Tohoku, and Hokkaido, and a +40% probability of below normal temperature occurrence in the remainder of Japan. It is important to note that this is the first 30-day temperature forecast that has called for cooler than normal temperatures for the majority of the period; there is a near normal occurrence predicted for temperatures expected during the second week of Dec in Hokuriku, Tohoku, and Hokkaido, with a +40% probability of below normal temperature occurrence in the remainder of Japan. We checked AccuWeather for Tokyo and, for Dec, during the first week of Dec, temperatures are expected to sit around 16-17C; the rest of the month, there are forecasted daily highs in the 9-12C range and overnight lows from 2-5C. This has the potential to drive a little bit of electricity heating demand during the day, and more during the nights. Below is the JMA temperature forecast for the last two weeks of Dec.

Figure 15: JMA Average Temperature Outlook for Dec 14 – Dec 27



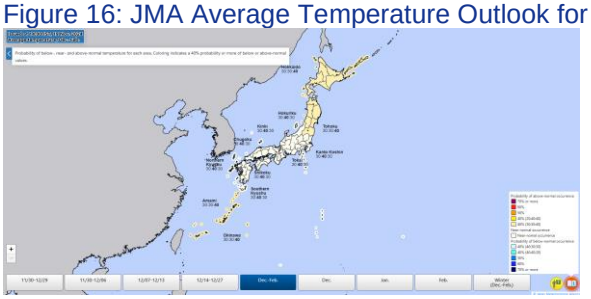
Source: Japan Meteorological Agency

Natural Gas: Japan expects normal to slightly warmer than normal temp this winter

JMA temperature forecast for Dec/Jan/Feb

We continue to note the importance of a cold winter for LNG and natural gas prices in 2025. In Japan, we have seen warmer temperatures in Oct and Nov, which has emphasized the importance of having colder than normal temperatures for Dec/Jan/Feb. On Nov 19, the JMA released their final Winter forecast before Dec. The Agency's forecast points to normal to slightly warmer than normal temperatures in Dec/Jan/Feb for the majority of Japan, with a 40% probability of an above-normal temperature in Hokuriku, Tohoku, Hokkaido, Anami, and Okinawa. We remind that forecasts are not 100% accurate. The temperature forecast for winter is also far less warm than was predicted for winter 2023-24, which was estimated to have a 40-50% probability of above normal temperature occurrence. Below is the JMA temperature forecast for Dec/Jan/Feb.

Figure 16: JMA Average Temperature Outlook for Dec/Jan/Feb



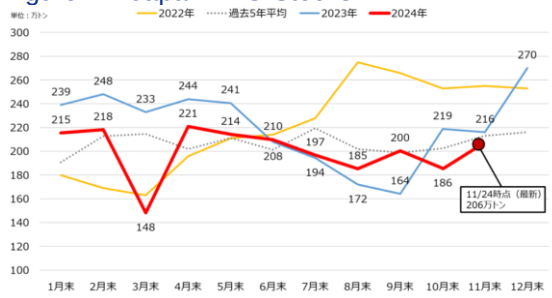
Source: Japan Meteorological Agency

Natural Gas: Japan LNG stocks down WoW and down YoY; down against to 5-yr avg

Japan LNG stocks down WoW

Japan's LNG stocks are down WoW, down YoY, and are down when compared to the 5-year average. On Wednesdays, Japan's METI releases its weekly LNG stocks data [LINK]. LNG stocks on November 24 were 98.9 bcf, down -9.6% WoW from November 17 of 109.5 bcf, and down -4.6% from 103.7 bcf from a year ago. Stocks are down compared to the 5-year average of 102.3 bcf. Below is the Japanese LNG stocks graph from the METI weekly report.

Figure 17: 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 months 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, at least so far, Gazprom has confirmed almost daily, if not daily, that there has been no interruption in natural gas supplies. Bloomberg reports on the Gazprom volumes most days and the latest confirmation we saw on Friday Nov 29 that Gazprom continues to ship the same volume of natural gas of 1.50 bcf/d via Sudzha. Below is a 2018 map from Oxford Institute for Energy Studies showing Sudzha.

Figure 18: The Ukrainian pipeline system

Source: Oxford Institute for Energy Studies

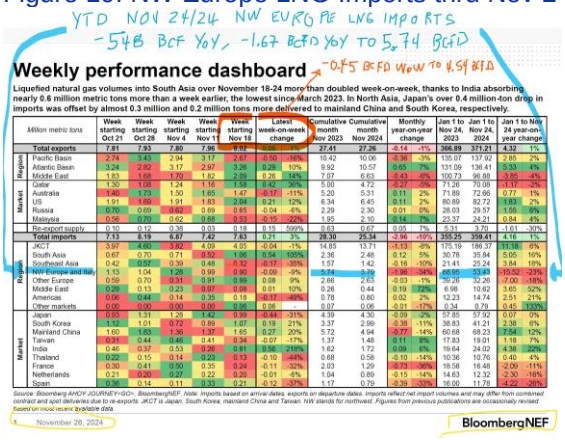
Natural Gas: NW Europe LNG imports down big YoY, down ~548 bcf, -1.67 bcf/d YTD

Europe LNG imports down big in 2024

On Wednesday, we tweeted [LINK] "*Reminder EU #NatGas storage would be full if NW EU hadn't cut back on LNG imports in Q2/Q3 due to storage surplus leaving winter 2023/24./ NW EU #LNG imports -0.45 bcfd WoW to 4.54 bcfd for Nov 18-24. YTD Nov 24, NW EU LNG imports -548 bcf YoY or -1.67 bcfd YoY to 5.74 bcfd. Need cold Dec to avoid a repeat of 2024 EU NatGas prices.Thx @BloombergNEF #OOTT".* The LNG market story continues to consider some chance of supply risks from a number of factors especially with winter approaching and the escalating attacks by Russia and Ukraine. If not for the current

UKR/RUS escalation risk, we have been highlighting that there would be 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. In order to avoid another year of weak NatGas prices, there needs to be a cold Dec. 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 -0.45 bcf/d WoW to 4.54 bcf/d for the Nov 18-24 week. NW Europe LNG imports that are down -548 bcf YoY or -1.67 bcf/d YoY for YTD Nov 24. Our tweet included the below BloombergNEF chart.

Figure 19: NW Europe LNG Imports thru Nov 24



Source: BloombergNEF

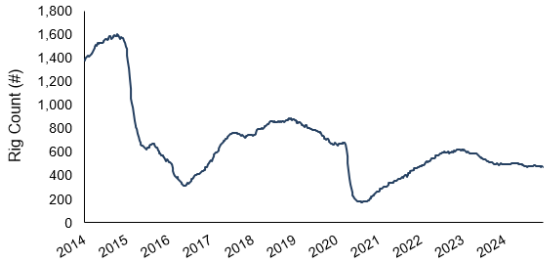
Oil: U.S. oil rigs down -2 rigs WoW and down -28 rigs YoY to 477 oil rigs

US oil rigs down WoW

On Wed, Baker Hughes released its weekly North American drilling rig data; the early release was due to U.S. Thanksgiving. (i) Note Baker Hughes no longer breaks out the basin changes by oil vs gas rig type. (ii) Total U.S. oil rigs were down -2 rigs WoW to 477 oil rigs as of Nov 27, 2024, which is the lowest since the July 19, 2024, rig count. We expect, like seen every year, US rigs will decline in the coming week into U.S. Thanksgiving and continue this decline until just past Xmas. U.S. oil rigs are now down -28 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 Dec 2021. U.S. Oil rigs are currently down -28 YoY, and have reached the recent lows of July 2024 (iii) Note we can see the basin changes but not by type of rig; the WoW major basins were unchanged, with all WoW changes being categorized as "other" 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 -44 rigs YoY to 577 rigs including US oil rigs -28 oil rigs YoY to 477 oil rigs. And for the key basins, the Permian is -11 rigs YoY, Haynesville is -9 rigs YoY, DJ Niobrara is -7 rigs YoY, Marcellus -4 rigs YoY, Williston up +2 rigs YoY, Arkoma Woodford up +1 YoY, Granite Wash is down -1 rig YoY, Eagle Ford is down -2 rigs YoY, Barnett up +1 rig YoY, Ardmore Woodford was flat YoY, and Cana Woodford +3 rigs YoY. (v) US gas rigs were up +1 rig this week to 100 gas rigs. It is important to note that U.S. gas rigs will need to 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 up +1 rig YoY.

Figure 20: Baker Hughes Total US Oil Rigs



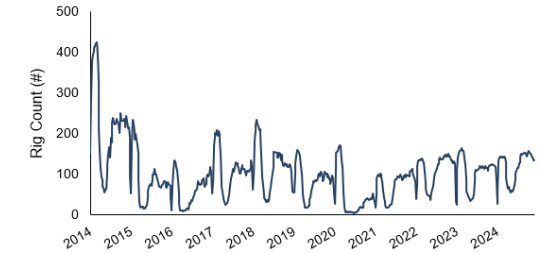
Source: Baker Hughes

Cdn rigs +1 WoW

Oil: Total Cdn oil rigs up +1 WoW on Wednesday, with gas rigs up +3 WoW

On Wed, Baker Hughes released its weekly North American drilling rig data. This week's total oil and gas rig count was up +4 rigs WoW to 204 rigs on Nov 27. Every year, Canadian rigs typically increase until mid-Oct, where they remain relatively flat until late Nov when they begin ramping up until the end of Dec; note that we should expect an increase in the coming weeks as we see more cold temperatures and the start of the normal Dec pickup for winter drilling seasons in the coming weeks before the normal decline into Christmas. Cdn oil rigs were up +1 rig WoW this week to 134 rigs and are up +12 rigs YoY. Gas rigs are up +3 rigs WoW to 70 rigs and are flat YoY, and miscellaneous rigs are flat WoW and up +1 rig YoY at 1 rig 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

US weekly oil production

Oil: US weekly oil production up +0.292 mmb/d WoW to 13.493 mmb/d, up YoY

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

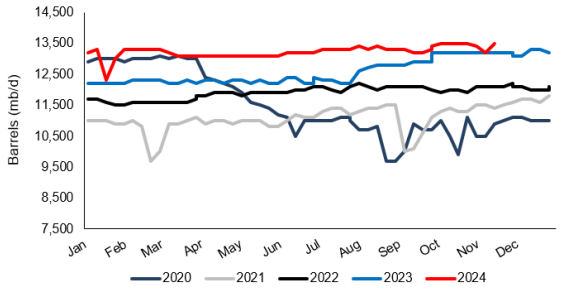
estimate came in above the previous range, up +0.292 mmb/d WoW to 13.493 mmb/d for the week ending Nov 22. This is up +0.293 mmb/d YoY from 13.200 mmb/d for the week ended Nov 24, 2023. On Nov 13, the EIA released its Nov STEO and the EIA provides the backup monthly estimates for US oil production, and they are more or less in line with July at 13.210 mmb/d, Aug at 13.400 mmb/d, Sept at 13.210 mmb/d, and Oct coming in at 13.450 mmb/d. This week, the EIA's production estimates were up +0.292 mmb/d WoW to 13.493 mmb/d for the week ended Nov 22. Alaska production figures were up +0.003 WoW to 0.444 mmb/d, compared to 0.441 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		
2024 Nov	11/01	13,500	11/08	13,400	11/15	13,201	11/22	13,493		

Source: EIA

Figure 23: EIA's Estimated Weekly US Oil Production



Source: EIA

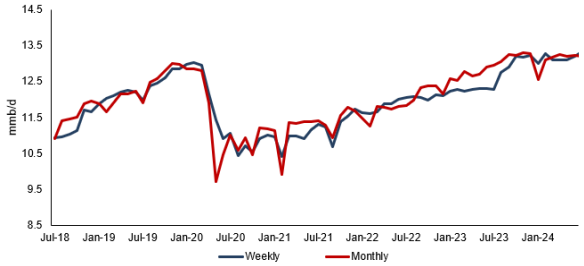
Oil: EIA Form 914 – US September oil production down MoM, and up YoY

EIA Form 914 September

On Friday, the EIA released its Form 914 data [LINK], which is the EIA's "actuals" for September US oil and natural gas production. (i) This month, the EIA made a small revision to August oil production, decreasing -0.040 mmb/d from 13.401 mmb/d to 13.361 mmb/d. As a result, the August actuals were +0.032 mmb/d vs the average weekly supply estimate of 13.329 mmb/d. (ii) The EIA Form 914 reported September "actuals" at 13.204 mmb/d, which

was down -0.059 mmb/d against the weekly supply estimate average of 13.263 mmb/d. (iii) September "actuals" of 13.204 mmb/d are down -0.157 mmb/d MoM vs 13.361 mmb/d in August. On a YoY basis, "actuals" are up +0.027 mmb/d YoY vs September 2023 at 13.177 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



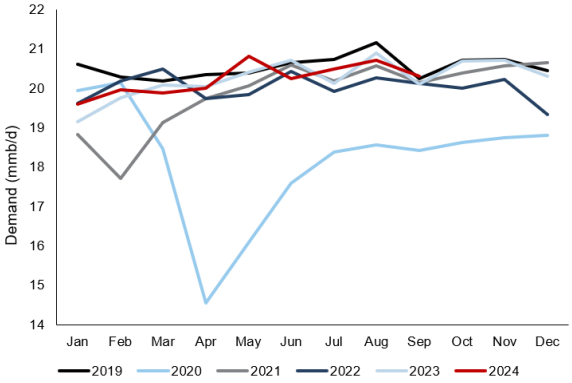
Source: EIA, SAF

Oil: US oil demand in Sept was -0.140 mmb/d below EIA STEO forecast for Sept

US oil demand

On Friday, On Friday, the EIA posted its "actuals" oil data for September, which includes US oil and products demand. In November, 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 Friday, the EIA posted the "actuals" for October demand at 20.308 mmb/d, which is -0.140 mmb/d below the STEO forecast for September of 20.448 mmb/d. This is a reversal of last month's Aug actuals, when the EIA posted the "actuals" for August demand at 20.711 mmb/d, which was +0.290 mmb/d above the EIA Cot STEO forecast for August of 20.421 mmb/d. The below graph shows the EIA's reported monthly crude demand for the last 5 years.

Figure 25: EIA's Monthly US Oil Demand



Source: EIA

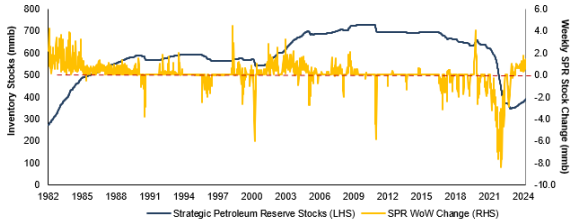
Oil: US SPR less commercial reserve deficit narrows, now -38.086 mmb

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

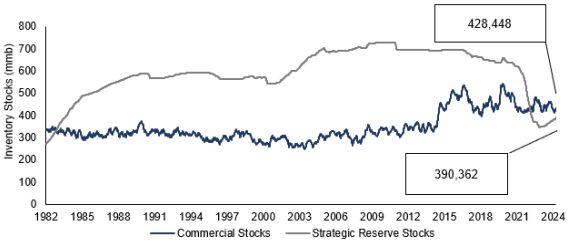
1983 in the Sep 16, 2022, week. This week, we saw a build on the SPR side and a draw on the commercial side. The EIA's weekly oil data for Nov 22, [LINK] saw the SPR reserves increase +1.172 mmb WoW to 390.362 mmb, while commercial crude oil reserves decreased -1.844 mmb to 428.448 mmb. There is now a -38.086 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 26: Strategic Petroleum Reserve Stocks and SPR WoW Change



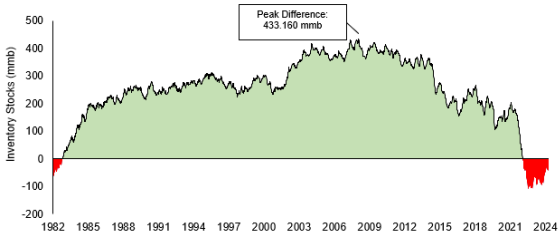
Source: EIA

Figure 27: US Oil Inventories: Commercial & SPR



Source: EIA

Figure 28: US Oil Inventories: SPR Less Commercial



Source: EIA

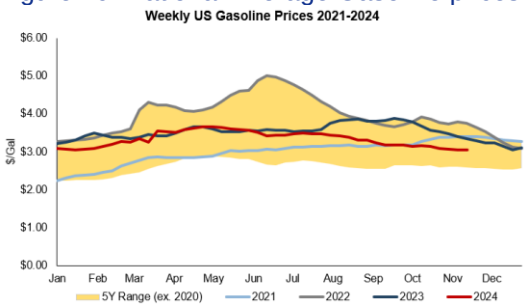
US gasoline prices

Oil: AAA reports US national average gasoline price flat WoW at $3.06 on Nov 30

Yesterday, we tweeted [LINK] "*AAA National average prices flat WoW at $3.06 on Nov 30, -$0.08 MoM & -$0.19 YoY. California average prices -$0.03 WoW to $4.42, -$0.16 MoM & -$0.43 YoY. i had expected a move up in gas prices like we tend to see in Canada over major travel holidays. Thx @AAAnews #OOTT.*" Yesterday, AAA reported that US national average prices were $3.06 on Nov 30, which was flat WoW, -$0.08 MoM, and -$0.19 YoY. Yesterday, AAA also reported California average gasoline prices were $4.42 on Nov 30, which was -

$0.03 WoW, -$0.16 MoM and -$0.43 YoY. Below is our graph of Bloomberg's National Average weekly gasoline prices.

Figure 29: National Average Gasoline prices



Source: Bloomberg

Oil: Trump will sign all necessary documents to charge 25% tariff on all Cdn products

US needs Cdn heavy/medium crude3

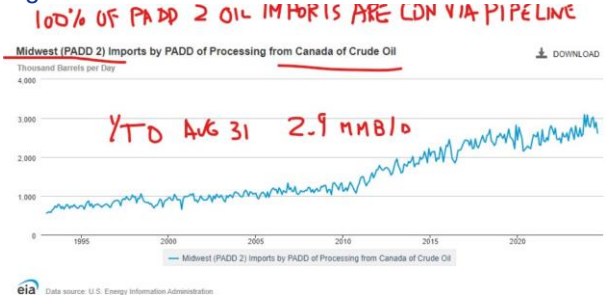
The big market news on Monday shortly after the market close was Trump's post on Truth Social that clearly said "*On January 20th, as one of my many first Executive Orders, I will sign all necessary documents to charge Mexico and Canada a 25% Tariff on ALL products coming into the United States, and its ridiculous Open Orders. This Tariff will remain in effect until such time as Drugs, in particular Fentanyl, and all illegal Aliens stop this invistion of our Country! Both Mexico and Canada have the absolute right and power to easily solve this long simmering problem. We hereby demand that they use this power, and until such time tha they do, it is time to make them pay a very big price!"* Trump's words seemed crystal clear. Early Saturday morning, we tweeted [LINK] "*Captive buyer and captive seller. Yes, Cdn oil producers have no other replacement market for its ~2.9 mmbd of heavy/medium oil to US Midwest refineries. BUT US Midwest refineries have no other replacement supply for its ~2.9 mmbd of Cdn heavy/medium oil. So Trump 25% tariff should flow thru to regional Midwest prices of gasoline, jet fuel, diesel, etc. #OOTT."* One of our US friends said how Cdn oil has no other market for its heavy/medium oil that goes by Enbridge mainline to the Midwest refineries. We agreed that the vast majority of the ~2.9 mmb/d of Cdn heavy/medium oil that goes via pipeline to the Midwest has no other logistical way to get to any other markets. But we reminded that the Midwest refineries have no other real alternative to the ~2.9 mmb/d of Cdn heavy/medium oil. So we called it a captive buyer and a captive seller. So it's a bit of a standoff. Canada can't afford to not sell ~3 mmb/d to Midwest refineries. Midwest refineries can't afford to not take ~3 mmb/d of cdn heavy/medium crude. If the Midwest refineries don't get ~2.9 mmb/d of cdn heavy/medium then it means that there will be about ~2.9 mmb/d of less petroleum products into the Midwest markets. So a lot to lose on both sides. Plus since gasoline and products are regional to the most part. There is always an arbitrage opportunity to some limited degree but products have to move from one region to another. So we said to him that this is why the likely scenario is that the tariff, if ultimately applied, will just be additive to regional gasoline, fuel oil, jet fuel prices. Our Supplemental Documents package includes the Trump posts.

Will Trump tariff Cdn oil as US refineries can't live without Cdn heavy/medium

Here is what we wrote in our Nov 10, 2024 Energy Tidbits memo on why we don't

see Trump tariffing Cdn oil. "We understand that the world's #1 economic fear on Trump is that he will tariff almost everything but, when we saw commentators talking about tariffing Cdn oil, we have to tweet our view that we see this as highly unlikely. Trump is unpredictable but the US needs all the Cdn heavy and medium oil it can get for its US Midwest refineries. The US produces light oil so can't displace the Cdn heavy and medium crude. And even if the US could import heavy and medium crude form other countries, there isn't the pipeline infrastructure to move the oil to US Midwest refineries. Trump can tariff Cdn heavy and medium oil imports but it will go right to increasing the price of gasoline, diesel and jet fuel. (i) On Monday, we tweeted [LINK] *"Here's why Trump won't put tariffs on Cdn #Oil exports.PADD 2 (Midwest) refineries import 2.9 mmb/d of oil and 100% is Cdn oil via pipelines @EIAgov. Tariffs on Cdn oil will simply add to cost of gasoline, diesel, jet fuel for Americans. #OOTT."* (ii) On Tuesday, we followed up by tweeting [LINK] "*Here's why US needs Cdn #Oil. US oil imports are almost all medium/heavy crude with CAN the #1 supplier as PADD 2 Midwest refineries set up to mostly run Cdn medium/heavy crude delivered on ENB mainline. US production is light oil ie. Midwest refineries can't take much more. Insufficient pipeline infra to replace CAN in Midwest with MEX, VEN, COL, KSA medium/heavy from Gulf Coast to Midwest #OOTT."* Below is the EIA Padd 2 Midwest oil imports from Canada via Enbridge's mainline pipeline. Our tweet also included EIA's oil imports of crude by API that shows US imports medium/heavy crude and Enbridge's mainline pipeline overview. Our Supplemental Documents package includes these items.

Figure 30: 100% of Midwest PADD 2 refineries is Cdn heavy/medium oil via pipeline



Source: EIA

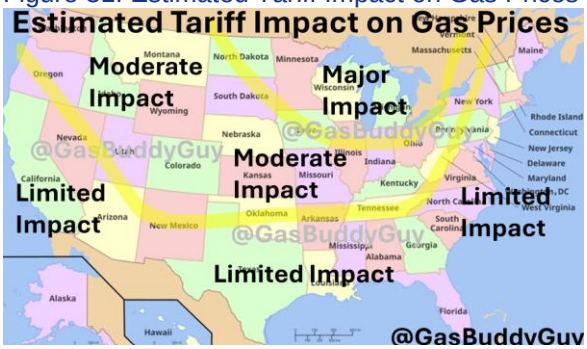
Oil: GasBuddyGuy, Trump tariff would add $0.25-$0.75 to Midwest gas prices

GasBuddyGuy on

We don't have a model to forecast how Trump's proposed 25% on all Cdn products including oil would roll through to gasoline prices at the pump so we leave that detailed analysis to the gasoline exports like well followed Patrick DeHaan, GasBuddyGuy. He is one of the <80 people we follow on Twitter/X and reference his calls such as his great call in Q2 about US gasoline prices drifting down over the peak summer driving months. On Wednesday, we retweeted his tweet [LINK] on the his estimate of the impact of the Trump 25% tariff on gasoline prices. DeHaan wrote "*How much will your #gasprices be impacted by Trump's potential 25% tariff on Canadian oil? A quick map/analysis, which could change if the situation does: "Major impact" 25-75c/gal. "Moderate impact" 15-40c/gal. "Limited impact" 5-15c/gal.'* The regional concepts are in line with our prior comments that the Midwest gasoline prices would feel the big hit as that is where the bulk of Cdn heavy/medium goes to Midwest

refineries. Below is DeHaan's map.

Figure 31: Estimated Tariff Impact on Gas Prices



Source: GasBuddyGuy

American Fuel & Petrochemicals Manufacturers

Oil: AFPM "there is no easy, fit-for-purpose replacement" for Cdn medium/heavy oil

We have yet to see anyone in the broad oil and gas industry say anything resembling support for the Trump's 25% tariff on Cdn heavy/medium oil. Rather, anyone with a basic understanding of oil refinery operations realizes that the Midwest PADD 2 refineries are set up to run predominately on the crude quality of Cdn medium/heavy oil and that there is no way Midwest PADD 2 refineries could replace any more than very small fraction of Cdn medium/heavy oil. On Wednesday, one of the major industry associations for oil refineries, American Fuel & Petrochemical Manufacturers (AFPM) issued a relatively short statement explaining why US refineries need and can't easily replace Cdn heavy/medium oil. AFPM said "*Canadian crude accounts for an even larger share of total refinery throughput (about 65% of total crude runs, meaning Canadian crude is the #1 feedstock for Midwest refiners). There is no easy, fit-for-purpose replacement for this crude oil." "• How would tariffs impact the price of fuel? Crude oil is to refineries what flour is to bakeries. It's our number one feedstock and input cost. If those feedstocks were to become significantly more expensive, so too would the overall cost of making fuel here in the United States. In regions like PADD 2, that have limited connectivity to U.S. crude oil and refined product pipelines, tariffs could have an especially hard impact—sharply increasing operating costs and potentially threatening refinery viability while simultaneously eroding U.S. energy security and driving up dependence on fuel imports from overseas."* Our Supplemental Documents package includes the AFPM report.

Crack spreads closed at $15.72

Oil: Crack spreads -$1.37 WoW to $15.72, WTI -$3.24 WoW to $68.00

On Friday, we tweeted [LINK] "*321 crack spreads -$1.37 WoW to $15.72 on Nov 29. WTI -$3.24 WoW to $68.00. Reinforces WTI is impacted more by global markets than by cracks as WTI gave back last wk's gains on 1st news of Putin new nuclear doctrine, 1st hypersonic* Crack spreads were -$1.37 WoW to $15.72 on Nov 29 and WTI was -$3.24 WoW to $68.00. WTI gave back most of its big gains last week following the news of Putin new nuclear doctrine and the 1st hypersonic ballistic missile used on UKR. As a general rule, over the past few months, WTI has been driven more by global factors and not crack spreads. Crack spreads at $15.72 are near the bottom end of the typical pre-Covid $15-$20 range so aren't by themselves high enough to incentivize refineries to take any more crude than necessary.

Crack spreads of $15.72 on Nov 29 followed $17.09 on Nov 22, $17.99 on Nov 15, $17.30 on Nov 8, $16.82 on Nov 1, $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, and $17.06 on Aug 30,

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

It hasn't been normal times for oil markets for the past few months with Iran/Israel, Chinese stimulus, Trump win, stronger US$, Putin's new nuclear doctrine and its 1st hypersonic ballistic missile hit on Ukraine. So for the most part, the last few months are good examples that global oil and market items impact WTI more than crack spreads. As noted above, that was the case last week when crack spreads were down but WTI was +$4.22 WoW as markets focus on the new Russian nuclear doctrine and Russia's first hypersonic ballistic missile attack on Ukraine. And then this week, when WTI gave up most of last week's gains. But in normal times, 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. 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 $15.72 on Friday Nov 29.

Figure 32: Cushing Oil 321 Crack Spread & WTI Nov 29, 2014 to Nov 29, 2024

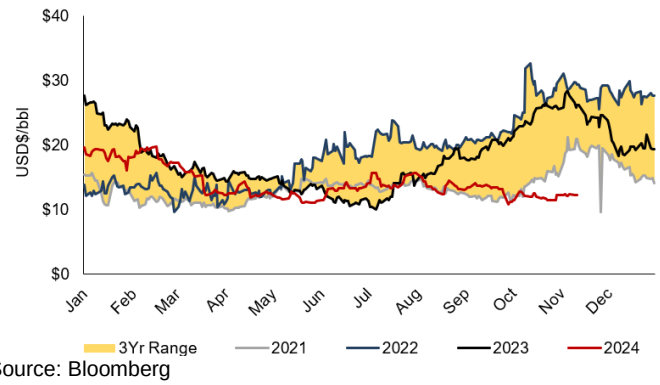
Source: Bloomberg

Oil: Cdn heavy oil differential widen +$0.10 WoW to close at $12.25 on Nov 29

WCS differential widens

WCS less WTI differentials widened this week +$0.10 WoW to close at $12.25 on Nov 29. As noted in the following item, we have been saying that the real test for WCS less WTI differentials will be in Sept/Oct/Nov 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 significant seasonal 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, which it did not. The WCS less WTI differential closed on Nov 29 at $12.25 which was a widening of +$0.10 WoW vs $12.15 on Nov 22.

Figure 33: WCS less WTI oil differentials to November 29 close

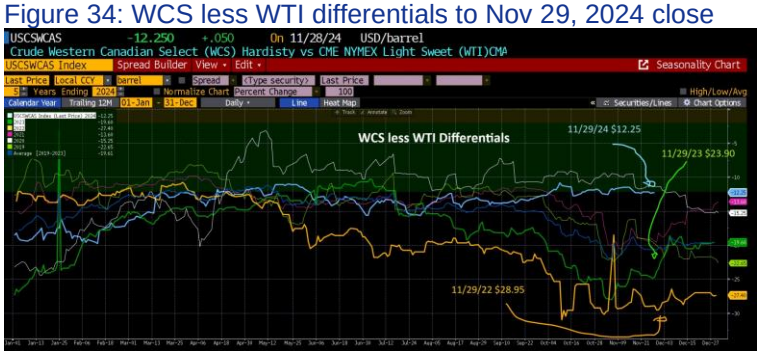


Source: Bloomberg

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

The start of TMX pipeline in Q2 continues to have the big expected positive for Cdn oil by 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. $12 narrower vs a year ago and approx. $17 narrower than two years ago. That is a big win for cash flows for all Cdn oil producers. For the past few several 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 wasn't what happened in the summer months but what would happen in late Aug, Sept and Oct when differentials normally start to widen with seasonal refinery turnarounds. On Friday, we tweeted [LINK] "*Big continuing win for Cdn #Oil Q4/24 cash flows.Ramp up of volumes on 590,000 b/d TMX has kept WCS less WTI differentials from normal Sept/Oct/Nov widening. WCS less WTI diffs: 11/29/24: $12.25. 11/29/23: $23.90. 11/29/22: $28.95. 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 34: WCS less WTI differentials to Nov 29, 2024 close



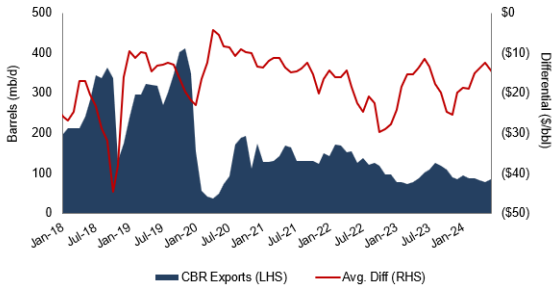
Source: Bloomberg

Oil: CER reports Cdn crude by rail exports at 85,867 b/d in Sept, down -16.7% YoY

Cdn crude by rail down YoY in Sept

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. On Tuesday, the CER released their Canadian crude exports by rail figures for Sept [LINK]. Sept crude exports by rail were 85,867 b/d, which is up +8.4% MoM from 79,200 b/d in Aug and down -16.7% YoY from 103,041 b/d in Sept 2023. The CER doesn't provide any explanation for the MoM changes. But we have to believe the start up of the 590,000 b/d TMX in Q2/24 has to have had an impact. Below is our graph of Cdn crude by rail exports compared to the WCS–WTI differential.

Figure 35: Cdn Crude by Rail Exports vs WCS Differential



Source: Canadian Energy Regulator, Bloomberg

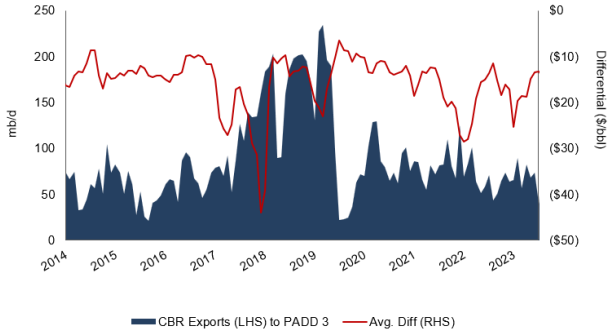
Oil: Total Cdn crude by rail imports -8,566 b/d MoM to 81,467 b/d in September

EIA Cdn crude by rail imports

On Friday, 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 81,467 b/d in September, which is down -11,898 b/d MoM from 90,032 b/d (revised) in August. The EIA estimates Cdn crude by rail into PADD 3 (Gulf Coast) were 61,167 b/d in September, which is down -11,898 b/d MoM from 73,065 b/d (revised) in August. 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 CER reported that 85,867 b/d of crude was exported by rail out of Canada during September vs the EIA estimates of 81,467 b/d of Cdn oil imported by rail in September. 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 36: US Imports of Canada CBR to US Gulf Coast vs WCS Differential



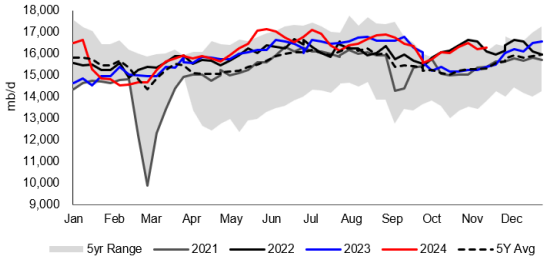
Source: EIA, Bloomberg

Oil: Refinery Inputs up +0.067 mmb/d WoW to 16.295 mmb/d

Refinery inputs +0.067 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 marks the point when refineries have come out of fall turnarounds and are ramping up crude oil inputs as they change from summer to winter fuel blends. And in Nov/Dec, it is normally ramps up before we start to see refineries move into turnarounds starting the end of Jan. On Wednesday, the EIA released its estimated crude oil input to refinery data for the week ended November 22 [LINK]. The EIA reported crude inputs to refineries were up +0.067 mmb/d this week to 16.295 mmb/d and are up +0.273 mmb/d YoY. Refinery utilization was up +0.3% WoW to 90.5% and was up +0.7% YoY.

Figure 37: US Refinery Crude Oil Inputs



Source: EIA, SAF

Oil: US net oil imports down -1.885 mmb/d WoW as oil exports up +0.285 mmb/d

US net imports -1.885 mmb/d WoW

The EIA reported US "NET" imports were down -1.885 mmb/d to 1.420 mmb/d for the week

of November 22. US imports were down -1.600 mmb/d to 6.083 mmb/d, while exports were up +0.285 mmb/d to 4.663 mmb/d. Top 10 were down -1.080 mmb/d. (i) Previously we have noted that the EIA did not report weekly Venezuela imports, however, last 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 up +0.219 mmb/d to 4.081 mmb/d. Weekly imports have been higher for the past five months with the increased Cdn crude coming off TMX and hitting west coast US refineries. (iii) Saudi Arabia was up +0.028 mmb/d to 0.248 mmb/d. (iv) Mexico was down -0.617 mmb/d to 0.151 mmb/d. This is because of the new Olmeca/Dos Bocas refinery coming back online, after being down earlier in the month. But, as a general rule, oil imports from Mexico in Q2 and Q3 have been significantly lower than prior year's levels with the new Olmeca (Dos Bocas) refinery slowing ramping up in 2024 and Pemex's other refineries increasing crude oil processing. (v) Colombia was down -0.272 mmb/d to 0.142 mmb/d. (vi) Iraq was up +0.040 mmb/d to 0.277 mmb/d. (vii) Ecuador was down -0.237 mmb/d to 0.118 mmb/d. (iix) Nigeria was up +0.060 mmb/d to 0.146 mmb/d. (ix) Venezuela was up +0.056 mmb/d to 0.267 mmb/d.

Figure 38: US Weekly Preliminary Imports by Major Country

	Sep 27/24	Oct 4/24	Oct 11/24	Oct 18/24	Oct 25/24	Nov 1/24	Nov 8/24	Nov 15/24	Nov 22/24	WoW
Canada	3,799	3,499	3,537	3,719	3,660	3,879	3,953	3,862	4,081	219
Saudi Arabia	145	285	314	150	13	443	140	220	248	28
Venezuela	297	315	134	289	250	212	359	211	267	56
Mexico	448	382	406	258	621	247	384	768	151	-617
Colombia	347	149	223	365	150	72	142	414	142	-272
Iraq	152	241	70	237	216	183	121	237	277	40
Ecuador	253	228	35	138	67	37	247	355	118	-237
Nigeria	84	44	134	125	145	86	77	86	146	60
Brazil	186	134	154	285	88	202	280	498	227	-271
Libya	77	28	0	81	89	238	0	86	0	-86
Top 10	5,788	5,305	5,007	5,647	5,299	5,599	5,703	6,737	5,657	-1,080
Others	840	934	522	784	676	641	806	947	426	-521
Total US	**6,628**	**6,239**	**5,529**	**6,431**	**5,975**	**6,240**	**6,509**	**7,684**	**6,083**	-1,601

Source: EIA, SAF

Oil: Mexico oil production according to Pemex down MoM to 1.596 mmb/d

October oil production

Please note that we are reporting on Pemex "oil" production excluding "condensate" production. This week, Pemex posted its oil production data for October [LINK]. Pemex reported October oil production was 1.596 mmb/d, which was up +2.3% YoY and down -2.5% MoM from 1.637 mmb/d in September. Mexico oil production has been stuck below 1.7 mmb/d for the last three years. Pemex has been unable to grow Mexico oil production, which means that any increase in Pemex Mexico refineries crude oil input will result in less Mexico oil for export including to the US Gulf Coast. And it also means that if Mexico has refinery issues in a month, there will be more Mexico oil for export in a month. Below is our table tracking Pemex oil production.

Figure 39: Pemex (Incl Partners) Mexico Oil (excluding Condensate) Production

Oil Production (thousand b/d)	2017	2018	2019	2020	2021	2022	2023	2024	24/23
Jan	2,020	1,909	1,623	1,724	1,651	1,649	1,628	1,703	4.6%
Feb	2,016	1,876	1,701	1,729	1,669	1,619	1,619	1,696	4.8%
Mar	2,018	1,846	1,691	1,745	1,697	1,620	1,636	1,690	3.3%
Apr	2,012	1,868	1,675	1,703	1,693	1,586	1,656	1,625	-1.9%
May	2,020	1,850	1,663	1,633	1,688	1,588	1,661	1,664	0.2%
June	2,008	1,828	1,671	1,605	1,698	1,570	1,610	1,658	3.0%
July	1,986	1,823	1,671	1,595	1,701	1,583	1,550	1,636	5.5%
Aug	1,930	1,798	1,683	1,632	1,657	1,604	1,552	1,660	7.0%
Sept	1,730	1,808	1,705	1,643	1,709	1,594	1,581	1,637	3.5%
Oct	1,902	1,747	1,655	1,627	1,692	1,592	1,560	1,596	2.3%
Nov	1,867	1,697	1,696	1,633	1,691	1,582	1,558		
Dec	1,873	1,710	1,706	1,650	1,694	1,561	1,545		

Source: Pemex, SAF

Oil: Mexico exports up +26.7% MoM to 0.831 mmb/d of oil in October

Pemex October oil exports

The big theme for Pemex (Mexico) oil exports is unchanged – oil production is stuck below 1.7 mmb/d so any improvement in crude run rates at the existing Pemex oil refineries and the startup, albeit delayed, of the new 340,000 Olmeca (Dos Bocas) refinery means there will be less oil for export. Due to Olmeca volumes slowly ramping, we have seen declining Mexico oil exports in H2/24. However Oct exports were up MoM due to the Olmeca/Dos Bocas refinery being down and some of the other refineries taking reduced crude. On Monday, Pemex posted its oil exports for Oct [LINK]. Pemex does not provide any commentary on the data, but the reported Oct oil exports were 0.831 mmb/d, which is up +26.7% MoM and down -21.1% YoY vs 1.053 mmb/d in October 2023. Below is our table of the Pemex oil export data.

Figure 40: Pemex Mexico Oil Exports

Oil Exports (thousand b/d)	2017	2018	2019	2020	2021	2022	2023	2024	24/23
Jan	1,085	1,107	1,071	1,260	979	832	980	951	-3.0%
Feb	1,217	1,451	1,475	1,093	1,006	925	949	940	-0.9%
Mar	1,001	1,176	1,150	1,144	925	905	971	687	-29.2%
Apr	1,017	1,266	1,023	1,179	923	1,024	989	681	-31.1%
May	958	1,222	1,205	1,062	1,031	965	1,087	911	-16.2%
June	1,157	1,110	995	1,114	1,106	1,029	1,203	754	-37.3%
July	1,255	1,156	1,079	1,051	1,173	1,062	1,052	779	-26.0%
Aug	1,114	1,181	1,082	1,190	1,099	915	1,076	731	-32.1%
Sept	1,159	1,206	995	1,023	983	1,022	1,119	656	-41.4%
Oct	1,342	1,027	963	908	935	971	1,053	831	-21.1%
Nov	1,388	1,135	1,114	1,171	1,025	893	883		
Dec	1,401	1,198	1,115	1,243	1,037	900	1,027		

Source: Pemex

Oil: Putin, several Oreshniks in a single strike has the power of a nuclear bomb

Bunch strike of Oreshniks is like a nuclear bomb power

Early Thursday morning, all of the headlines were all about Putin warning that major control centers in Kiev could be targeted by the hypersonic Oreshnik (Hazel) intermediate range missile. We don't disagree that that is significant but what didn't get well reported was Putin saying sending multiple Oreshnik missiles at once at a target would have the same power as a nuclear bomb. Early Thursday morning, we tweeted [LINK] *'Breaking. Headline is Putin warns potential Oreshkin/Hazel targets incl decision making centers in Kiev. Scary point, he reminds of the mass destruction potential if firing multiple Hazels in a bunch single strike ie. would have destructive power comparable to nukes. #OOTT."* Our tweet included the short TASS report [LINK} "*Putin: the power of the "Hazel" in a massive strike is comparable to nuclear weapons. The President of the Russian Federation noted that the tests carried out on November 21 confirmed that the Oreshnik is a high-precision weapon. The massive use of the latest Russian hypersonic missile system "Oreshnik" will entail a strike power comparable to the use of nuclear weapons, Russian President Vladimir Putin said at a meeting of the*

Collective Security Treaty Organization (CSTO) in a narrow format. "According to military and technical experts, in the event of a massive, group use of these missiles, that is, several missiles at once, in a bunch in one strike, its power will be comparable to the use of nuclear weapons. Although the Hazel, of course, is not a weapon of mass destruction," the head of the Russian state said. Putin emphasized that the tests carried out on November 21 confirmed that the "Hazel" is a high-precision weapon. "Most importantly, there is no nuclear charge here, and therefore no nuclear contamination after its use," the Russian leader emphasized."

11/29/24: Russia to use Oreshnik if US et al long range missiles used again

On Friday, TASS reported on comments by Kremlin spokesman Peskov, who reminded that Russia will use Oreshniks again if US, UK, France long range missiles are used again by Ukraine. On Friday, we tweeted [LINK] "*Kremlin warns Russia will use #Oreshnik/#Hazel again if Ukraine uses US/UK/France long range missiles. ie. they will continue the practice of what they did after Ukraine used US/UK/France long range missiles. #OOTT."* There was a short TASS report [LINK] *"Russia will give an adequate response to every strike by Western missiles on its territory. This was promised at a briefing by the press secretary of the President of the Russian Federation Dmitry Peskov. "In his recent statement, President [of the Russian Federation Vladimir] Putin warned that the decision to allow such use of these American and other foreign-made missiles is an irresponsible step that escalates tensions," the Kremlin spokesman recalled. "In the event of the use of these missiles, an appropriate response will be given each time," Peskov promised. - These actions (strikes on targets in Ukraine - approx. TASS) were carried out on our part in line with this response. This practice <... > will continue."* Peskov is saying Russia will continue its practice of using Oreshniks if Ukraine is using the US/UK/France long-range missiles.

11/22/24: Russia reminds Oreshnik can hit targets across entire Europe

Here is what we wrote in last week's (Nov 24, 2024) Energy Tidbits memo. "*On Friday, TASS reported [LINK] "The Oreshnik missile system is capable of reaching targets across entire Europe, Sergey Karakayev, commander of Russia's strategic missile forces, told President Vladimir Putin. "This missile system with hypersonic blocks can hit any targets - from isolated to area-type, as well as highly-protected - with a high efficiency. Based on the tasks and the range of this weapon, it can hit targets across entire Europe, which sets it apart from other high-precision long-range weapons," he said at a meeting with top Russian defense officials, executives of defense sector companies and arms developers."*

Oil: Russian refineries processing reaches 3-month high in first 20-days of Nov

Russian oil refineries

We noted the impact of refinery maintenance on exports in Oct, and as the turnarounds begin to wrap up in Nov, we expect exports to fall and refinery rates to increase, since the more crude being processed, means less is available for export. The first 20-days of Nov saw processing rates at Russian refineries reach a three month high; diesel and gasoil exports increased +17% MoM to 827,000 b/d, with the majority of cargoes going to Turkey, however, the report notes a significant amount of cargoes going to Asia, specifically Indonesia. A BNEF report, notes that Russian refinery runs rose to 5.32 mmb/d during the period, and that

Russia's refined product exports are on track to increase by +0.20 mmb/d MoM in November. Bloomberg said: "*processing rates at Russian refineries reached a three-month high in the first 20 days of November. This may have reduced the amount of crude available for exports, while boosting the supply of refined oil products. Here's a breakdown of shipments from Russian ports for Nov. 1-20 Diesel and gasoil exports climbed 17% from the previous month to 827,000 barrels a day, the most since July. While Turkey remains the top buyer of these cargoes, unusually strong volumes are sailing toward Asia, notably to Indonesia. Naphtha shipments jumped by more than half from October levels to 530,000 barrels a day, the highest since March 2023. More volumes were sent to Mediterranean ports — notably Turkey, Libya and Tunisia — as well as Brazil*". Our Supplemental Documents package includes the Bloomberg report.

Figure 41: Russia refinery runs

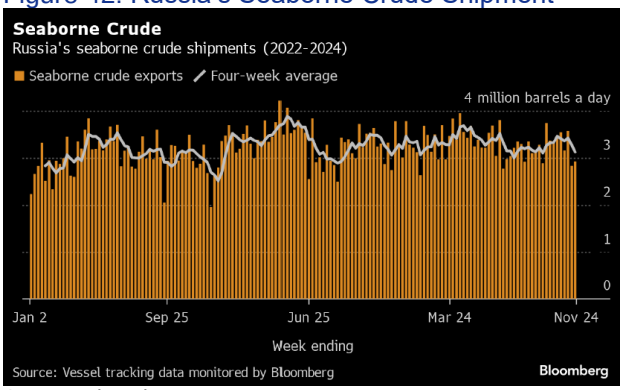
Source: Bloomberg, BNEF

Oil: Russia's seaborne crude oil exports decline by largest amount since July

Russia's seaborne crude exports

Two weeks ago, in our November 17, 2024, Energy Tidbits memo we highlighted "*We should see a pull back in Russia oil shipments in a week or two give the Bloomberg Friday report "Russia Raises Weekly Refinery Runs to Highest Since Late August. More Russian oil refined within Russia means there is less oil for export."* This week, exports continued last week's fall, seeing the four-week average for Russia's seaborne crude exports decline the most since July. The decline comes from a fall in flows from the Arctic, Black Sea, and Baltic Ports. Bloomberg noted that the drop in shipments was driven by a five-day gap in the loading program for Novorossiysk. The four-week average fell by -150,000 b/d for the week to November 24. Bloomberg reported "*Four-week average volumes declined by about 150,000 barrels a day in the period to Nov. 24, slipping for the fourth time in five weeks, even as weekly exports were up slightly from the previous seven days. The drop in shipments was concentrated in Russia's western ports, where flows in the past two weeks are down by about 25% from their average level last month. In the latest week, a five-day gap in the loading program for Novorossiysk, likely maintenance-related, hit cargoes from the Black Sea.*" 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 Shipment



Source: Bloomberg

Russia oil exports to China rise past April levels

For the last several months, we have been highlighting how China is a price sensitive buyer of oil and has been hitting oil imports from Russia when Russia increased its prices in Q2/24. But China also has the ability to shift some Russian barrels to Iranian barrels and vice versa. What isn't clear is if China oil imports from Russia are tweaking up because Iran has been tweaking up its oil prices to China or if China has been just increasing imports. (i) 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 crude oil shipments from Russia to China have been up +0.190 mmb/d the last four weeks vs late Oct. Bloomberg highlighted the four-week average of Russia oil shipments to China were up +0.090 mmb/d to 1.430 mmb/d for the week ending November 24, 2024, up from last week's 1.340 mmb/d for the week of November 17, 2024. This compares to 1.240 mmb/d for the last week of Oct. (ii) On Nov 6, Shana (news agency for Iran's energy ministry) reported Iran's oil price to China was the most expensive, relative to Brent, in five years [LINK]. Shana wrote "*Iran's crude oil going to China these days is priced at its narrowest discount to Brent in five years.Oil Price news website, quoting Reuters, announced this on November 5, adding the discount of Iran Light crude to ICE Brent has now narrowed to below $4 per barrel, from $5-$6 a barrel earlier this year."* (iii) Russia increasing oil prices in April led to lower Russia shipments 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 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
October 20, 2024	1.36	1.76	0.00	0.03	0.00	3.14
October 27, 2024	1.24	1.74	0.00	0.09	0.06	3.12
November 3, 2024	1.34	1.51	0.00	0.14	0.06	3.05
November 10, 2024	1.39	1.39	0.00	0.22	0.06	3.06
November 17, 2024	1.34	1.29	0.00	0.22	0.09	2.94
November 24, 2024	1.43	0.96	0.00	0.27	0.10	2.76

Source: Vessel tracking data compiled by Bloomberg — Bloomberg

Source: Bloomberg

Oil: Is OPEC delaying its Dec 1 meetings so Saudi Energy Minister can bring a deal?

OPEC moves meetings to Dec 5

On Friday, we tweeted [LINK] "*Is Saudi Energy Minister Abdulaziz working the phones to get* consensus on something more than just delaying the return of voluntary cut barrels on Jan 1? *Legitimate excuse OPEC delays Dec 1 meet as ministers are attending 45th Gulf Summit in Kuwait on Dec 1. BUT Dec 1 conflict known for months. ie. 11/05, Kuwait declared public holiday on Dec 1 for the summit. So feels like he wanted a few more days for something. Find out on Dec 5. #OOTT.* We recognize most are assuming the worse for the delay but, given Saudi Energy Minister Abdulaziz's track record, we couldn't help wonder if he is working on something more than the market expects. On Thursday, OPEC announced that its planned Dec 1 meeting were being moved to Dec 5. As expected, there was speculation as what was behind the scenes discussions that led to the rescheduling. The reason given was that ministers were attending the 45th Gulf Summit in Kuwait. This is not a new event. We aren't certain when the date was picked but we know that it was set at least a month ago as Kuwait had then announced that people were getting a work holiday on Dec 1 when the 45th Gulf Summit was being held. So we have to assume that Saudi Energy Minister Abdulaziz has been busy working the phones to get his desired consensus and needed a few more days to do so. And that it feels to us like it would be something more than just extending the return of the voluntary cut barrels a month or two or three. OPEC's announcement said "*57th JMMC Meeting and 38th ONOMM moved to 5 December. The 57th Meeting of the Joint Ministerial Monitoring Committee (JMMC) and the 38th OPEC and non-OPEC Ministerial Meeting (ONOMM), originally planned for 1 December 2024, have been rescheduled to Thursday, 5 December 2024, via videoconference, as several Ministers will be attending the 45th Gulf Summit in Kuwait City, the State of Kuwait."*

Oil: Key factor for OPEC adding back barrels is oil demand -1.27 mmb/d QoQ in Q1/25

Oil demand -1.27 mmb/d QoQ in Q1/25

It seems like pretty well everyone moved, especially after the OPEC meeting rescheduling, to an expectation that the OPEC+ countries would not start adding back barrels on Jan 1 and there was a lot of reasons why they have moved to this view. Our view is unchanged for the past several months and it has been pretty simple view that, with oil demand always

seasonally lower in Q1 every year vs the preceding Q4, adding back barrels in Q1/25 would lead to lower oil prices. When we saw the different reasons for why OPEC would not add back the voluntary barrels, we tweeted twice on this. On Monday, we tweeted [LINK] "*Here's why it's tough for OPEC to add back voluntary cuts in Jan. #Oil demand seasonally weakens every year such that Q1 is always less demand than preceding Q4. OPEC Nov MOMR forecasts Q1/25 at 104.29 mmbd, which is -1.27 mmbd lower than Q4/24 of 104.29 mmbd. Perhaps the only wildcard is IF Trump told MBS that he plans to hit Iran/Venezuela oil exports on Day 1. #OOTT".* And then on Friday, we tweeted [LINK] "*Don't forget oil demand fundamentals when ;ooking for why OPEC is expected to delay adding back voluntary cuts. See 👇11/25 tweet. Oil demand is always seasonally lower in Q1 vs preceding Q4 - it's winter. OPEC MOMR forecasts Q1/25 demand -1.27 mmb/d QoQ vs Q4/25. #OOTT."* Our Supplemental Documents package includes the OPEC Nov MOMR oil demand tables attached to our tweets.

Oil: Absent Trump surprise, hard to see OPEC return voluntary barrels in Q1/25

OPEC+ countries voluntary cuts

Our view hasn't changed in that unless there is a Trump surprise, we still believe it will be difficult for or Saudi et al to add back the voluntary cut barrels in Q1/25. The wildcard would be if Trump moved immediately to cut Iran and Venezuela oil exports. Absent an early Trump move to do so, we stick to our view that the normal seasonal decline in oil demand from Q4/24 to Q1/25 will prevent Saudi et al from adding back barrels. We also wonder if Trump has given or will be giving a hint on what he plans to do on Iran to Saudi Arabia, Russia and UAE, who will be the big winners if Trump cuts Iran and Venezuela oil exports. Our Nov 10, 2024 Energy Tidbits memo wrote "*It will be interesting to watch OPEC announces in a month on what Saudi, Russia et al decide about bringing back the voluntary cut barrels on Jan 1, 2025. Will they start the add back of voluntary oil barrels in Q1/25 which is forecast to have lower QoQ oil demand vs Q4/24. Will they add back the barrels in Q1/25? If so, we have to believe Saud Arabia and UAE and Russia have some indication from Trump that he is going to move immediately to cut Iran oil exports. In his CNN Interview on Thursday, Brian Hook (former envoy on Iran in Trump's 1st administration and rumored lead on the transition team on US State Dept) made a point of highlighting that Trump's Day 1 calls were with Saudi Arabia, UAE, Egypt and Israel."*

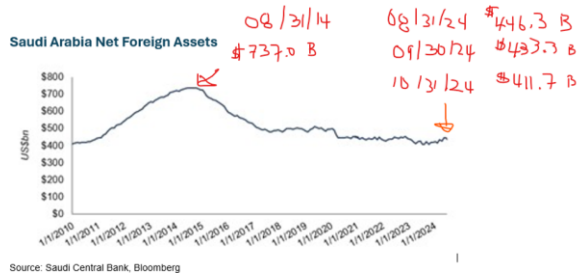
Oil: Saudi nest egg, its net foreign assets were down -$21.6b MoM in October

Saudi net foreign assets

For the past several years, we have stated that the #1 financial theme for Saudi Arabia will be the increasing use of Other People's Money "OPM" to fund their government and MBS Vision 2030 plan. This is because they have seen a $325.3b reduction in their net foreign assets in the last decade. It is also why we continue to believe Saudi Arabia will be working to keep oil prices strong and not crash oil prices for a few months to regain oil market share. We believe that will be an action of last resort. And why we expect to see OPM deals in the near term to add to the piggy bank. Yesterday, we tweeted [LINK] "*Saudi Arabia has a massive $411.7b piggy bank of net foreign assets but doesn't want lower oil prices. Brent was ~$75 and Its net foreign assets dropped $34.6b in Sept/Oct, largest 2-mth drop since $59.4b in Mar/Apr 2020 Covid. Net foreign assets are down $325.3b in 10 yrs from $737.0b peak in Aug 2014 to $411.7b on Oct 31/24. #OOTT*." Every month, we track Saud net foreign assets, which we have described as their piggy bank for the future. For October, there was a big MoM decrease of -$21.6bn. On Thursday, the Saudi Central Bank (SAMA) released its Monthly Statistical Bulletin for the month of October [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 -44% or -$325.3b 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 October there was a -$21.6b MoM decrease to Saudi Arabia's net foreign assets which are now $411.7b vs $433.3b in September. Last month's data saw a decrease of -$13.0b MoM for September. The thesis and big picture remains that Saudi net foreign assets as of October 31 of $411.7b is a decline of ~-44% or -$325.3b from its peak of $737.0b on Aug 31, 2014. That is an average of -$2.7b per month for the last 122 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 October data.

Figure 44: Saudi Arabia Net Foreign Assets



Source: Saudi Central Bank, Bloomberg

Largest 2-mth drop in Saudi Net Assets since Covid

We are huge believers that any picture does a great job of painting a story BUT as we like to see the numbers as the numbers reveal way more than picture. And our below table of the Saudi Net Foreign Assets shows that Sept/Oct -$34.6b was the largest 2-mth drop in Saudi Net Foreign Assets since the $59.4b drop in Mar/Apr height of Covid. And Brent averaged roughly $75 so it highlights why Saudi Arabia may not target an oil price but clearly doesn't want lower oil prices. The other reminder when you look at the numbers is that the few times it has neared dropping below $400b, there was a subsequent inflow. So when we see $411.7b for Oct 31, we fully expect to see some OPM deals adding to the piggy bank in the next couple months.

Figure 45: Saudi Net Foreign Assets

Saudi Arabia Net Foreign Assets *(US$bn)*										
	2020	*MoM Change*	2021	*MoM Change*	2022	*MoM Change*	2023	*MoM Change*	2024	*MoM Change*
Jan	$496.1	*$2.3*	$445.5	*($3.4)*	$429.4	*($8.1)*	$437.6	*($1.9)*	$419.3	*$2.2*
Feb	$491.6	*($4.5)*	$436.7	*($8.8)*	$424.1	*($5.3)*	$433.0	*($4.6)*	$412.1	*($7.2)*
Mar	$463.3	*($28.3)*	$444.6	*$7.9*	$434.2	*$10.1*	$418.7	*($14.3)*	$434.2	*$22.1*
Apr	$442.2	*($21.1)*	$436.3	*($8.3)*	$435.3	*$1.1*	$410.2	*($8.5)*	$423.6	*($10.6)*
May	$444.3	*$2.1*	$432.6	*($3.7)*	$435.5	*$0.2*	$422.8	*$12.6*	$444.6	*$21.0*
Jun	$442.8	*($1.5)*	$441.8	*$9.2*	$448.5	*$13.0*	$423.5	*$0.7*	$445.1	*$0.5*
Jul	$443.3	*$0.5*	$437.4	*($4.4)*	$445.6	*($2.9)*	$407.1	*($16.4)*	$429.8	*($15.3)*
Aug	$448.6	*$5.3*	$437.0	*($0.4)*	$438.9	*($6.7)*	$407.4	*$0.4*	$446.3	*$16.4*
Sep	$442.8	*($5.8)*	$448.0	*$11.0*	$448.8	*$9.9*	$420.2	*$12.8*	$433.3	*($13.0)*
Oct	$441.9	*($0.9)*	$433.2	*($14.8)*	$444.5	*($4.2)*	$406.3	*($13.9)*	$411.7	*($21.6)*
Nov	$452.1	*$10.2*	$446.9	*$13.8*	$451.8	*$7.3*	$418.1	*$11.7*		
Dec	$448.9	*($3.2)*	$437.5	*($9.4)*	$439.5	*($12.3)*	$417.1	*($1.0)*		

Source: Saudi Central Bank, Bloomberg

Also why Saudi starting oil price war to regain share is a last resort

We have been consistent in our view that Saudi Arabia starting an oil price war to regain oil market share is a last resort action. Their piggy bank is still massive at $411.7 b but it declined $34.6b in roughly $75 Brent. Let's say Brent went down to $40 or $50 in an oil price war, that could hit Saudi by over $10b per month. If that had been Sept/Oct, then the drop in Saudi Net Foreign Assets would have been over $55b drop or close to what was seen in Mar/Apr 2020. We just think Saudi oil price war to regain market share is a last resort action.

Oil: Saudi budget & wealth fund also point to why Saudi wants stable oil prices

More Saudi reasons for stable prices

Saud Arabia may not target a certain oil price level but does strive for stable oil markets. This week, we saw two Saudi economic indicators that support why Saudi will continue to work hard for stable oil prices. They are running budget deficits and their wealth fund is looking to cut back on some capital investments. The last thing they need in 2025 is lower oil prices. (i) Saudi budget released and continue to run a deficit. On Tuesday, Saudi Arabia approved its budget that forecast a fiscal deficit of $27b, which is ~2.3% of GDP. This is not a surprise. On Sept 30, 2024, we tweeted [LINK] "*Here's why Saudi wants/needs #OIl prices as strong as possible. Today's Pre-budget statement: - budget deficit of 2.5% of GDP is "likely to continue at similar rates over the medium term" - "will continue borrowing to meet the FY2025 est financing needs" - "additional proactive financing may also be considered" #OOTT.*" (ii) Saudi wealth fund reportedly looking cut some budgets for domestic projects. Yesterday, Bloomberg reported "*Saudi Arabia's sovereign wealth fund is preparing to cut budgets for some local projects for a second year even as it increases overall spending, reflecting the kingdom's shifting priorities in a trillion-dollar plan to overhaul the economy. The Public Investment Fund has asked some portfolio companies to cut their proposed budgets for next year by as much as 20% while some other developments may be accelerated, according to people familiar with the matter, who asked not to be identified discussing private information. The PIF is also reviewing budgets for projects yet to be announced, the people said. Spending plans for 2025 are due to be presented next month to the fund's board, when final decisions on its total outlays and budgets for individual projects are expected to be made, the people said. Some PIF projects are looking to raise external financing to compensate for any budget cuts, the people said. "As detailed in the country's budget statements, all previously announced projects will continue to be funded, and no projects have been postponed," the PIF said in a statement. "In fact, capital deployment is increasing. All projects through 2030 in*

line with Vision 2030 have sustainable funding plans," a reference to the strategy that aims to diversify the economy away from oil."

Oil: Trump NSA Waltz clearly points to Trump hitting Iran's oil exports

Looks like Trump to hit Iran oil

We would have to think Trump's pick for National Security Advisor, Mike Waltz, is going to be one of the top voices on Iran. And, if so, Waltz put forward some clear comments that Trump is going back to what he did in his first term on Iran – cut off their cash flow and that means cutting of oil exports. And that dealing with Iran was a priority for Trump. Waltz doesn't leave much doubt Trump is going to make sure Iran doesn't have cash to fund its backing of terrorism because as long as Iran is flush with cash, there is no chance for Middle East peace. (i) We had just hear Waltz on Squawk Box and we tweeted [LINK] "*Bullish for 2025 #Oil. Just now, Trump National Security Advisor Mike Waltz clearly pointing to Trump return to cutting Iran's oil exports so it doesn't have cash flow to be a bad actor. Is well aware that US will have to make sure China doesn't buy Iran oil. Will help Saudi, UAE, RUS by providing room for them to bring back voluntary cuts. Hope @SquawkCNBC posts the interview. #OOTT."* (ii) A couple hours later, CNBC posted the Waltz interview. And we tweeted [LINK] "*Bullish for 2025 #Oil. See 👇transcript. Trump NSA pick Mike Waltz. ".. world's largest backer of terrorism... as long as they are flush with cash, the Middle East is never going to have peace...." Clearly points to cutting Iran's oil exports back to almost nothing. #OOTT."* (iii) Our tweet included the transcript we made of comments by Trump pick for National Security Advisor, Mike Waltz, on with Becky Quick, Joe Kernen and Andrew Ross Sorkin on CNBC Squawk Box on Nov 26, 2024. [LINK]. Items in "*italics*" are SAF Group created transcript. At 4:55 min mark, Waltz *"The change you are going to see is more focused on Iran. I don't believe that you restore stability. I don't believe you solve Gaza. And I think this is shared across many in the administration with the President. Necessarily there you saw that dealing with Tehran. Tehran is the world's* largest *backer of terrorism. They are going to help Hezbollah, Hamas, the Houthis rebuild if they can. And as long as they are flush with cash, the Middle East is never going to have peace. … There will be a shift. The president has been very clear about that. He was very clear in his 1st term in exerting maximum pressure on Iran until they are ready to come to the table from a very different perspective than they did with the Iran deal":* At 6:20 min mark "*I just want to make one more point on Iran. China buys 90% [he may have said 98% but hard to hear] of Iran's illicit oil. Roughly 2017/2018, they were exporting 4 mmb/d. By the end of Trump's first administration, it was down to around 3, 4 hundred thousand so I think we will be having some conversations with China about those purchases. But again, going back to that full maximum pressure. Not only will it help stability in the Middle East, it will help stability in the Russia/Ukraine theatre as well as Iran provides ballistic missiles and literally thousands and thousands of drones that are going into that theatre. So the Middle East is also a key component to resolving the Russia/Ukraine conflict*." Our Supplemental Documents package includes our transcript of Mike Waltz comments.

11/07/24: Trump's Brian Hook points to Trump cutting off Iran oil exports

Trump's pick for National Security Advisor Mike Waltz's comments on Iran are right in line with what Trump's envoy on Iran in his first term said post the election. Here is what we wrote in our Nov 10, 2024 Energy Tidbits memo. "*Trump's Brian Hook points to Trump cutting off Iran oil exports. We were surprised that, prior to the election, analysts and agencies were focused on the downside risk to oil prices under*

Trump's drill baby drill will get US oil companies to crank up drilling and lower oil prices. For months, we have been highlighting Trump's big impact on oil prices will be what he does on Iran and Venezuela. (i) On Friday, we tweeted [LINK] "Positive for #Oil. Seems Brian Hook (rumored to lead transition team at State Dept) is clearly pointing to Trump is going to clamp down on Iran oil exports like he did in 1st term. Allow room for Saudi, Russia et al to bring back voluntary cut barrels without crashing oil price. Slash Iran oil revenues for funding proxies. Fits SAF Group 👇Nov 3, 2024 Energy Tidbits highlight. Thx @BeckyCNN. #OOTT." (ii) Brian Hook was Trump's envoy on Iran in his first term and is the rumored person to lead Trump's transition team on the State Dept. And he was interviewed on Thursday on CNN. (iii) Hook highlighted Trump's Middle East accomplishments and "President Trump has no interest in regime change. The future of Iran will be decided by the Iranian people. We've said that repeatedly over four years. But what President Trump did say in Riyadh was that he would isolate Iran diplomatically and weaken them economically so they can't fund all of the violence that is going with the Houthis in Yemen, Hamas, Hezbollah, PIJ and these proxies that around Iraq and Syria today. All of whom destabilize Israel and our Gulf Partners." It's worth reading what Hook said and he highlighted a couple of times on Trump's strategy to weaken Iran financially. The #1 way to hit Iran financially is to enforce sanctions and cut back Iran oil exports to almost nothing like he did in his first term. (iv) Hook also highlighted Trump's foreign policy is clear. CNN said he was swerving his answers away from the questions and Hook replied "well look Becky, President Trump's foreign policy is hiding in plain sight. I'm not swerving any of your answers. I just think it's fairly obvious what he did in the first term. It's obvious that he isolated Iran and he weakened Iran economically." (iv) Our tweet reminded that a cutting off of Iran's oil exports would be a plus to Saudi Arabia and Russia as it would allow them to add back their voluntary cut barrels. And to Israel as it would cut off Iran's cash flow that is used to fund the proxies. Our Supplemental Documents package includes the transcript we made of Hook's comments."

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

Here is what we wrote prior to the election in our Nov 3, 2024 Energy Tidbits memo on all the pre-election chatter that a Trump win and drill baby drill would lead to lower oil prices. "*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*

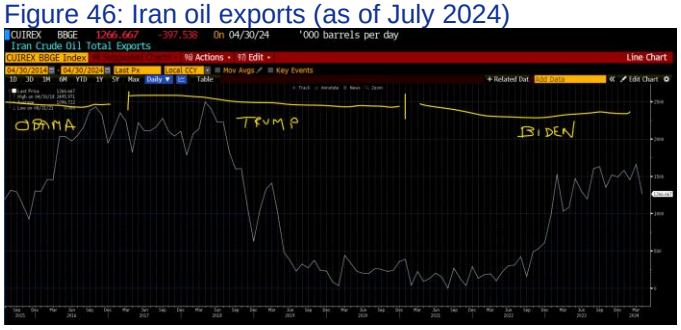
returns model and cranks up drilling so oil prices go lower. And if they are cranking up capex with lower prices, it has to mean they companies will cut back dividends and share buybacks. We just don''t see that. (iii) However, we can make the case for US oil players cranking up drilling and oil prices 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 was the last time, prior to the election 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*

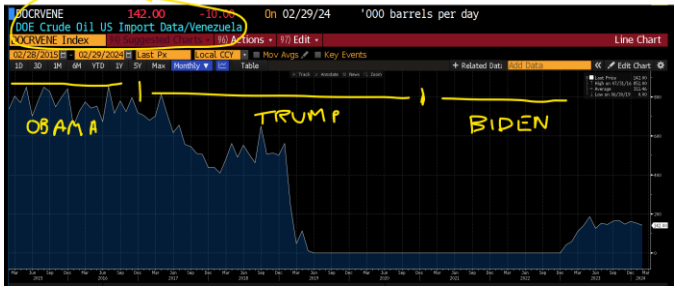
Democrat say, well, whether you like them or not, Iran was broke dealing with Trump. I told China and other countries, if you buy from Iran, we will not let you do any business in this country and we will put tariffs on every product you do send in or 100 percent or more. And they said to me, well, I 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 46: Iran oil exports (as of July 2024)



Source: Bloomberg

Figure 47: US oil imports from Venezuela (as of July 2024)



Source: Bloomberg

Oil: Libya oil + condensate production of 1.380 mmb/d is above Aug 1 levels

Libya oil production returned to Aug 1 levels a month ago and continues to creep higher

Libya production above Aug 1 levels

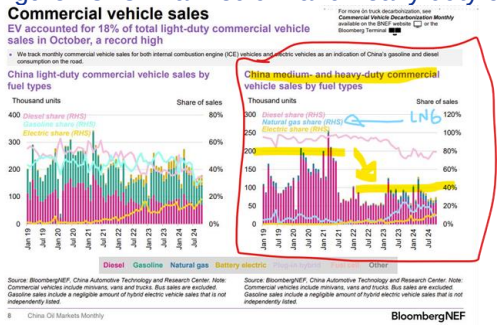
above Aug 1 levels. On Wed, the Libya National Oil Corporation tweeted [LINK] "*Today, Libyan oil field production indicators recorded an additional number in the series of escalating production increases, as crude oil and condensate production rates reached 1,380,470 barrels, while gas production reached 198,190 barrels equivalent.*" This is slightly higher than the NOC Aug 1 production update of 1.324 mmb/d. We reference Aug 1 as that was the last NOC production update for almost three months. But with the updates in Oct and Nov, NOC production updates have been at or slightly higher than the Aug 1 levels. However the revised NOC updates have 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 1.380 mmb/d is 1.350 mmb/d of crude oil and 0.050 mmb/d of condensate.

Oil: Big drop in China buying medium/heavy duty truck vs pre-Covid

Big drop in China heavy duty truck buying

Good food for thought graph from BloombergNEF that we think points to Chinese companies not feeling confident about their economic outlook. It's not a direct data point but we think the big drop in medium/heavy duty commercial truck sales points to Chinese companies extending the replacement cycle for commercial trucks. We have been highlighting how the big increase in LNG-fueled heavy duty trucks sales in China in 2023 and 2024 is leading to China reaching peak diesel demand sooner than expected. But, we haven't really focused on the bigger picture China economic question coming out of medium/heavy duty truck sales – they are way down vs pre-Covid. On Friday, we tweeted [LINK] "*Indicator Chinese companies still not confident in China recovery? Big drop in China medium/heavy duty truck sales vs pre-Covid. Some element that big pre-Covid new truck sales mean not as much required replacement BUT companies tend to extend replacement cycle in any equipment when they don't have as much confidence in the outlook. Trump election likely to keep this trend going for now. Thx @BloombergNEF Luxi Hong #OOTT."* When we saw the BloombergNEF graph of China medium an dheavy duty commercial vehicle sales by fuel types, what jumped out at us was how medium/heavy duty trucks sales have crashed vs pre-Covid. Our tweet noted that there must be some element that there might be less replacement given all the new trucks bought pre-2021. But given how the Chinese economy has been hit and Chinese haven't been confident in the economy, it reminded us of what always happens when people and companies are worried about the economy lookahead – they tend to defer big purchases and extend replacement cycles for equipment. This is what we were reminded of when we saw the below BloombergNEF graph. Is the big drop in medium/heavy duty truck sales a reflection that Chinese companies aren't confident in the lookahead to the economy? We think so.

Figure 48: China medium and heavy duty commercial vehicle sales by fuel type



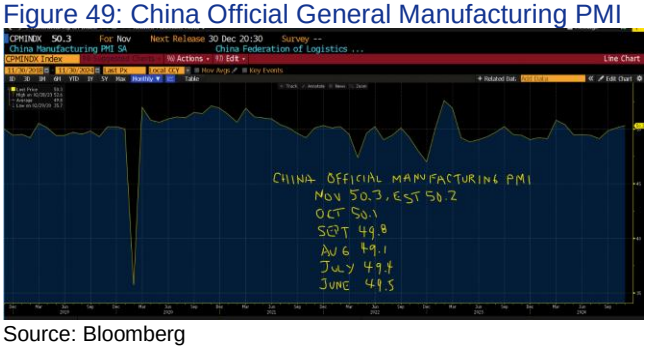
Source: BloombergNEF

Oil: China official Nov Manufacturing PMI 2nd mth of expansion

China official Manufacturing PMI

Up until Nov 5, the China oil story was all about how much more China stimulus and how the economy and consumers are responding. But since Trump's election, his stated intent to slam tariffs on China and his anti-China hawk cabinet picks, we still believe there is a huge Trump wildcard that is yet to be determined and felt by China. So it's hard to get too excited on China economic indicators until the Trump wildcard is clear. Yesterday, we tweeted [LINK] "*2nd month of expansion after 5 mths of contraction for China "official" manufacturing PMI. But key wildcard still to come what happens with Trump. Nov 50.3 vs est 50.2. Oct 50.1. 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 official China manufacturing PMI was released on Friday night. 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, which is being released tonight. Trump wildcard aside, the China official manufacturing PMI for Nov was 50.3 (vs estimates of 50.2), which follows 50.1 in Oct. These were the first two months reaction to the China Sept stimulus programs, which followed five months of contraction. Below is the Bloomberg chart of China official general manufacturing PMI.

Figure 49: China Official General Manufacturing PMI



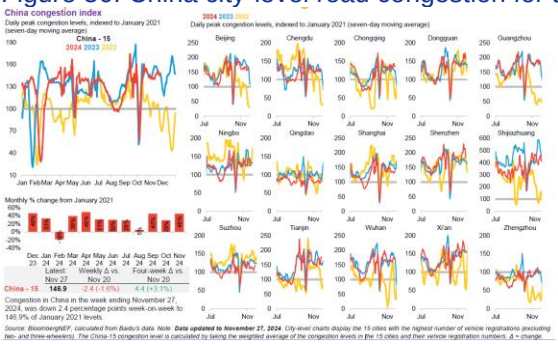
Source: Bloomberg

Oil: Baidu China city-level road congestion in Nov is down -1.4% YoY

China city-level road congestion down YoY

We are now nearing the end of November data for the China city-level road congestion data. Nov is a good period to check vs last year as there aren't holidays to distort the data. It may not be a huge change, but city-level road congestion is down -1.4% YoY, which infers there is lesser China activity in Nov 2024 vs Nov 2023. On Wed, BloombergNEF posted its China Road Traffic Indicators Weekly Nov 28 report, which includes the Baidu city-level road congestion for the week ended Nov 27. BloombergNEF reported Baidu city-level road congestion saw a decrease -1.6% WoW to 146.9% of Jan 2021 levels. Nov MTD has seen average daily peak congestion down -1.4% YoY when compared to Nov 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 fluctuates slightly"*. Below are the BloombergNEF key figures.

Figure 50: China city-level road congestion for the week ended Nov 27, 2024



Source: Bloomberg

Figure 51: China city-level road congestion for the week ended Nov 27, 2024

Indexed to January 2021 = 100

	Nov 23	Dec	Jan 24	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
China-15	146	146	133	81	138	148	130	129	127	104	144	128	144
Beijing	167	161	145	73	151	169	143	141	146	123	171	147	163
Chengdu	123	116	120	68	134	140	125	119	126	98	135	113	124
Chongqing	122	116	111	80	112	138	122	129	119	75	119	119	133
Dongguan	141	144	121	52	129	138	138	138	126	103	141	123	151
Guangzhou	178	181	161	76	171	195	174	170	162	158	179	159	181
Ningbo	146	142	127	79	144	146	120	128	121	94	140	119	130
Qingdao	99	103	78	51	71	78	72	75	91	80	87	79	80
Shanghai	155	150	115	79	146	152	130	132	119	93	151	121	136
Shenzhen	169	170	149	68	160	164	172	163	162	155	184	159	192
Shijiazhuang	491	461	494	350	400	390	311	329	334	308	364	356	419
Suzhou	127	136	118	79	134	137	113	112	105	96	115	106	114
Tianjin	169	190	133	85	160	165	145	132	106	98	186	150	162
Wuhan	159	159	167	105	174	171	146	144	141	117	168	154	164
Xi'an	156	155	152	98	141	147	129	123	135	107	145	136	156
Zhengzhou	97	108	110	85	95	96	80	78	86	66	91	83	101

Indexed to the same month in previous year = 100

	Nov 23	Dec	Jan 24	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
China-15	155	187	151	55	100	114	110	96	104	87	94	99	99
Beijing	214	275	135	42	92	113	103	93	106	90	95	92	97
Chengdu	131	124	144	51	106	107	115	91	116	85	104	93	101
Chongqing	395	224	136	64	101	125	125	112	113	85	94	107	110
Dongguan	104	156	258	41	99	127	120	108	108	101	96	94	107
Guangzhou	317	307	199	45	99	127	127	107	107	106	98	99	102
Ningbo	101	127	203	59	115	140	121	112	106	81	110	101	89
Qingdao	124	195	175	62	94	97	98	87	95	76	82	85	81
Shanghai	93	172	156	54	98	117	105	101	98	76	93	95	88
Shenzhen	97	156	189	41	96	120	132	99	113	106	102	105	113
Shijiazhuang	459	258	156	69	93	85	81	77	89	70	75	104	85
Suzhou	88	157	171	60	111	130	117	97	99	88	86	98	89
Tianjin	137	244	136	60	114	121	119	100	96	86	107	100	96
Wuhan	192	187	151	55	94	100	97	85	95	86	88	107	103
Xi'an	139	152	132	66	110	112	105	91	110	97	96	101	100
Zhengzhou	294	164	119	76	98	102	90	82	98	72	86	103	105

Source: BloombergNEF calculations based on Baidu data. Note: Data updated to ***November 27, 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

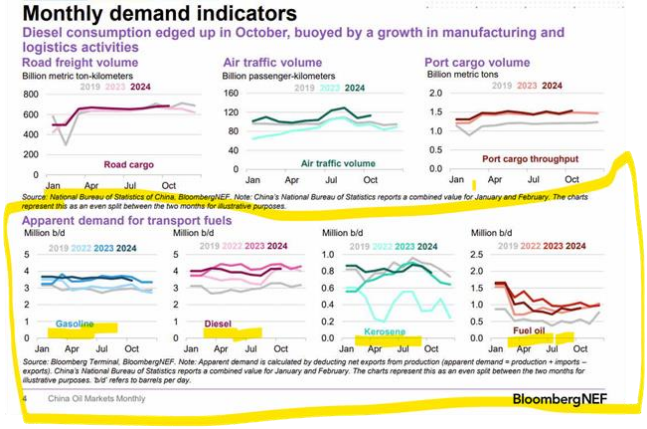
Oil: China transport fuels consumption look to have more or less peaked

China transport fuels consumption

We have been highlighting how China's road transport fuels look to be peaking and it seems that view has become the consensus view. On Friday, we tweeted [LINK] '*China apparent demand for gasoline, diesel and fuel oil are higher than pre-Covid. Jet Fuel/Kerosene is below pre-Covid. But looks to fit thesis that transport fuels demand have more or less peaked in China. Thx @BloombergNEF Luxi Hong #OOTT."* Our tweet included the below BloombergNEF chart "*Monthly Demand Indicators"* that included graphs for apparent demand for all key transport fuels. But BloombergNEF didn't have the specific data points but the graphs look to show the clear trends. China apparent demand for gasoline, diesel and fuel

are all higher than pre-Covid but look to have flattening apparent demand. Jet fuel/kerosene is still below pre-Covid and is still a little less or close to 2023. The graphs look to support the thesis that China's transport fuels consumption has peaked.

Figure 52: China apparent demand for transport fuels



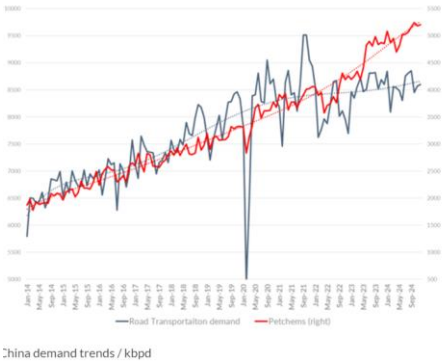
Source: BloombergNEF

Vitol, China total oil demand growth on trend even with peak transport fuel

Vitol also believes China has reached peak demand for transport fuels but also forecasts strong petrochemical demand for oil that will keep China's total oil demand growth on trend with pre-Covid trends Here is what we wrote in last week's (Nov 24, 2024) Energy Tidbits memo. "*We have been highlighting for months how the massive recent growth in LNG-fueled heavy duty trucks was going to lead China reaching peak diesel demand much sooner than expected. But we have not had the other key pieces of the demand outlook to give the full assessment of how and when peak diesel demand will push China to peak overall oil demand. However, a week a ago, we saw Wood Mackenzie note how China has now reached peak road transport fuels (gasoline, diesel) demand but overall China oil demand continues to grow at a pre-Covid growth pace because of petrochemicals consumption of oil. Here is what we wrote in last week's (Nov 24, 2024) Energy Tidbits memo. "Vitol, China total oil demand growth on trend even as peak transport fuel reached. Yesterday, we tweeted [LINK] "Great China #Oil demand perspective from @vitolnews @Giovanni Serio. China oil demand "trend is the same. What has changed is the composition of that demand. It is very clear when you break it down that peak transport fuel has been reached in China, but that petchem continues to expand and drive demand growth". Excerpt from his must read [LINK] #OOTT." We have been focusing on the piece of the China oil demand picture that we can follow – the growth of LNG-fueled trucks leading to peak China diesel demand. But that is a key piece but only piece of the China oil demand picture and we were reminded of this point by a great perspective comments by Giovanni Serio, Vitol's Global Head of Research at this week's FT Commodities Asia conference. The headlines from Serio's comments were his clear view that "peak transport fuel has been reached in China". That makes sense with LNG-fueled trucks and BEVs and PHEVs growth. Although he does also remind a*

wildcard is how much PHEVs keep taking share from BEVs. But what was missed in the headlines is that he sees China oil demand on trend with pre-Covid because strong petchem growth makes up for peak transport fuels. Our tweet included his key quote and the graphs that show the flattened gasoline/gasoil (diesel) curve an the strong growth in petchems to give the overall trend. Below is his road transport fuels and petchem demand growth graph. Our Supplemental Documents package includes the excerpt from his comments."

Figure 53: China road transportation fuels & petchems demand



Source: Vitol

Oil: BP CEO says oil demand keep surprising to the upside

BP CEO on oil demand

We couldn't find any video of BP CEO Murray Auchincloss's comments at the Energy Intelligence Forum in London on Monday. So only have the brief Reuters reporting [LINK] "*BP CEO Auchincloss says oil demand keeps surprising us to the upside. BP Chief Executive Murray Auchincloss said that global oil demand continued to surprise to the upside, speaking at the Energy Intelligence forum in London on Monday. He said oil demand kept rising on average by more or less 1% each year, depending on economic circumstances. BP expected robust oil consumption for the next five to 10 years, Auchincloss added."*

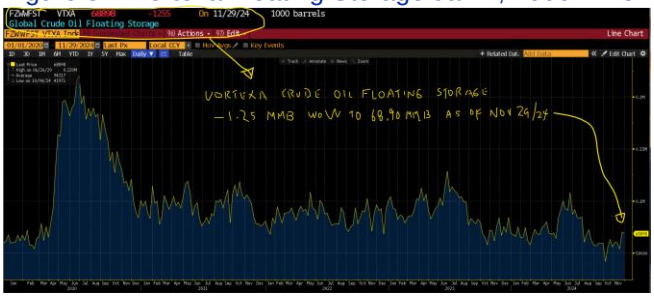
Oil: Vortexa crude oil floating storage est 68.90 mmb at Nov 29, -1.25 mmb WoW

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 Nov 23 at 9am MT. (i) Yesterday, we tweeted [LINK] "*Vortexa crude #Oil floating storage. 68.90 mmb on Nov 22, -1.25 mmb WoW vs small revised up Nov 22 of 70.15 mmb. Worth watching Asia at 37.08 mmb, highest since Aug. Key reason why total floating storage is~70 mmb for last 2 wks vs around 60 mmb & lower since mid-Aug. Thx @vortexa @business #OOTT."* (ii) As of 9am MT Nov 30, Bloomberg posted Vortexa crude oil floating storage estimate for Nov 29 was 68.90 mmb, which was -1.25 mmb WoW vs revised up Nov 22 of 70.15 mmb. Note Nov 22 was revised up +1.04 mmb vs 69.11 mmb originally posted at 9am on Nov 23. (iii) The last two weeks have been round 70 mmb whereas floating storage has been around 60 mmb or lower since mid-Aug. The linked area to watch is Asia, which at 37.08 mmb is the highest level since Aug 9. It's only two weeks but

we will want to watch as we about to move into Q1/25, when oil demand is seasonally lower than Q4/24. (iv) Revisions. Other than the small +1.04 mmb revision to Nov 22, the other six prior weeks were revised down with an average -3.26 mmb per week revision. Here are the revisions for the past seven weeks compared to the estimates originally posted on Bloomberg at 9am MT on Nov 23. Nov 22 revised +1.04 mmb. Nov 15 revised -2.96 mmb. Nov 8 revised -2.42 mmb. Nov 1 revised -1.50 mmb. Oct 25 revised -3.43 mmb. Oct 18 revised -4.68 mmb. Oct 11 revised -4.56 mmb. (v) There is a wide range of floating storage estimates for the moving 7-week average, but a simple moving 7-week average to Nov 29 is 61.76 mmb vs last week's then 7-week moving average of 62.58 mmb. The moving 7-week was less than the revisions because of dropping the low 56.17 mmb for Oct 11 from the moving 7-week average. (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 29 estimate of 68.90 mmb is -59.80 mmb vs the 2023 peak on June 25, 2023 of 128.70 mmb. Recall Saudi Arabia stepped in on July 1, 2023 with its voluntary cuts. (ix) Nov 29 estimate of 68.90 mmb is +2.12 mmb YoY vs Dec 1, 2023 at 66.78 mmb. Below are the last several weeks of estimates posted on Bloomberg as of 9am on Nov 30, Nov 23, and Nov 16.

Figure 54: Vortexa Floating Storage Jan 1, 2000 – Nov 29, 2024, posted Nov 30 at 9am MT



Source: Bloomberg, Vortexa

Figure 55: Vortexa Estimates Posted 9am MT on Nov 30, Nov 23 and Nov 16

Posted Nov 30, 9am MT

Date	Last Px
Fr 11/29/2024	68898
Fr 11/22/2024	70153
Fr 11/15/2024	53796
Fr 11/08/2024	60067
Fr 11/01/2024	60411
Fr 10/25/2024	55962
Fr 10/18/2024	63009
Fr 10/11/2024	56173
Fr 10/04/2024	41971
Fr 09/27/2024	59461
Fr 09/20/2024	59363
Fr 09/13/2024	59403

Nov 23, 9am MT

Date	Last Px
Fr 11/22/2024	69112
Fr 11/15/2024	56755
Fr 11/08/2024	62493
Fr 11/01/2024	61908
Fr 10/25/2024	59394
Fr 10/18/2024	67691
Fr 10/11/2024	60729
Fr 10/04/2024	44189
Fr 09/27/2024	62602
Fr 09/20/2024	59929
Fr 09/13/2024	60894
Fr 09/06/2024	58619

Nov 16, 9am MT

Date	Last Px
Fr 11/15/2024	48155
Fr 11/08/2024	59027
Fr 11/01/2024	59633
Fr 10/25/2024	59137
Fr 10/18/2024	67040
Fr 10/11/2024	60179
Fr 10/04/2024	45010
Fr 09/27/2024	63134
Fr 09/20/2024	59935
Fr 09/13/2024	60625
Fr 09/06/2024	58592
Fr 08/30/2024	57533

Source: Bloomberg, Vortexa

Oil: Vortexa crude oil floating storage WoW changes by regions

Vortexa floating storage by region

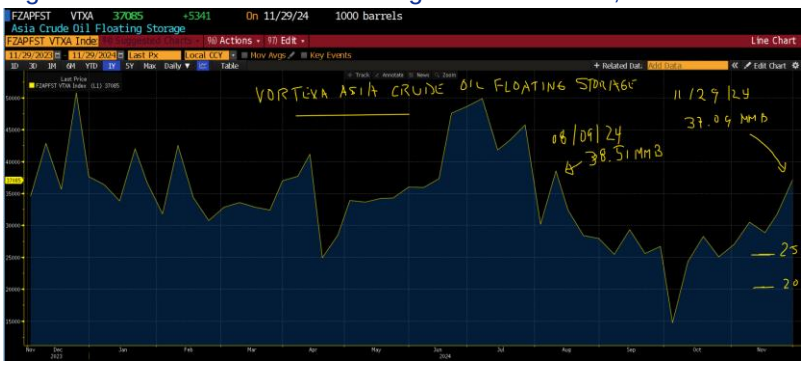
Bloomberg posts Vortexa crude oil floating storage in key regions, but not all regions of the world. The regions covered are Asia, North Sea, Europe, Middle East, West Africa and US Gulf Coast. We then back into the "Other" for rest of world. (i) As noted above, last week's Nov 22 was revised +1.04 mmb. The major revision was Asia revised +3.08 mmb, next largest revision was Middle East revised -1.62 mmb. (ii) Total floating storage at Nov 29 of 68.90 mmb was -1.25 mmb WoW vs the revised up Nov 22 of 70.15 mmb. The major WoW changes were Asia +5.35 mmb WoW, Europe -2.93 mmb WoW, Middle East -2.48 mmb WoW and Other =2.45 mmb WoW. (iii) See below chart. Asia is worth watching. Nov 22 was revised +3.08 mmb to 31.74 mmb, and Nov 29 at 37.09 mmb is the highest Asia floating storage since Aug 9. (iv) Nov 29 estimate of 68.90 mmb is -59.80 mmb vs the 2023 high on June 23, 2023 of 128.70 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 -36.20 mmb and Other -20.88 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 Nov 22 that was posted on Bloomberg at 9am MT on Nov 23.

Figure 56: Vortexa crude oil floating by region

				Original Posted	Recent Peak	
Region	Nov 29/24	Nov 22/24	WoW	Nov 22/24	Jun 23/23	Nov 29 vs Jun 23/23
Asia	37.09	31.74	5.35	28.66	73.29	-36.20
North Sea	1.37	3.64	-2.27	3.14	4.71	-3.34
Europe	3.25	6.18	-2.93	5.68	6.05	-2.80
Middle East	9.73	12.21	-2.48	12.43	6.59	3.14
West Africa	8.80	7.83	0.97	9.45	7.62	1.18
US Gulf Coast	0.12	2.46	-2.34	2.51	1.02	-0.90
Other	8.54	6.09	2.45	7.24	29.42	-20.88
Global Total	68.90	70.15	-1.25	69.11	128.70	-59.80
Vortexa crude oil floating storage posted on Bloomberg 9am MT on Nov 30						

Source: Bloomberg, Vortexa

Figure 57: Vortexa crude oil floating for Asia Nov 29, 2023 to Nov 29, 2024



Source: Bloomberg, Vortexa

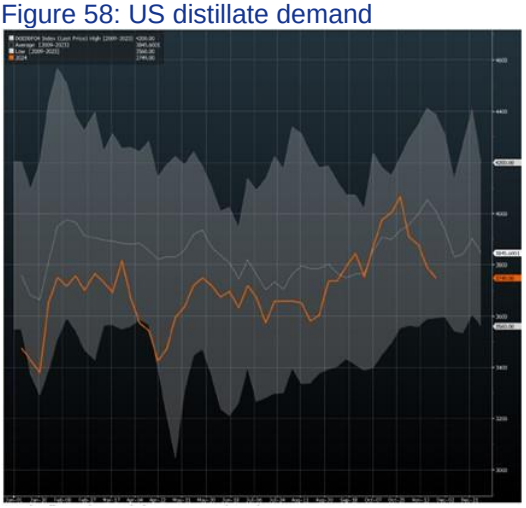
Oil: Bloomberg Oil Demand Monitor, *Fears of Glut Overshadow OPEC+ Output Talks*

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 current OPEC discussions regarding delaying the

cartel's January output increase, as well as the current concerns of faltering demand growth paired with increasing supplies from non-OPEC+ countries. Bloomberg noted that key OPEC nations have discussed delaying the return of January barrels ahead of the December 5th, OPEC meeting. We have been highlighting the challenges associated with not adding back production on October 1st, as global demand is seasonally lower Q1, when compared to the previous Q4; this leads us to think that they might be forced to wait until at least Q2/25. The Demand Monitor also notes growing concerns of a glut in 2025. This is driven by increasing supply from non-OPEC countries, as well as rapidly easing demand growth from China. The demand monitor notes that demand growth is expected to fall from 1.3 mmb/d this year, to 1.1 mmb/d in 2025. Bloomberg reported "*OPEC+ ministers are due to hold talks on Dec. 5 to update output policy, with the prospect of an impending glut in the global oil market weighing heavily on their deliberations. The group led by Saudi Arabia and Russia has for months been seeking to start restoring supplies curbed since 2022, but has stepped back in the face of fragile oil prices. Key nations have discussed delaying the modest increase planned for January, potentially for several months, delegates said this week. Swelling supplies from non-OPEC+ countries, notably in the Americas, are driving the outlook for a significant glut next year. But rapidly easing demand growth, most notably in China, is another critical element. Global demand gains will decelerate from 1.3 million barrels a day this year to 1.1 million next as "the last phase of post-pandemic rebound dissipates and advancement in energy efficiency and the expansion of a decarbonized fleet gain momentum in China," JPMorgan Chase & Co. analysts led by Natasha Kaneva said in a 2025-26 oil outlook… Indications are mounting that China — the biggest importer in recent years — is relinquishing its role as the driver of growth as its economy falters. The Asian nation's apparent oil demand slid more than 5% year-on-year in October, data compiled by Bloomberg showed".* The U.S. total oil products supplied rose by +8.2% YoY to 20.5 mmb/d as of October 25. Our Supplemental Documents package includes the Bloomberg Oil Demand Monitor.

Figure 58: US distillate demand



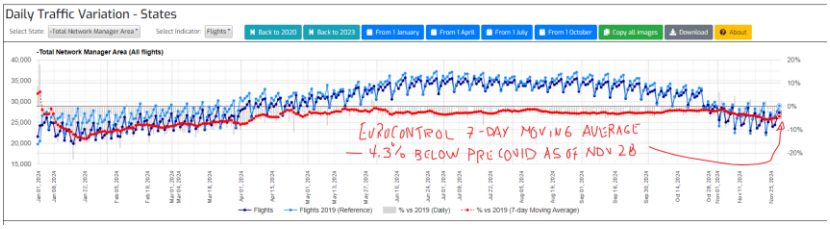
Source: Bloomberg

Oil: Europe airports daily traffic 7-day moving average is -4.3% below pre-Covid

Europe airports daily traffic

Yesterday, we tweeted [LINK] "*Tough times in EU. Daily Europe air traffic lowest since Apr. 7-day moving average as of: Nov 28: -4.3% below pre-Covid. Nov 21: -5.5%. Nov 14: -3.8%. Nov 7: -2.9%. Oct 31: -2.0%. Oct 24: -1.6%. Oct 17: -1.9%. Oct 10: -1.7%. Oct 3: -2.9%. Sept 26: -2.9%. Thx @eurocontrol #Oil #OOTT."* Daily Europe air traffic is now back down to early/mid April levels. Other than over Christmas, European daily traffic at airports has been stuck 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 -4.3% below pre-Covid as of Nov 28, which followed -5.5% below pre-Covid as of Nov 21 – the lowest since early April. Prior weeks were -3.8% as of Nov 15, -2.9% as of Nov 7, -2.0% as of Oct 31, -1.6% as of Oct 24, -1.9% as of Oct 17, -1.7% as of Oct 10, -2.9% as of Oct 3, and -2.9% as of Sept 26. 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 59: Europe Air Traffic: Daily Traffic Variation to end of Nov 28



Source: Eurocontrol

Oil: Asia/Pacific intl Oct passenger air travel up +19.0% YoY but down -1.4% vs 2019

Asian Pacific air traffic in Oct

On Thurs, the Association of Asia Pacific Airlines released its Oct 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 -1.4% below 2019 levels. The AAPA reports preliminary Oct 2024 travel figures were up +19.0% YoY from Oct 2023. The AAPA wrote *"The region's airlines continued to benefit from growing demand for timely air shipments. In October, international air cargo demand in freight tonne kilometres (FTK) rose by 10.9% compared to the same month last year. Offered freight capacity increased by 10.6%, led by continued growth in international belly-hold capacity. As a result, the average international freight load factor saw a marginal increase of 0.2 percentage points to 61.6%"* (ii) Air cargo was up +10.9% YoY, measured in Freight Tonne Kilometres (FTK), and the load factor fell by +0.2% to 61.6%. Meanwhile, headline capacity measured in Available Seat Kilometres (ASK) rose +18.6% YoY. (iii) Subhas Menon, Director General of the AAPA, said *"October was another strong month for Asia Pacific airlines, with a total of 303 million international passengers carried for the first ten months of the year, a 33% increase compared to the corresponding period in the previous year. The sturdy demand, along with capacity constraints caused by ongoing supply chain disruptions, resulted in an average load factor of 81.5% during the same period."* Below is a snapshot of the APAA's traffic update.

Figure 60: APAA Preliminary International Air Traffic Data

International	Oct-24	Oct-23	% Change
Passengers (Thousand)	31,044	26,095	+ 19.0%
RPK (Million)	109,438	91,418	+ 19.7%
ASK (Million)	134,789	113,642	+ 18.6%
Passenger Load Factor	81.2%	80.4%	+ 0.8 pp
FTK (Million)	6,439	5,804	+ 10.9%
FATK (Million)	10,456	9,451	+ 10.6%
Freight Load Factor	61.6%	61.4%	+ 0.2 pp

Source: AAPA

Energy Transition: China's BYD Nov PHEV sales continue to dominate vs BEV sales

PHEVs dominate BEVs for BYD sales

Earlier this morning, we tweeted [LINK] "*Breaking! PHEVs keep dominating BEVs in China. Don't forget NEVs = BEVs + PHEVs. BYD Nov/YTD Nov 30: BEV: 198,065 +16.4% YoY. 1,557,258 +12.5% YoY. PHEV: 305,938 +133.1% YoY. 2,183,672 +69.5% YoY. Unknown: what % of kms driven in ICE vs electric mode given vast majority of Chinese live in apartments built in prior boom? PHEVs are really just more fuel efficient ICE vehicles. See 👇09/04 tweet. Volvo says its PHEVs kms driven are 50/50 ICE vs electric mode. Gasoline consumption decline will be slower than most expect. #OOTT.*" BYD posted its Nov 2024 car sales this morning and the trend is like seen all year – BEV sales are up solidly YoY but PHEV sales are up hugely in 2024 and dominate BYD's NEV sales. Our concern is that almost everyone refers to BYD's NEV sales without splitting between BEV and PHEV. We recognize it takes that extra step to go and get the split but there is a big difference to the China gasoline consumption decline forecast if the cars are BEV vs PHEVs. This is not a quest that the huge % increase in PHEVs is because the huge % is relative to a low base. BYD's PHEVs reached parity to BEV volumes about a year ago. So the YoY % growth between the two is from a similar bases in 2023. YTD Nov 30, PHEV sales were 2,183,672 and +69.5% YoY. And PHEVs are now about 1.5x BEV sales. Our table below shows the BYD Nov and YTD Nov 30 NEV sales split into BEV, PHEV, Commercial vehicles – bus and Commercial vehicles – Others. Our Supplemental Documents package includes the BYD release this morning.

Figure 61: BYD New Energy Vehicle Sales for Nov 2024

BYD New Energy Vehicle Sales - Nov 2024

	Nov-24	% Share	Nov-23	% Share	Volume Δ	*% change*
BEV	198,065	39.1%	170,150	56.4%	27,915	*16.4%*
PHEV	305,938	60.4%	131,228	43.5%	174,710	*133.1%*
Commercial Vehicle - Bus	449	0.1%	391	0.1%	58	*14.8%*
Commercial Vehicle - Others	2,352	0.5%	134	0.0%	2,218	*1,655.2%*
Total	**506,804**	**100.0%**	**301,903**	**100.0%**	**204,901**	***67.9%***

	YTD Nov 24	% Share	YTD Nov-23	% Share	Volume Δ	*% change*
BEV	1,557,258	41.4%	1,384,068	51.6%	173,190	*12.5%*
PHEV	2,183,672	58.1%	1,288,660	48.0%	895,012	*69.5%*
Commercial Vehicle - Bus	4,205	0.1%	3,900	0.1%	305	*7.8%*
Commercial Vehicle - Others	12,201	0.3%	6,746	0.3%	5,455	*80.9%*
Total	**3,757,336**	**100.0%**	**2,683,374**	**100.0%**	**1,073,962**	***40.0%***

Source: BIYD Production and Sales Volumes for November 2024, posted Dec 1, 2024

Source: BYD

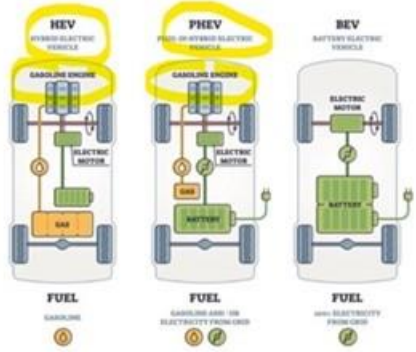
Big unknown – how much do Chinese drive in ICE vs electric mode

It seems like a dirty little secret for car companies to keep as to how much their PHEVs are driven in ICE mode vs electric mode. It is a split that they must all have but don't disclose whether it is in China, Europe or the US. The only clear statement we have seen was from Volvo and that wasn't in any disclosed reports, rather it was the response in a conference call on how the km driven by their PHEVs is about 50/50 split ICE vs electric mode. Our BYD tweet noted this unknown as the vast majority of Chinese in cities live in apartments vs single family homes. And given that most of these apartments were built in the big China boom from 2000 to Covid, we doubt that they were set for broad BEV charging for most of the residents. Only BYD and therefore Chinese govt knows the data on how many KMS these millions of PHEVs are driven in ICE mode vs electric mode.

HEVs & PHEVs are really just more fuel efficient ICE vehicles

As noted in our BYD tweet this morning, it is unknown what % of kms are driven in ICE vs electric mode given vast majority of Chinese in cities live in apartments build in prior boom. We linked to 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 62: HV vs PHEV vs BEV



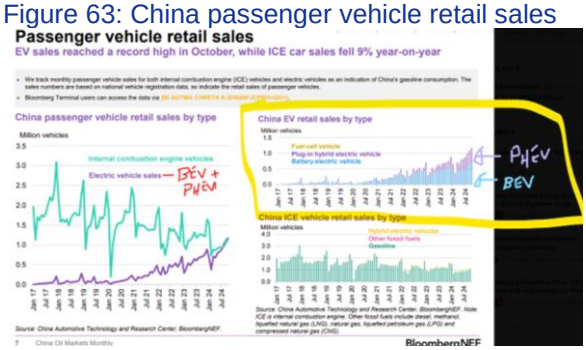
Source: Engineering Infrastructure

Energy Transition: China NEV growth driven by PHEVs not BEVs

PHEVs driving China NEV growth

We continue to believe it has been overlooked how China's NEV (New Energy Vehicles) are driven by PHEVs and not BEVs. Most just reference China's NEV sales without splitting out PHEVs vs BEVs. BEV sales in China are growing but nowhere near as fast as PHEVs that make up more than the majority of NEV sales. On Friday, we tweeted [LINK] "*No question China ICE sales have been declining. But growth in NEV (New Energy Vehicle) sales in last 2 yrs is basically driven by PHEV sales with BEV sales at modest growth. China gasoline demand consumption decline will be a little slower with PHEVs vs BEV. Thx @BloombergNEF Luxi Hong* #OOTT." Our tweet included BloombergNEF's passenger vehicle retail sales graph. They didn't give the numbers but the graph clearly shows how PHEV sales make up the big chunk of growth of China NEV sales since 2022.

Figure 63: China passenger vehicle retail sales



Source: BloombergNEF

YTD Oct 31, BYD's PHEV sales were 1.4x their BEV sales in 2024

Earlier in the memo, we highlighted today's BYD Nov 2024 NEV car sales. Our Friday tweet on the BloombergNEF China PHEV sales included the then most recent BYD Oct NEV sales split and not this morning's BYD Nov NEV sales splits. The BloombergNEF graph showing China PHEV sales are more than BEV sales is to be

expected given that is what is happening at BYD, who sells the most NEVs in the world. And BYD sells of PHEVs are 1.4x the BEV sales in 2024. We highlighted this in our Nov 3, 2024 Energy Tidbits memo. On Monday, China's BYD posted its October sales and it included a split of NEV into BEV, PHEV, etc. BYD is now outselling Tesla and it is because BYD sells PHEVs.BYD's PHEV sales are +129.3% YoY to 310,912 in Oct and +62.2% YoY to 1,877,734 in YTD Oct 31. Vs BYD's BEV sales, which were +14.6% YoY in Oct to 189,614, and +12.0% YoY to 1,359,193in YTD Oct 31. On Monday we tweeted [LINK] "*PHEVs keep taking market share from BEVs. China NEVs New Energy Vehicles incl BEV and PHEV. PHEV are 60% of BYD NEV sales. Oct/YTD Oct 31: BEV: 189,614 + 14.6% YoY. 1,359,193, +12.0% YoY. PHEV: 310,912, +129.3% YoY. 1,877,734, +62.2% YoY. PHEVs are really just more fuel efficient ICE vehicles. See 👇09/04 tweet. Volvo says its PHEVs kms driven are 50/50 ICE vs electric mode. #OOTT."* Our tweet included the below table we made of BYD's Oct sales numbers. Our Supplemental Documents package includes the BYD Oct sales data.

Figure 64: BYD Oct car sales splits

BYD New Energy Vehicle October Sales

	Oct-24	Oct-23	Volume change	*% change*	YTD Oct-24	YTD Oct-23	Volume change	*% change*
BEV	189,614	165,505	24,109	*14.6%*	1,359,193	1,213,918	145,275	*12.0%*
PHEV	310,912	135,590	175,322	*129.3%*	1,877,734	1,157,432	720,302	*62.2%*
Commercial Vehicle - Bus	438	701	(263)	*(37.5%)*	3,756	3,509	247	*7.0%*
Commercial Vehicle - Others	1,693	37	1,656	*4,475.7%*	9,849	6,612	3,237	*49.0%*
Total	**502,657**	**301,833**	200,824	***66.5%***	**3,250,532**	**2,381,471**	869,061	***36.5%***

Source: BIYD Production and Sales Volumes for October 2024, posted Nov 1, 2024
Prepared by SAF Group

Source: BYD

Energy Transition: UK public BEV/PHEV charging is 10x more than at home charging

UK public charging is 10X home charging

Earlier this morning, we tweeted [LINK] "*BEV/PHEV cost disadvantage for those without own driveway for home charging in UK. 7 pence/kw at home vs those who public charge & pay 60-80 pence/kw. A lot of people in UK, moreso in Asia, don't live in homes with drives. Thx @vertumotorsCEO [LINK] #OOTT."* We have noted Vertu Motors CEO Robert Forrester's comments before as he is a pretty straight shooter. Vertu is one of the major UK owner of car dealerships. Forrester was on BBC Radio 4 on Tuesday. He was asked about why BEV sales are less than aspired and the key reason to no surprise is that they are expensive. But he also reminded of another big problem in penetrating EVs sales into those who don't have their own driveway for charging – the cost of public BEV and PHEV charging is 10x more expensive. His home has a private drive with his home charger and the cost is only 7 pence/kw. But then he reminded of the challenge for those who have to rely public charging, the cost is more like 60 to 80 pence/kw. That is 10x higher.

Energy Transition: UK Labour govt to fast track its consultation on NEV mandates

UK to consult on its NEV mandate

No one should have been surprised to see the UK signaling they will be backing off in someway their NEV mandate given BEV sales aren't going to hit their minimum sales mandate even with car manufacturers holding back some ICE and HEVs. It's not clear exactly when and how this will happen but UK Business Secretary Jonathan Reynolds said the govt will be reviewing its ZEV mandate. Euronews reported "*Reynolds confirmed plans to review the ZEV mandate as part of a consultation on the new Labour government's plan to ban the sale of new "purely petrol and diesel" cars by 2030. "Car manufacturers around the*

world are battling with increased costs, supply chain issues and changing consumer demand in a highly competitive, fast-evolving market," he said." It's far from clear what modifications he Labour govt will make but they finally realize they have to do something or else more car manufacturers will be reducing operations in the UK.

UK Oct BEV sales +24.5% YoY since ICE/HEV sales are held back

Here is what we wrote in last week's (Nov 24, 2024) Energy Tidbits memo about the latest UK BEV sales for Oct. "*UK Oct BEV sales +24.5% YoY since ICE/HEV are held back. The big outlier in the ACEA Oct new registrations for BEV sales in the UK of 29,802, which was +24.5% YoY, and for YTD Oct 31 were +14.2% YoY to 299,733 BEVs for a 18.1% share vs 16.3% YTD Oct 31, 2023. PHEV Oct sales -3.2% YoY and YTD +22.5% YoY to 8.4% share vs 7.1%. HEV Oct sales +7.4% YoY and YTD +15.8% YoY for a 35.6% share vs 31.7%. Petrol Oct -27.7% YoY and YTD -11.6% YoY to 35.1% share vs 41.0%. Diesel Oct -17.7% YoY and YTD -23.2% YoY to 2.9% share vs 3.9%. On Thursday, we tweeted [LINK] "UK BEV numbers are deceiving. UK BEV Oct sales: Another strong month, +24.5% YoY & YTD +14.2% YoY. @ACEA_auto. BUT not because of BEV demand but because BEVs at 18.1% is still well short of UK regulated BEVs to be 22% of 2024 total car sales. See 10/16/24 tweet: @vertumotorsCEO some car manufacturers rationing ICE & HEV to meet ZEV mandate. [LINK] #OOTT." We called the BEV numbers deceiving because there has been ICE and HEV demand in the UK but car manufacturers have been holding back ICE and HEV deliveries to ensure BEV sales try to get as close as possible to the UK targeted minimum 22% of total car sales in 2024. So if the BEV demand hasn't and still isn't high enough, then the car manufacturers have to restrict and hold back ICE and HEV sales. So weak demand for BEVs automatically translates into weaker ICE and HEV sales than demand. Below is our table of UK Oct new car registrations by power source for Oct and YTD Oct 31."*

Figure 65: UK Oct new car registrations by power source

UK Oct New Car Registrations by Power Source										
	Volume	Volumes		Share	Share				Share	Share
	Oct-24	Oct-23	% Change	Oct-24	Oct-23	YTD Oct 24	YTD Oct 23	% Change	YTD Oct 24	YTD Oct 23
BEV	29,802	23,943	24.5%	20.7%	15.6%	299,733	262,487	14.2%	18.1%	16.3%
PHEV	13,832	14,285	-3.2%	9.6%	9.3%	138,775	113,278	22.5%	8.4%	7.1%
HEV	51,251	47,737	7.4%	35.5%	31.1%	590,186	509,476	15.8%	35.6%	31.7%
Others	0	0	n/a	0.0%	0.0%	0	0	n/a	0.0%	0.0%
Petrol	45,071	62,303	-27.7%	31.2%	40.6%	582,108	658,249	-11.6%	35.1%	41.0%
Diesel	4,332	5,261	-17.7%	3.0%	3.4%	47,580	61,947	-23.2%	2.9%	3.9%
Total	144,288	153,529	-6.0%	100.0%	100.0%	1,658,382	1,605,437	3.3%	100.0%	100.0%
Others incl fuel-cell electric vehicles, natural gas vehicles, LPG, E85/ethanol, and other fuels										

Source: ACEA

10/23/24: Vertu: UK BEVs sales down, some ICE/HEV being rationed

Last week's (Nov 24, 2024) Energy Tidbits also wrote. "*Our UK Oct new car registrations tweet linked to a prior Oct 16 tweet on this issue of car manufacturers holding back on ICE and HEV due to lesser BEV sales. One other item we noted was how UK BEV sales are being driven by fleet buying and not individual consumer buying. Here is what we wrote in our Oct 20, 2024 Energy Tidbits memo. "No one should be surprised by the negative UK BEVs update from the Vertu H1 results. Vertu is one of the large car dealership groups in the UK. On Wednesday, we tweeted [LINK] "More UK BEVs reality check from Vertu @vertumotorsCEO UK BEV*

in retail customer market -7% YoY, concerns not just price and charging infra, but also costs. UK BEV growth due to fleet. Some car manufacturers rationing ICE & HEV to meet ZEV mandate. UK needs either more incentives or reduce % of new sales to be BEV. #OOTT." Vertu noted that retail customer BEV sales are -7% YoY despite big BEVs sale discounts but overall BEV sales are up a bit due to fleet sales. They warn retail customer demand continues to be weak due to price and charging infrastructure. But Vertu also added that retail customers are concerned about costs, which we believe relates to items like higher BEV insurance costs. Because weak retail BEV, as of Aug 2024, BEVs only accounted for 17.2% of new car registrations, which is below the government mandated target of 22% in 2024. BEVs at 17.2% would be lower if some car manufacturers hadn't already started to restrict ICE and HEV deliveries in 2024 to not make the 17.2% a lower percentage. Vertu says "as manufacturers cannot sustain price cuts indefinitely, government incentives like tax breaks or subsidies will likely be needed to boost BEV private sales or changes to the Mandate will be required to take the pressure off the sector and make the transition to BEV vehicles more achievable and sustainable." Ie. the government has to lower the target significantly to something realistic to customer demands."

09/08/24: Vertu warned restricting ICE/HEV to help UK EVs sales get to 22%

Vertu was the first significant auto group to warn that car manufacturers were already restricting ICE and HEV deliveries to try not to make the BEV % of total car sales get even lower. Here is what we wrote in our Sept 9, 2024 Energy Tidbits memo. "*The UK government will be able to say UK EVs sales should be near their regulated 22% of total car sales. But it won't be because EVs demand supports 22% of total car sales. Rather it will be because car manufacturers are holding back ICE and HEVs in 2024. It's math. If EVs sales are less, then the ICE/HEV sales have to be stopped or else the denominator will get too large. On Friday, we tweeted [LINK] "Blunt talk! UK EVs should hit UK regulated EVs to be 22% of total car sales BUT not because of EVs demand. RATHER @vertumotorsCEO explains: "some franchises there's a restriction on supply of petrol cars and hybrid cars, which is actually where the demand is." "It's almost as if we can't supply the cars that people want, but we've got plenty of the cars that maybe they don't want." "They [manufacturers] are trying to avoid the fines. So they're constraining the ability for us to supply petrol cars in order to try and keep to the government targets." "The new car market is no longer a market, unfortunately. It's a state-imposed supply chain." #OOTT." This is the concern that others have had but weren't as blunt as Vertu Motors CEO Forrester – disappointing demand for EVs means car manufacturers have to restrict deliveries of ICE and HEVs. Vertu Motors posted The Daily Telegraph story that included Forrester's comments. They also wrote "But the scheme has prompted stark warnings from bosses at major brands, such as Vauxhall owner Stellantis and Ford, which have said they cannot sacrifice profits by selling EVs at large discounts indefinitely. Instead, they have previously warned they may be forced to restrict petrol car supplies to artificially boost their ZEV mandate performance. The warning from Vertu is the first confirmation that carmakers have now begun doing so." Our Supplemental Documents package includes the Vertu posted story. [LINK]"*

Capital Markets: IFIC, mutual funds equity & balanced funds net redemptions in Oct

IFIC Cdn mutual fund data

We have been highlighting the big change to Cdn mutual funds that started in Q2/22 – when there started a shift from net sales to massive net redemptions in balanced and equity funds. What started in H2/22 played out even bigger in 2023 and is continuing in 2024 but on a lesser scale, in 2024 to date. We are seeing the rate of net redemptions slow and een some months with net sales. IFIC does not provide any explanations but one of the key changes in the last few months is falling interest rates. On Monday, IFIC (Investment Funds Institute of Canada) reported mutual funds and ETF sales for October [LINK]. IFIC reported net redemptions (sale of positions) for balanced funds to be -$0.224b in October and net redemptions of -$1.192 in September. This brings the YTD figure for balanced funds net redemptions to -$22.684b, less than last year's October YTD figure of -$44.957b in YTD 2023. Equity funds saw net redemptions of -$0.029b in October, after net redemptions of -$0.631b in September and sales of $1.093b of net sales in August. Equity fund net sales are up +$0.602b MoM from September. Recall February saw equity funds turn to net sales, which reversed a 12-month trend of net redemptions; March followed with small net sales in equity funds. Following this, Q2 saw net redemptions until July which once again returned to net sales. Our Supplemental Documents package includes the IFIC release.

Figure 66: Cdn Mutual Fund Net Sales/Net Redemptions ($ Millions)

Mutual fund net sales/net redemptions ($ millions)*

Asset class	Oct 2024	Sep 2024	Oct 2023	YTD 2024	YTD 2023
Long-term funds					
Balanced	(224)	(1,192)	(7,809)	(22,684)	(44,957)
Equity	(29)	(631)	(3,215)	641	(19,210)
Bond	3,142	2,335	(1,565)	21,842	6,100
Specialty	679	396	199	6,228	2,973
Total long-term funds	3,568	907	(12,391)	6,026	(55,093)
Total money market funds	62	(119)	975	2,163	12,653
Total	3,630	789	(11,416)	8,189	(42,440)

Source: IFIC

There were massive redemptions in Cdn active equity/balanced funds in 2023

2023 was a brutal year for net redemptions for Cdn balanced and equity funds and even more than in 2022. Here is what we wrote in our Jan 28, 2024 Energy Tidbits memo. *On Friday, we tweeted [LINK] "Brutal year for net redemptions in balanced and equity mutual funds in Canada. @ific reflects $82.5 billion net redemptions including $56.9b from balanced mutual funds and $25.6b from equity mutual funds. #OOTT." One of the big Cdn equity stories in 2022 continued to play out in an even bigger way in 2023 – the continued net redemptions from active managed Cdn equity and balanced mutual funds. This flipped in Q2/22 from massive net sales into balanced and equity mutual funds to massive net redemptions in equity and balanced mutual funds. This year, the 2023 net redemption total dwarfed those in 2022. On Wednesday, IFIC (Investment Funds Institute of Canada) reported [LINK] mutual funds and ETF sales for November. IFIC reported net redemptions for balanced mutual funds were $4.612b in December vs $6.510b in November and $8.569b in October. IFIC also reported net redemptions for equity mutual funds were $2.514b vs net redemptions of $3.178b in November and $4.142b in October. This means, barring any major revisions, that in 2023 there were $82.5b of net redemptions in*

balanced and equity mutual funds! This is more than double the net redemptions of 2022.

Figure 67: Cdn Mutual Fund Net Sales/Net Redemptions ($ Millions)

Mutual fund net sales/net redemptions ($ millions)*

Asset class	Dec 2023	Nov 2023	Dec 2022	2023	2022
Long-term funds					
Balanced	(4,612)	(6,510)	(4,935)	(56,866)	(29,959)
Equity	(2,514)	(3,178)	(3,069)	(25,568)	(8,461)
Bond	845	(435)	(2,187)	6,986	(13,811)
Specialty	176	391	102	3,538	1,306
Total long-term funds	(6,105)	(9,732)	(10,088)	(71,909)	(50,925)
Total money market funds	790	1,227	1,802	14,825	7,196
Total	(5,315)	(8,506)	(8,286)	(57,084)	(43,729)

Source: IFIC

Capital Markets: USDA Consumer Price Index in Oct for food +0.2% MoM, +2.1% YoY

USDA CPI for food +2.1% 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 that very few people would say their grocery cart bills are only +2.1% YoY. Rather grocery shoppers still have sticker shock on a lot of grocery staples and, as the grocery retailers highlight, consumers are always on the hunt for sale items and continue to trade down. On Monday, the USDA posted its October Consumer Price Index for food [LINK], which reported the Consumer Price Index for all food (CPI) was +0.2% MoM and +2.1% YoY in September. The +2.1% YoY increase in the Consumer Price Index has a relative weighting for the various food categories. Beef and veal were down -1.2% MoM, +1.9% YoY, and are expected to increase +4.9% over 2024, fresh fruits are up +1.5% MoM, +2.2% YoY, and expected to increase +0.5% in 2024, retail eggs are down -6.5% MoM and +30.4% YoY, and expected to increase +6.2% 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 2.4 percent. Food-at-home prices are predicted to increase 1.2 percent, with a prediction interval of 1.0 to 1.5 percent. Food-away-from-home prices are predicted to increase 4.1 percent, with a prediction interval of 4.0 to 4.2 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 2.5 percent, with a prediction interval of -1.0 to 6.2 percent. Food-at-home prices are predicted to increase 1.6 percent, with a prediction interval of -3.7 to 7.4 percent. Food-away-from-home prices are predicted to increase 3.1 percent, with a prediction interval of 1.0 to 5.0 percent".*

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.

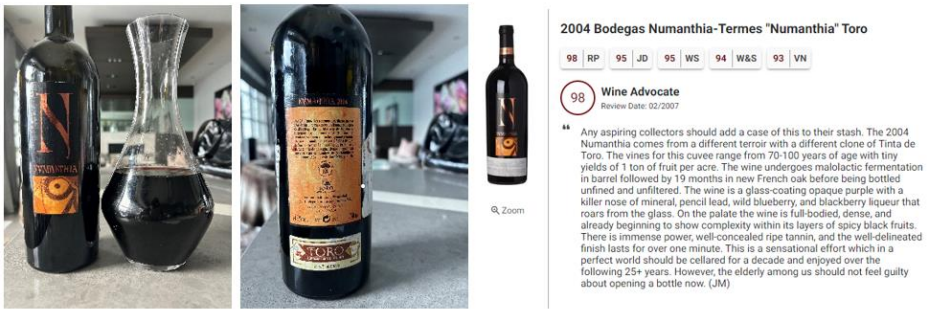
Germany' s recent low wind generation was during a "Dunkelflaute"

Our Nov 10, 2024 Energy Tidbits memo noted the unusual very low wind power generation hitting Germany in early Nov. We didn't realize there was a term for when Germany has low wind and low summer – it's a Dunkelflaute. It is a common tterm that Google translates into "dark lull". But for weather purposes, it is a period where there is minimal sunshine and wind for extended periods.

Wine of the week: 2004 Bodegas Numanthia-Termes Numanthia Toro

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. Yesterday, I tweeted out the wine of the week, which was 2004 Bodegas Numanthia-Termes Numanthia Toro. It was really good and Wine Advocate nailed it in their 2007 review saying "*Any aspiring collectors should add a case of this to their stash…. There is immense power, well-concealed ripe tannin, and the well-delineated finish lasts for over one minute. This is a sensational effort which in a perfect world should be cellared for a decade and enjoyed over the following 25+ years*." I had the 2001 and it was great so bought a case of the 2004 and it still has many years of fine drinking ahead. Spanish wines are often overlooked.

Figure 68: 2004 Bodegas Numanthia-Termes Numanthia Toro



Source: SAF Group

Lots of visitors over US Thanksgiving to Los Cabos

It's only anecdotal observations to support the AAA forecast for Americans traveling over US Thanksgiving but there were a lot of visitors to Los Cabos this week. in talking to service people, almost all the people at restaurants and at the golf course were Americans taking advantage of the strong US dollar. And other than some Canadians, all the people we ran into were Americans from a wide range of states including expected states of Arizona, California and Texas, but also from unexpected states like Florida, Michigan, New York and Washington. The other anecdotal evidence was finding lots of Palmilla Golf Club logo golf balls. These are the standard golf balls given with golf club rentals or purchased by visitors at the pro shop.

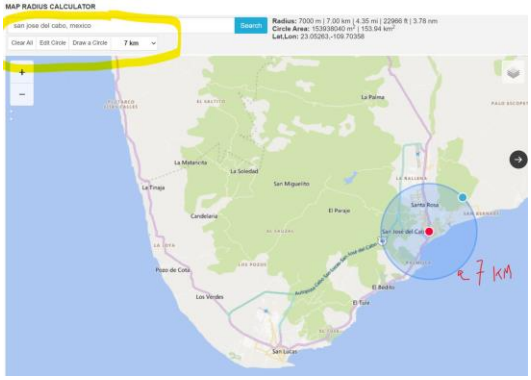
Figure 69: Palmilla logo golf balls

Source: SAF Group

There were also lots of small earthquakes in San Jose del Cabo this week

The other thing that surprised visitors to San Jose del Cabo (Los Cabos, Mexico) this week is that there were a number of small earthquakes. This week, the Mexico Servicio Sismologico Nacional reported over 30 earthquakes that were 2.1 or less. And one at 2.5 and one at 3.0. And all of these were located less than 10 km SW of San Jose del Cabo. When earthquakes are this close, you can feel small ones and can certainly hear and feel the 2.5 and 3.0. The 3.0 hit on Monday was reportedly 7 km SW of San Josel del Cabo. A common comment we heard on Tuesday was did you feel the earthquake.

Figure 70: 10 km radius line from San Jose del Cabo



Source: CalcMaps

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