

Energy Tidbits

December 8, 2024

Produced by: Dan Tsubouchi

Is Chevron Moving to Plateau Permian Production in 2025 an Indicator Lower 48 Shale/Tight Oil Will Finally Peak in 2025?

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. Chevron's lower capex and growth rate in 2025 fits CEO Wirth's 11/01/24 comment that Chevron's Permian production profile is moving to plateau in 2025. [\[click here\]](#)
2. Oil markets weren't impressed by OPEC's four-pronged actions. [\[click here\]](#)
3. Vortexa floating oil storage has moved higher the past three weeks driven by Asia floating storage at highest levels since Aug. [\[click here\]](#)
4. NOAA, and others, forecast warmer than normal temperatures coming in across the Lower 48. [\[click here\]](#)
5. Near-term boost to China economy with big jump in export orders and air freight volumes as foreign customers race to get China goods before Trump inauguration. [\[click here\]](#)
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: -30 bcf draw in US gas storage; now +185 bcf YoY

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 fourth week of the traditional winter withdraw season, and the third consecutive week we have seen a draw, following a +42 bcf WoW build during the first week of Nov. For the week ending Nov 29, 2024, the EIA reported a -30 bcf draw [\[LINK\]](#). Total storage is now 3.937 tcf, representing a surplus of +185 bcf YoY compared to a surplus of +134 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 29, 2024, saw storage come in +60 bcf above the previous 5-yr maximum of 3.877 tcf. Total storage is now +284 bcf above the 5-year average, above last week's +267 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.

-30 bcf draw in US gas storage

Figure 1: US Natural Gas Storage

Region	Stocks billion cubic feet (Bcf)				Historical Comparisons			
	11/29/24	11/22/24	net change	implied flow	Year ago (11/29/23)		5-year average (2019-23)	
					Bcf	% change	Bcf	% change
East	914	929	-15	-15	887	3.0	880	3.9
Midwest	1,115	1,134	-19	-19	1,090	2.3	1,062	5.0
Mountain	289	292	-3	-3	247	17.0	217	33.2
Pacific	310	310	0	0	292	6.2	276	12.3
South Central	1,310	1,301	9	9	1,237	5.9	1,219	7.5
Salt	362	353	9	9	337	7.4	334	8.4
Nonsalt	948	948	0	0	901	5.2	884	7.2
Total	3,937	3,967	-30	-30	3,752	4.9	3,653	7.8

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/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
Nov/29	3,937	-30	185	284

Source: EIA

Natural Gas: NOAA forecasts turning much warmer than normal in a week

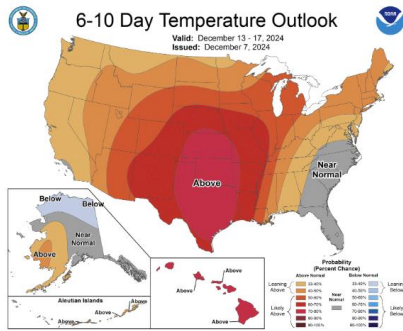
It's been cold in the east and that kept HH gas prices over \$3 this week. And it looks like there should be some colder weather, on and off, this week. We recognize weather forecasts are far from 100% but our concern is that if the updated temperature forecasts are right, then the tone on natural gas will change with the updated forecasts for much warmer than normal temperatures to hit in about a week. Much warmer than normal temperatures in the 2nd half of Dec are never a positive for natural gas prices. Yesterday, we tweeted [\[LINK\]](#) "Never good for

Turning warmer than normal

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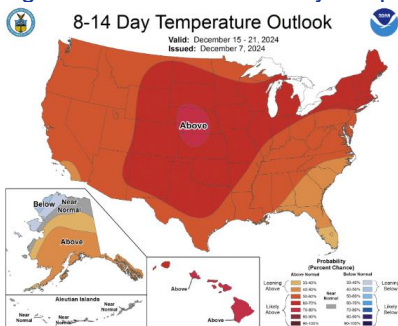
#NatGas if much warmer than normal temperatures in Dec. @NOAA updated 6-10 & 8-14 day temperature forecast calls for much warmer than normal temperatures across the Lower 48. #OOTT.” Below are the NOAA Dec 7 updated 6-10 and 8-14 day temperature outlook maps that were attached to our post.

Figure 3: NOAA 6-10 day temperature forecast made Dec 7



Source: NOAA

Figure 4: NOAA 8-1410 day temperature forecast made Dec 7



Source: NOAA

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

Yesterday, we posted [\[LINK\]](#) “Reason to be cautious on #NatGas with 📢 @NOAA forecast warmer than normal temp to end Nov. Other than 2022 when global #NatGas prices were driven up post RUS 02/24/22 UKR invasion, seasonal HH prices show weakening in Nov/Dec with warm or even normal temps in Nov/Dec. #OOTT.” 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 five years other than when Russia invaded Ukraine in 2022. Here is the Bloomberg weekly graph as of the Friday Dec 6 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 Dec when there was a warm start or even normal start to winter. The most important factor to natural gas prices is winter temperature. If NOAA’s updated 6-10 & 8-14 day temperature forecasts are right, then we would expect to see the tone turn negative on natural gas prices over the next week or so. It

Risk to HH prices to end Dec

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just adds up to a reason to be cautious on natural gas.

Figure 5: HH gas prices seasonal comparison to Dec 6, 2024 close



Source: Bloomberg

Natural Gas – An “Alberta Clipper” brought snow and cold to US

It was a good week for HH prices staying above \$3 before closing at \$3.05 on Friday. And, since it is Dec, it was driven by cold temperatures in the northern US including around the Great Lakes. On Wed, we saw the weather forecasters attribute the cold to an “Alberta Clipper”. This is not a new weather item, rather, we have written about Alberta Clippers and Saskatchewan Screamers for years. On Wed, we posted [LINK](#) “An “Alberta Clipper” is bringing winter weather to the US today. See 📌 01/16/22 Energy Tidbits memo for what is an Alberta Clipper and also a Saskatchewan Screamer. Warning that La Nina winters tend to have more Alberta Clipper events. #OTT #NatGas.” Our post included the below excerpts from our Jan 16, 2022 Energy Tidbits memo explaining Alberta Clippers and Saskatchewan Screamers.

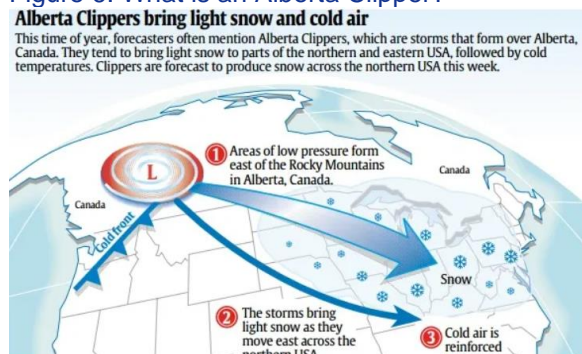
**Alberta Clipper
and
Saskatchewan
Screamer”**

Typically, more Alberta Clippers in La Nina winters

Here is what we wrote in our Jan 16, 2022 Energy Tidbits memo. “Typically, more Alberta Clippers in La Nina winters. Our November 14, 2021 Energy Tidbits wrote on Alberta Clippers. We wrote “On Thursday, AccuWeather [LINK](#) reported Alberta Clipper to spread snow across the Midwest. AccuWeather wrote “Cold air will descend from Canada into the North Central states and bring another round of snowfall to the Dakotas, Minnesota and Great Lakes region this weekend,” said AccuWeather Meteorologist Alyssa Smithmyer. The storm system, known as an Alberta clipper, will move southeastward through North Dakota and into Minnesota on Saturday. To the north of where the clipper tracks, snow will fall, with a mix of rain and snow to the south. Most locations are expected to be above freezing, which will limit accumulation. However, cities such as Grand Forks and Fargo, North Dakota are likely to be near or below freezing, and 1-3 inches of snow could fall.” USA Today’s What is an Alberta Clipper? [LINK](#) writes “An Alberta Clipper is an area of low pressure that generally forms over the province of Alberta, Canada, east of the Rocky Mountains. They develop east of the Rockies because air flowing east over the mountains creates favorable conditions for these types of storms to develop. Once an Alberta Clipper forms, it usually moves very rapidly to the southeast across the USA’s northern Plains and then to the east off the mid-Atlantic coast.” As noted earlier, this is a La Nina winter and Alberta Clippers tend to occur more often in La Nina winters when the Jet Stream is pushed south across the Great Lakes.”

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Figure 6: What is an Alberta Clipper?



Source: USA Today

A “Saskatchewan Screamer” sends snow/cold south to US

Here is what we wrote in our Jan 16, 2022 Energy Tidbits memo on Saskatchewan Screamers. “A “Saskatchewan Screamer” sends snow/cold south to US. We have written about Alberta Clippers on how they bring a rapid rush of cold air in a southeastward trend. But we haven’t ever referenced a “Saskatchewan Screamer” weather event until this week. On Wednesday, we tweeted [\[LINK\]](#) “Winter storm watches have been issued from North Dakota through Iowa ahead of a type of snowstorm sometimes called a “Saskatchewan screamer”. On Tuesday, AccuWeather [\[LINK\]](#) posted the below map and wrote “A substantial snowstorm is poised to unload hefty accumulations over parts of the Plains and Midwest late this week and early this weekend, and it won’t stop there. AccuWeather forecasters warn that it will likely go on to bring snow and ice, leading to the potential for dangerous travel conditions, across parts of the Southeast -- including as far south as Atlanta, which hasn’t seen measurable snowfall in just about four years. The storm will be what meteorologists refer to as a “Saskatchewan screamer” rather than an “Alberta clipper,” AccuWeather Meteorologist Matt Benz explained. The storm is forecast to dive nearly due south from the Saskatchewan province of Canada, hence the nickname, instead of the more traditional starting point in Alberta, Canada. Storms that originate from western Canada tend to move fast and have limited moisture available. Sometimes, though, high-ratio snow can unfold where a mere few tenths of an inch of moisture can yield 6-12 inches of snow.”

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Figure 7: AccuWeather’s Jan 11, 2022 Saskatchewan Screamer forecast



Source: AccuWeather

Natural Gas: Oil sands use of natural gas was 3.8 bcf/d in 2023, fcast 4.6 bcf/d in 2033

On Monday, we tweeted [\[LINK\]](#) “Oil sands growth = #NatGas consumption growth. Oil sands consumed 3.8 bcf/d in 2023, forecast to consume 4.6 bcf/d in 2033. @AER_news. Rule of thumb, #NatGas use per b/d of oil production. SAGD 1.3 mcf/b of oil. CSS 1.7 mcf/b. Mining with upgrading 0.8 mcf/b. Thx @garquake #OOTT.” Our tweet forwarded a tweet from @garquake, one of less than 80 we follow, on Alberta oil sands bitumen production hitting all-time highs. And it reminded that growing oil sands production leads directly to increasing natural gas consumption by the oil sands for power and steam generation. Our tweet included the Alberta Energy Regulator’s June 2024 update that oil sands consumed 3.8 bcf/d of natural gas in 2023 and forecast to increase to 4.6 bcf/d in 2033. Our Supplemental Documents package includes the AER’s June 2024 update on Alberta’s natural gas production and consumption.

**Oil sands
consume 3.8 bcf/d
of natural gas**

SAGD uses 1.3 mcf/b, oil sands mining with upgrade use 0.8 mcf/b

We still have readers of our Energy Tidbits memos that have done so for the 25 years of my writing these memos. One of the tidbits that investors like 25 years ago was when I highlighted what I then called rules of thumb for oil sands use of natural gas per barrel of oil. Back then, information wasn’t as readily available so it was a rule of thumb that investors liked. Our tweet on the AER oil sands included their table of natural gas used per barrel of oil produced. These really haven’t increased very much at all over the past 25 years. The AER notes the average natural gas used per barrel of oil production was 1.3 mcf/b for SAGD, 1.7 mcf/b for CSS and 0.8 mcf/d for oil sands mining with upgrading. 25 years ago, I used 1.2 mcf/b for SAGD and 0.6 mcf/b for oil sands mining.

Figure 8: Average use rates of natural gas for oil sands production

Table S5.2 Average use rates of purchased gas for oil sands operations, 2023

Extraction method	Excluding purchased gas for cogeneration		Including purchased gas for cogeneration	
	(m ³ /m ³) ^a	(Mcf/bbl)	(m ³ /m ³)	(Mcf/bbl)
In situ				
Steam-assisted gravity drainage	189	1.1	226	1.3
Cyclic steam stimulation	228	1.3	298	1.7
Mining with upgrading	99	0.6	142	0.8

Note: Thousand cubic feet (Mcf) and barrels (bbl).

^a Expressed as either cubic metres of natural gas per cubic metre of bitumen produced or thousand cubic feet of natural gas per barrel of bitumen produced. Rates are an average of typical schemes with sustained production.

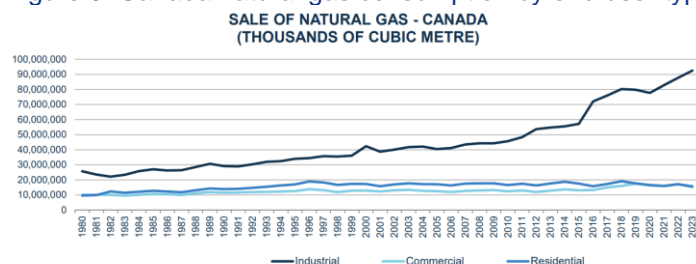
Source: AER

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

The oil sands are the largest consumer of natural gas in Canada. As noted above, the AER estimates the oil sands consumed 3.8 bcf/d of natural gas in 2023, which is 32% of total Cdn natural gas consumption. Here is what we wrote in last week's (Dec 1, 2024) Energy Tidbits memo. "Canada's natural gas consumption is 75.0% from industrial users. Cold weather in winter is important for natural gas consumption in 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 9: Canada natural gas consumption by end user type



Source: Canadian Gas Association

Natural Gas: ADNOC signs long-term 0.13 bcf/d LNG deal with Petronas

On Thursday, ADNOC announced that the company signed a long-term LNG sales agreement with Petronas (Malaysia) for 0.13 bcf/d for 15-years beginning in 2028 [\[LINK\]](#). The fuel will be primarily supplied from ADNOC's Ruwais project, which will consist of two LNG liquefaction trains is expected have a total capacity of 1.26 bcf/d upon the upstart of operations. The press release said "ADNOC announced today it has signed a second Sales and Purchase Agreement (SPA) for the lower-carbon Ruwais liquified natural gas (LNG) project, with Malaysia's PETRONAS. The 15-year SPA for supplying 1 million tonnes per annum (mtpa) of LNG converts a previous Heads of Agreement between ADNOC and PETRONAS into a definitive agreement". The Executive Vice President, Downstream Business Management at ADNOC, Fatema Al Nuaimi, said: "Natural gas plays a critical role in meeting the world's energy needs, and we are proud to partner with PETRONAS to deliver lower-carbon LNG through this landmark agreement. This milestone further underscores ADNOC's role as a reliable global energy supplier and supports growing demand in Asia for cleaner, more sustainable energy solutions". Our Supplemental Documents Package includes the ADNOC press release.

**ADNOC /
Petronas sign
LT LNG supply
deal**

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Natural Gas: Sembcorp signs long-term 0.08 bcf/d LNG deal with Chevron

On Thursday, Sembcorp (Singapore) announced that the company signed a long-term LNG sales agreement with Chevron for 0.08 bcf/d for an 10-years beginning in 2028 [\[LINK\]](#). The press release said “*Sembcorp Industries (Sembcorp) today announces that its wholly-owned subsidiary, Sembcorp Fuels (Singapore) Pte Ltd, has signed a Sale and Purchase Agreement (SPA) with Chevron U.S.A. Inc. (Singapore Branch) (Chevron) to import up to 0.6 million tonnes of liquefied natural gas (LNG) per annum. The LNG delivery is expected to commence from 2028 for a tenure of 10 years*”. Our Supplemental Documents Package includes the Sembcorp press release.

**Sembcorp /
Chevron sign
LT LNG supply
deal**

Natural Gas: QatarEnergy long-term 0.39 bcf/d LNG deal with Shell

On Monday, QatarEnergy announced that the company signed a long-term LNG sales agreement with Shell for 0.39 bcf/d for an undisclosed duration beginning in 2025 [\[LINK\]](#). This LNG deal is aimed to meet the continued growth of China’s LNG market, which is projected to be the largest globally. The press release said “*QatarEnergy and Shell have entered into a new long-term sale and purchase agreement (SPA) for the supply of three million tons per annum (MTPA) of liquefied natural gas (LNG) to China*”. The press release reported His Excellency Mr. Saad Sherida Al-Kaabi, the Minister of State for Energy Affairs, the President and CEO of QatarEnergy, said: “*We are pleased to enter into this new long-term LNG SPA with our trusted partner, Shell. This agreement helps meet the requirements of Shell’s end customers in China and enhances our contributions to meeting the needs of LNG end-users worldwide*”. Our Supplemental Documents Package includes the QatarEnergy press release.

**QatarEnergy /
Shell sign LT
LNG supply
deal**

There have been 27.60 bcf/d of long-term LNG supply deals since July 1, 2021

It’s been a busy last five years of long-term LNG deals and, even though high-profile calls, such as the IEA are for peak natural gas consumption by 2030, buyers continue to lock up long-term LNG supply. This 5-year big wave of LNG deals started in July 2021, and we highlighted this in our July 14, 2021, 8-pg “Asian LNG Buyers Abruptly Change and Lock in Long Term Supply – Validates Supply Gap, Provides Support for Brownfield LNG FIDs”. We continue to update that table, which now shows 27.60 bcf/d of long-term LNG deals since July 1, 2021. 65% of the deals have been by Asian LNG buyers, but we are now seeing rest of world locking up long term supply deals post Russia/Ukraine. Note in our non-Asian LNG deals will major LNG players (i.e. Chevron, Shell, etc.) buying for their LNG portfolio supply. China has been particularly active in this space, accounting for 43% of all Asian LNG buyers in long term contracts since July 1, 2021. Below is our updated table of Asian and European LNG buyers new long-term supply deals since July 1, 2021.

support their requirements for energy and then be penalized with my total revenue worldwide going to EU". CSDDD is more than emissions and will impact all large companies selling into EU, not just #Oil #NatGas. Thx @qatarenergy for posting. Great interview @dan_murphy #OOTT." We have not commented on the EU Corporate Sustainability Due Diligence Directive of June 13, 2024. [LINK](#). It also applies to large non-EU companies like Qatar Energy and is more than committing to Net Zero. Rather, the EU wrote "What are the obligations for companies/ This Directive establishes a corporate due diligence duty. The core elements of this duty are identifying and addressing potential and actual adverse human rights and environmental impacts in the company's own operations, their subsidiaries and, where related to their value chain(s), those of their business partners. In addition, the Directive sets out an obligation for large companies to adopt and put into effect, through best efforts, a transition plan for climate change mitigation aligned with the 2050 climate neutrality objective of the Paris Agreement as well as intermediate targets under the European Climate Law." Our post forwarded the 6 min video of the Qatar Energy CEO discussing this directive and its worth a listen as this will apply to companies outside oil and gas. The CEO explains what is involved and the penalties and why they won't be selling LNG into the EU if this directive is in place. The directive includes all large non-EU companies, not just oil and gas, and so there will be others saying this reality to the EU.

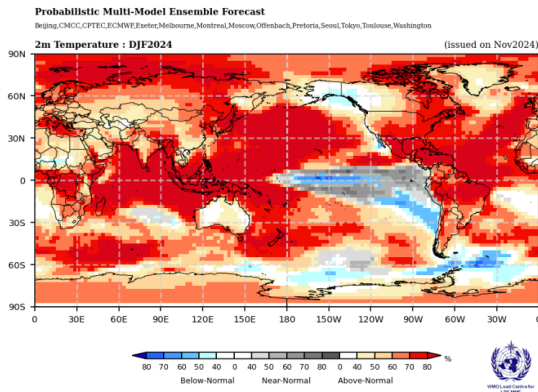
Natural Gas: WMO forecast warmer than normal winter almost everywhere

We have continued to highlight that winter weather tends to be the most significant driver every year to natural gas and LNG prices. And that the impact of a cold or warm winter on natural gas and LNG prices can last for several months. We remind that forecasts are far from 100% accurate but when we see forecasts for a warmer than normal winter almost everywhere, we think people should at least be cautious on natural gas over the coming weeks. On Nov 25, the World Meteorological Organization (WMO) posted their 2024-25 December-January-February global seasonal climate update [LINK](#). The WMO is reporting conditions consistent with a weak La Nina and predicting above-normal temperatures in nearly every major natural gas consuming land area. The WMO reports: "there is prediction of above-normal temperatures over almost all land areas. A few exceptions to this widespread warmth include land areas in the vicinity of the Bering Sea and the Gulf of Alaska, and Baja California. Extensive areas of large increases in probabilities for above-normal temperatures include South America (and particularly north of 15° S), the Caribbean, Central America, southern, eastern, and extreme northeast parts of North America, northern Europe. between 15° S – 10° N over Africa, western coastal and northeast regions of the Indian subcontinent, northern parts of eastern Asia, the Maritime continent, and New Zealand. Regions with moderate to weaker increase in probabilities for above-normal temperatures include northwestern North America, Greenland, southern Europe and northern Africa, Central Asia, southeast Asia, and Australia. In coastal areas of southern South America and extending north along the west coast to just north of the equator and into the eastern Pacific, consistent with the predicted emergence of weak La Niña, below- or near normal temperatures are expected." Below we have included the WMO probabilistic temperature forecast for Dec/Jan/Feb 2024-25. Our Supplemental Documents package includes the WMO outlook.

A globally warm winter

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Figure 11: WMO Probabilistic Temperature for Dec/Jan/Feb 2024-25



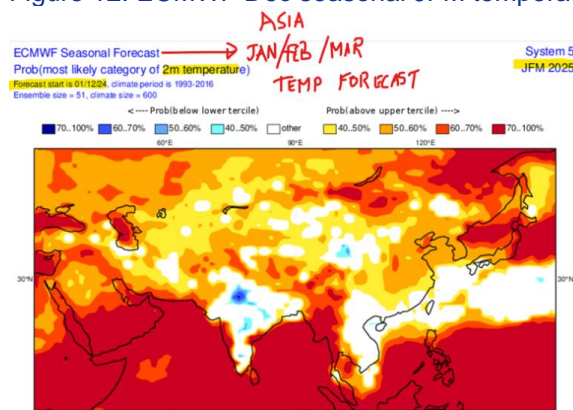
Source: WMO

Natural Gas: ECMWF forecasts a warmer Jan/Feb/Mar in most of China, Japan and KR

On Thursday, we posted [LINK](#) “Warm JFM end to winter is never a positive for #LNG #NatGas prices. Asia forecast warmer than normal temperatures in Jan/Feb/Mar for most of China, Japan and South Korea per @ECMWF Dec update. Forecasts are never 100% but seems reasonable to be cautious for now. #OTT”. Winter and end of winter temperatures are key to natural gas and LNG prices. Last month, we highlighted the ECMWF forecasts for a warm winter in Asia. Our post referenced the December ECMWF Jan/Feb/Mar forecast. The forecast predicts that Asia is to see warmer than normal temperatures to end winter in most of China, Japan, and South Korea. We recognize weather forecasts are far from 100% accurate, and we also remind that the period is not forecasted to be as warm as the very warm 2023-24 winter. The European Centre for Medium Range Weather Forecasts (ECMWF) updated its seasonal forecast with a December base time for Asia for the end of Winter. The ECMWF expects a warmer than normal Jan/Feb/Mar in most of China, Japan, and South Korea. The ECMWF didn’t provide any commentary.

A warmer than normal parts of Asia in Jan/Feb/Mar?

Figure 12: ECMWF Dec seasonal JFM temperature forecast for Asia



Source: ECMWF

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Natural Gas: JMA forecasts see colder than normal temps in Japan in Dec/early Jan

The weather has turned in Japan to winter temperatures and the JMA forecasts colder than normal temperatures for the rest of Dec, and the first week of Jan. On Thursday, the Japan Meteorological Agency updated its temperature forecast for the next 30 days, Dec 7 - Jan 6, in Japan [\[LINK\]](#). On Thurs we posted: [\[LINK\]](#) “Much colder than normal temps forecast for Japan for Dec 7-Jan 6. Japan Meteorological Agency's updated 30-day temp outlook. Just need cold to stay in Europe and US> #OOTT #NatGas”. There is no JMA commentary on the forecast. JMA is calling colder than normal temperatures during the remainder of December. During the period of Dec 7 - Jan 6 there is a +50% probability of above normal temperature occurrence in Hokuriku, Tohoku, and Hokkaido, and a +60% probability of below normal temperature occurrence in the remainder of Japan. It is important to note that this week's 30-day temperature forecast was much colder than last weeks, which called for 40% probability of cooler than normal temperatures for the period of Dec 14 – Dec 27. We checked AccuWeather for Tokyo and for the period there are forecasted daily highs in the 9-12C range and overnight lows from 2-4C. 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 Dec 7 – Jan 6.

JMA temperature forecast for next 30 days

Figure 13: JMA Average Temperature Outlook for Dec 7 – Jan 6



Source: Japan Meteorological Agency

Natural Gas: Japan LNG imports down MoM and down YoY in October

Last Thursday, Japan's Ministry of Finance posted its import data for October [\[LINK\]](#). The MOF reported Japan's October LNG imports were 8.19 bcf/d, down -5.7% MoM from September which was 8.69 bcf/d, and down -2.2% YoY from 8.38 bcf/d in October 2023. There is no explanation given but we would expect the warmer than normal start to winter meant that LNG buyers didn't feel the need to load up on LNG. The MoM fall in imports is due to a warmer than normal October, November, and beginning of December, which means there has been no weather driven LNG demand. Japan's thermal coal imports in October were down -0.9% YoY and Petroleum Products imports were up +1.5% YoY. Below is our table that tracks Japan LNG import data.

Japan LNG imports in October

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Figure 14: Japan Monthly LNG Imports

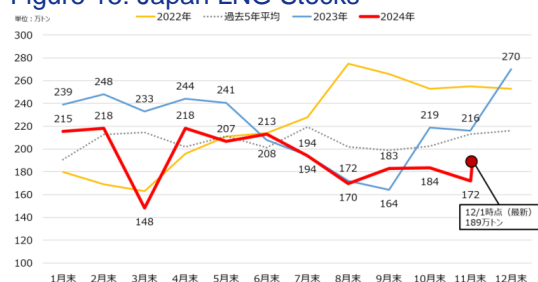
bcf/d	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	24/23
Jan	12.66	13.06	11.22	12.85	12.79	11.69	11.63	12.48	10.51	10.56	9.46	-10.5%
Feb	12.88	13.26	12.30	13.36	14.23	12.61	10.99	13.84	12.19	10.98	9.97	-9.2%
Mar	12.46	12.60	12.62	12.61	12.28	11.30	11.16	11.04	10.07	8.86	8.59	-3.0%
Apr	11.54	10.56	10.21	10.52	8.97	9.00	8.31	7.96	8.92	7.25	8.46	16.6%
May	10.06	8.91	8.55	9.66	9.92	8.62	7.09	7.67	8.92	7.14	7.54	5.6%
June	10.91	10.61	10.02	9.90	8.88	8.32	8.42	9.13	9.29	7.25	7.31	0.8%
July	12.14	10.77	10.19	10.19	10.55	10.56	9.35	9.58	9.54	7.88	8.70	10.4%
Aug	10.92	10.93	11.96	11.24	11.73	9.45	9.04	9.75	9.71	8.78	8.87	1.0%
Sept	11.64	11.06	10.67	9.31	10.04	10.30	10.41	8.66	8.52	8.84	8.69	-1.7%
Oct	10.75	9.38	9.73	9.50	10.12	9.75	9.20	7.17	7.88	8.38	8.19	-2.2%
Nov	11.00	10.71	12.07	10.26	10.15	10.03	9.63	9.38	8.88	8.53		
Dec	12.79	12.51	11.69	12.31	11.23	10.54	11.96	10.89	9.39	10.06		

Source: Japan Ministry of Finance, SAF

Natural Gas: Japan LNG stocks down WoW and down YoY; down against to 5-yr avg
 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 December 1, were 90.8 bcf, down -8.3% WoW from November 24, figures of 98.9 bcf, and down -12.5% 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.

Japan LNG stocks down WoW

Figure 15: Japan LNG Stocks



Source: METI

Natural Gas: Gazprom Power of Siberia hits max design capacity 3.7 bcf/d to China
 Warm winters have been the big reason for LNG prices being modest after the 2022 adjustment period following Russia's invasion of Ukraine. But the other big factor is that Russia's Gazprom Power of Siberia pipeline has ramped up its volumes to China and cheaper Russian pipeline natural gas is always the first and baseload imports for China over more expensive LNG. So the startup of Power of Siberia would and has reduced China's LNG imports. On Monday, we tweeted [LINK](#) "The big negative to LNG prices post Covid. China prioritizes cheap Gazprom Power of Siberia pipeline #NatGas vs more expensive LNG imports. Power of Siberia just hit max capacity of 3.7 bcf/d. Ramp was: 0.4 bcf/d in 2020. 1.0 bcf/d in 2021. 1.5 bcf/d in 2022. 2.2 bcf/d in 2023. #OOTT. On Monday, TASS reported [LINK](#) "Gazprom has brought daily supplies of gas to China via the Power of Siberia gas pipeline to the maximum contract level starting December 1 beforehand, the Russian gas holding said in a statement. The gas pipeline's design capacity is 38 bln cubic meters per year." This is 3.7 bcf/d. This follows 0.4 bcf/d in 2020, 1.0 bcf/d in 2021, 1.5 bcf/d in 2022, and 2.2 bcf/d in 2023. TASS did disclose the estimated volumes for 2024, just that they had now reached the maximum design capacity of 3.7 bcf/d. Our Supplemental Documents package includes the TASS report.

Power of Siberia 3.7 bcf/d to China

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Figure 16: Power of Siberia pipeline


03/30/19: LNG price pressures 2020/21 with Power of Siberia startup

No one should be surprised that Power of Siberia has been a significant negative on LNG prices. We have been highlighting Power of Siberia as a negative to China LNG imports and therefore adding pressure on LNG prices for almost six years as Gazprom was then a year away from starting up deliveries on Power of Siberia in 2020 and Nord Stream 2 in 2021. And there were two willing countries, China and Germany, who needed and wanted cheap Russian natural gas from pipelines to fuel their industrial economies. On March 30, 2019, we posted our blog “LNG Price Pressures 2020/2021 With Gazprom Adding ~8.9 bcf/d Export Gas Pipeline Capacity Into Europe And China”. Here is the summary of that blog. “The major LNG market factor for 2020 and 2021 is not an LNG event, but an LNG related event – Russia’s plans to add ~8.9 bcf/d of export gas pipeline capacity starting in Dec 2019. The LNG market this week was focused on the crashing shoulder season Asian LNG prices following the warmer than normal winter in Asian natural gas markets. And wider seasonal LNG price swings are going to be the norm until there is more gas storage around the world. But there was a much more significant LNG related headline on Thursday that is a huge relief to 2020 LNG prices – the Danish Energy Agency is forcing the ~5.3 bcf/d Nord Stream 2 export pipeline to Europe to evaluate a 3rd potential route thru their seas and their review process will, as normal, including public hearings. Nord Stream 2 will export Russia gas to Germany for connections therefrom, was supposed to be in service at yr-end 2019 and this new 3rd route could delay the in service for potentially 1 year. This is a big relief to 2020 LNG prices as it pushes back ~5.3 bcf/d of new (cheaper than LNG) natural gas into Europe into 2021. Its already tough enough for 2020/2021 LNG prices with Gazprom’s Power of Siberia 3.6 bcf/d export gas pipeline to China on target to be in service on Dec 1/2019. The recent Shell LNG Outlook 2019 estimated that global net LNG imports increased by 3.6 bcf/d in 2018. We believe that would have been higher other than high LNG prices saw some switching to coal in Asia and LNG import infrastructure is still being built out. The Nord Stream 2 delay may be a relief to 2020 LNG prices, but the addition of ~8.9 bcf/d natural gas into Europe and China will keep price pressures on spot LNG prices over the next couple years. Plus, this added pipeline connected gas will add to the base natural gas supply, including during shoulder seasons, which should add increased risk to seasonal price swings.”

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Our Supplemental Documents package includes our March 30, 2019 blog.

China reminds Russia pipeline natural gas is cheaper than LNG imports

On Tuesday, Global Times (state media) reported on the Power of Siberia reaching maximum design capacity. [LINK](#) *“With the full operation of this 5,111-kilometer natural gas pipeline, its annual transmission capacity is set to be raised to a peak of 38 billion cubic meters, benefiting about 450 million people along its route, according to the report.”* Global Times also wrote *“Piped natural gas is much cheaper than liquefied natural gas. Additionally, as a clean energy source, it plays a crucial role in driving the transition to a more sustainable energy future, Lin noted. In recent years, China’s natural gas production has grown rapidly, but the surge in consumption has led to an increase in imports, therefore securing a diversified supply of imports is essential, Lin noted.”*

China prioritizes Russian pipeline gas imports as it is cheaper than LNG

Everyone should have put Power of Siberia on their LNG price risk list because China would give priority to cheaper pipeline natural gas over more expensive LNG. Here is what we wrote in our June 9, 2024 Energy Tidbits memo. *“For years, we have warned that how Chinese natural gas pipeline imports from Russia would be prioritized over LNG imports due to the cheap cost of Russian pipeline gas. On Monday, we tweeted [LINK](#) “It’s way cheaper! And why China prioritizes imports of RUS #NatGas via pipeline vs #LNG imports. 2019-21: China only paid \$4.40/mmbtu for RUS pipeline gas vs RUS charged Europe ~\$10/mmbtu. See 📌 @maxseddon @NastyaStognei @HenryJFoy @leahyjoseph report. #OOTT.”* The FT report *“Russia-China gas pipeline deal stalls over Beijing’s price demands”* was focused on China wanting too low a natural gas price for the next expansion of Russian pipeline natural gas to China. But what jumped out at us was the reminder that China is currently getting cheap natural gas from Russia. FT wrote *“China already pays Russia less for gas than to its other suppliers, with an average price of \$4.4 per million British thermal units, compared with \$10 for Myanmar and \$5 for Uzbekistan, the CGEP researchers calculated from 2019-21 customs data. During the same years Russia exported gas to Europe at about \$10 per million Btu, according to data published by the Russian central bank.”* Our Supplemental Documents package includes the FT report.”

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

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 was on Thurs Dec 5 that Gazprom continues to ship the same volume of natural gas of 1.50 bcf/d via Sudzha. And then yesterday morning, TASS reported [LINK](#) *“Gazprom supplies 42.4 mln cubic meters of gas per day to Europe via*

Russia still shipping gas

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Ukraine to the the Sudzha gas pumping station in Russia's Kursk Region. The application for pumping through Sokhranovka was rejected by the Ukrainian side, a Gazprom representative told journalists. "Gazprom supplies Russian gas for transit through the territory of Ukraine in the volume confirmed by the Ukrainian side through the Sudzha station, 42.4 mln cubic meters as of December 7. The application for the Sokhranovka station was rejected," the company's representative said. The day before, the pumping volume also amounted to 42.4 mln cubic meters." Below is a 2018 map from Oxford Institute for Energy Studies showing Sudzha.

Figure 17: The Ukrainian pipeline system



Source: Oxford Institute for Energy Studies

Natural Gas: Putin approves revised payment process for Russia NatGas

There isn't much doubt that Russia wants and needs all the cash flow it can generate from its exports of oil, petroleum products, LNG and natural gas. And that it will be do its best to accommodate transactions. On Thursday, Putin approved a change in procedure for foreign buyers of Gazprom natural gas/LNG following recent US sanctions on Gazprombank. Prior to the this change, foreign buyers had to Gazprombank for conversion into rubles to pay for the natural gas. Post this change, foreign buyers can use other financial institutions to convert currency into rubles before having the rubles transferred to Gazprombank. On Friday, TASS reported [\[LINK\]](#) "Russian President Vladimir Putin updated the procedure for gas payments to be made by foreign buyers. In particular, foreign companies can now pay for Russian gas by crediting funds at their accounts via third parties and not directly through the account with Gazprombank. Gazprombank can now open not merely type K special accounts but ruble and currency accounts also. Foreigners can make ruble payments to such accounts and "an authorized bank is allowed to credit funds in rubles coming from third parties for purposes of foreign buyer's payments for natural gas supplies at a ruble account opened by a Russian supplier in the authorized bank."

**Putin approves
change in gas
payments**

Natural Gas: ECMWF forecasts a warmer than normal Jan/Feb/Mar across Europe

On Thursday, we posted [\[LINK\]](#) "Reason to be cautious on Europe #NatGas going into January. @ECMWF updated Dec/Jan/Feb temperature forecast is for warmer than normal temperatures across Europe. Absent unexpected supply interruption, warm winters are never positive for #NatGas #OOTT". Winter and end of winter temperatures are key to natural gas and LNG prices; the forecast for a warmer than normal end of winter in Europe is a reminder to be cautious until we begin to see temperatures that promote natural gas demand. We

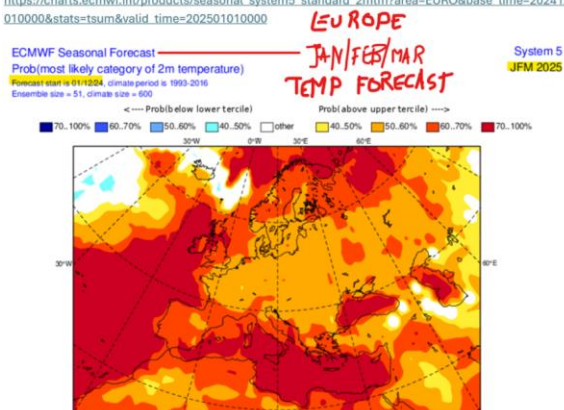
**Forecast warmer
than normal
temps across
Europe**

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recognize weather forecasts are far from 100%. Although the forecast is for warmer than normal Jan/Feb/Mar, the YoY comp is against a very hot 2023-24 winter. Last winter, was significantly warmer than normal in all the major natural gas consuming regions the world; and the warm winter caused LNG, TTF and HH prices to remain relatively weak all year. The European Centre for Medium Range Weather Forecasts (ECMWF) posted its December Jan/Feb/Mar seasonal temperature forecast for Europe. The December forecast calls for warmer than normal temperatures across all of Europe for Jan/Feb/Mar.

Figure 18: ECMWF Dec seasonal JFM temperature forecast for Europe

https://charts.ecmwf.int/products/seasonal_system5_standard_2mtm?area=EURO&base_time=202412010000&stats=tsum&valid_time=202501010000



Source: ECMWF

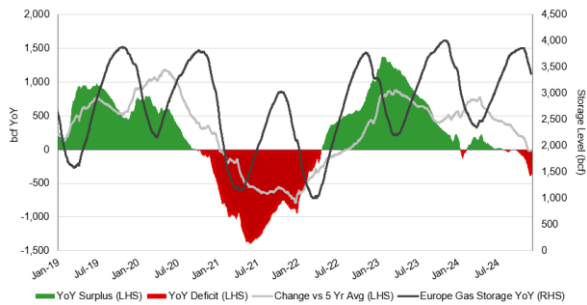
Natural Gas: Europe storage down -3.1% WoW to 83.1% full, down -9.6% YoY

There have been gas storage draws in Europe with the recent colder temperatures and the low wind generation last week. The good news for Europe was that storage was fairly full to start the winter. Europe gas storage would have been effectively full if they hadn't cut back on LNG imports in Q2 and Q3. We have been highlighting that a big LNG theme in Q2 and Q3 was how NW Europe reduced LNG imports because storage was very high YoY leaving winter 2023/24. It got to +95% full, which we have been saying was what we considered to be effectively full. This week, Europe storage was down -3.1% WoW to 83.1% vs 86.2% on November 28. Recall that winter 2023/24 was one of the hottest winters in Europe. Storage is now down -9.6% from last year's levels of 92.7% on December 5, 2023, and down against the 5-year average of 85.4%. Below is our graph of European Gas Storage Level.

Europe gas storage

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Figure 19: European Gas Storage Level



Source: Bloomberg, SAF

Ukraine storage is currently ~7% of total Europe gas storage volume

We have been breaking out Ukraine gas storage levels since the Mar/Apr Russian bombing of the Ukraine natural gas storage, which only impacted some above ground natural gas infrastructure. But it also reminded of the risk to Europe gas storage from Russia attacks. We broke out the Ukraine storage data from the above Europe data we monitor weekly from the GIE AGSI website [\[LINK\]](#), and, on December 4, 2024, natural gas in Ukraine storage was at 21.9% of its total capacity, down compared to 23.4% of its total capacity on November 27. Last year, Ukraine storage started the winter on Nov 1, 2023, at 39.38%. Right now, Ukraine makes up ~7% of Europe’s natural gas in storage and, at the beginning of winter 2023/24, it was ~10% of Europe’s natural gas in storage. Below is a map of Ukraine’s major gas storage facilities.

Figure 20: Ukraine Gas Storage Facilities as of June 2023



Source: Bloomberg

Oil: U.S. oil rigs surprisingly up +5 rigs WoW and down -21 rigs YoY to 482 oil rigs

On Friday, Baker Hughes released its weekly North American drilling rig data. (i) Note Baker Hughes no longer breaks out the basin changes by oil vs gas rig type. (ii) Total U.S. oil rigs were up +5 rigs WoW to 482 oil rigs as of Dec 6, 2024. The WoW increase was a surprise, as

**US oil rigs up
WoW**

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we expected US rigs would decline after Thanksgiving and continue this decline until just past Xmas as this is what has happened every year. U.S. oil rigs are now down -21 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 -21 YoY to 482 rigs, which is slightly above the recent lows of July 2024 (iii) Note we can see the basin changes but not by type of rig; the WoW changes at the major basins were as follows; Cana Woodford -1 rig, Granite Wash +2 rigs, Permian +1 rig WoW, Utica -1 rig WoW, and Williston +1 rig WoW. (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 -38 rigs YoY to 584 rigs including US oil rigs -21 oil rigs YoY to 482 oil rigs. And for the key basins, the Permian is -9 rigs YoY, Haynesville is -12 rigs YoY, DJ Niobrara is -7 rigs YoY, Marcellus -3 rigs YoY, Williston up +3 rigs YoY, Arkoma Woodford up +1 YoY, Granite Wash is down +1 rig YoY, Eagle Ford is down -4 rigs YoY, Barnett up +1 rig YoY, Ardmore Woodford was -1 rig YoY, and Cana Woodford +1 rig YoY. (v) US gas rigs were up +2 rig this week to 102 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 21: Baker Hughes Total US Oil Rigs



Source: Baker Hughes

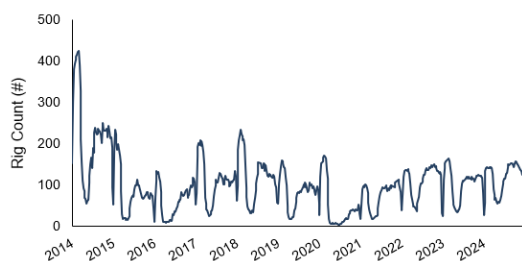
Oil: Total Cdn oil rigs down -10 WoW on Friday, with gas rigs flat WoW

On Friday, Baker Hughes released its weekly North American drilling rig data. This week's total oil and gas rig count was down -10 rigs WoW to 194 rigs on Dec 6. 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; last week we noted that we should expect a pickup in rigs 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; however, primarily driven by weak oil prices, we saw a fall WoW. However, we suspect that WTI below \$70 has led to some pulling back of Cdn rigs, which were down -10 rigs WoW this week to 124 rigs and are up +4 rigs YoY. Gas rigs are flat WoW at 70 rigs and are down -4 rigs YoY, and miscellaneous rigs down -1 rig 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.

**Cdn oil and gas
rigs -10 WoW**

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Figure 22: Baker Hughes Total Cdn Oil Rigs



Source: Baker Hughes

Oil: US weekly oil production up +0.020 mmb/d WoW to 13.513 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 marginally, +0.020 mmb/d WoW to 13.513 mmb/d for the week ending Nov 29. This is up +0.413 mmb/d YoY from 13.100 mmb/d for the week ended December 1, 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 +0.020 mmb/d WoW to 13.513 mmb/d for the week ended Nov 29. Alaska production figures were up +0.002 WoW to 0.446 mmb/d, compared to 0.444 mmb/d last week. Below is a table of the EIA's weekly oil production estimates.

US weekly oil production

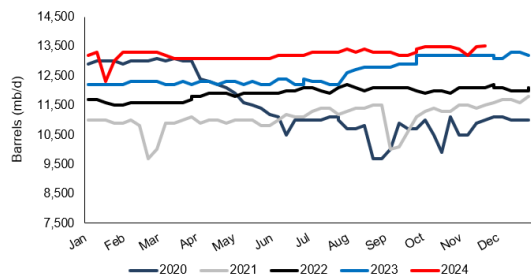
Figure 23: EIA's Estimated Weekly US Field Oil Production (mb/d)

Year/Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
2023 Jan	01/06	12,300	01/13	12,300	01/20	12,300	01/27	12,300		
2023 Feb	02/03	12,300	02/10	12,300	02/17	12,300	02/24	12,300		
2023 Mar	03/03	12,300	03/10	12,300	03/17	12,300	03/24	12,300	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	13,300	09/20	13,200	09/27	13,300		
2024 Oct	10/04	13,400	10/11	13,300	10/18	13,200	10/25	13,200		
2024 Nov	11/01	13,500	11/08	13,400	11/15	13,200	11/22	13,493	11/29	13,513

Source: EIA

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Figure 24: EIA's Estimated Weekly US Oil Production



Source: EIA

Oil: Is US shale/tight to peak in 2025, Chevron moves to Permian plateau in 2025

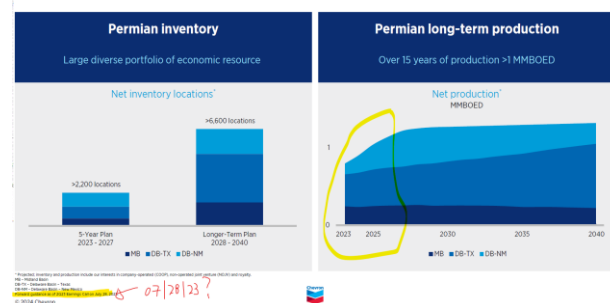
We can't help wonder if people were missing the forest for the trees because they didn't link Chevron's Thurs release on reducing Permian capex and growth rates to CEO Wirth's Q3 call Q&A clearly stating they were going to move the Permian towards a plateau in 2025. And that implies they will then focus on keeping that flat for as long as possible. It makes sense as the higher the level of production, the faster the treadmill to keep up and stay flat. It really feels like they are telling us they have reached their comfort level of where they can work to keep Permian production flat for years. So not declining from here. But not growing from here (i) Earlier this morning, we posted [LINK](#) "Is Lower 48 shale/tight oil finally peaking in 2025? 12/05/24: Chevron Permian production growth reduced in favor of free cash flow. 11/01/24: CEO Wirth "As we move towards the 1 million barrel-a-day mark next year, we will begin to shape our profile there a little bit towards a plateau and we'll really begin to focus on free cash flow" Chevron clearly says it is moving to peak/plateau Permian production in 2025. Does this point to others doing the same in Permian? ie. moving to hold flat/plateau instead of growth. Permian has been the Lower 48 shale/tight growth regions. So If Permian is only flat, does that mean Lower 48 shale/tight oil in total will start to be down a little bit. If so, positive for #Oil with forecasts of peak oil demand getting pushed further out. One weird item is why did they include their July 2023 Permian long term growth slide in their 11/04/24 slide deck? #OOTT." (ii) Their Thurs release wrote "Permian growth for years only says "Permian Basin spend is lower than the 2024 budget and anticipated to be between \$4.5 and \$5.0 billion as production growth is reduced in favor of free cash flow." Chevron say Permian production growth is reduced in favor of cash flow. So lower growth, but no idea of how much lower. They could easily have said how much 2025 growth in the Permian just like they did in the subsequent sentence in the release where they choose to emphasize GoM is adding 300 mboed in 2026. (iii) The Q3/24 started the messaging that the Permian is moving to plateau in 2025. It wasn't in the Q3 release, slides or mgmt prepared remarks, but in the Q&A, CEO Wirth gave a long response that included "As we move towards the 1 million barrel-a-day mark next year, we will begin to shape our profile there a little bit towards a plateau and we'll really begin to focus on free cash flow and so growth will become less the driver and free cash flow will become more the driver, if you will. So we'll bring capital spending down and I think what you'll see is this year is probably going to be the peak in Permian Cap Ex and as we move forward we'll start to attenuate that the growth which has been at a 15% CAGR for the last three years, probably going to be higher than that this year

XXXXXX

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will begin to attenuate as well and will really open up the free cash flow there. So more to follow in terms of exactly what that looks like. I'm sure people are curious about that, so we'll provide more guidance here over the next call or two so you can start to think of what that looks like. But the headline here is continued efficiency and productivity gains, strong free cash flow today.” (iv) We won't know until the Q4 and investor day but we have to believe they will be showing a new long term Permian oil growth slide. We were surprised by the 11/04/24 investor slide deck that came out three days after the Q3 call on Nov 1. It's a strange slide deck that included the Permian long term oil growth peaking around 2028. It was still posted as of Thurs but we won't be surprised to see it removed. The footnote to the graphs says “Forward guidance as of 2Q23 Earnings Call on July 28, 2023”. Why would they have put this in given what CEO Wirth said in the Q&A about moving to a plateau. As Wirth was implying, like today, that plateau is near term, not in 2028. But this graph looks tied to the numbers from Chevron Feb 28, 2023 investor day that forecast Permian to add +450,000 b/d to 2027 to 1.2 mmoed or maybe a touch more. (v) Then the big picture US call is if Chevron moving to peak/plateau in 2025, what does that mean for Exxon and others. And if others join this approach for plateau Permian in 2025, does that point to Lower 48 shale/tight oil production overall. The Permian has been the growth engine and the other shale/tight oil plays have been fighting to stay flat. (vi) One last reminder is that S shale/tight oil plays like the Permian, Bakken, DJ Niobrara, Eagle Ford, etc become gassier over time as the wells mature. So the boe/d becomes a higher percentage of natural gas over time and a lesser percentage of oil. This is another advantage of the Cdn oil plays that don't have this issue. Our Supplemental Documents package includes the Chevron Thurs release, excerpt from the Q3 call Q&A and surprising slides from the Nov 4, 2024 investor slide deck.

Figure 25: Surprising slide from Chevron Nov 4, 2024 investor slide deck
High quality, long duration resource



Source: Chevron

Oil: US SPR less commercial reserve deficit narrows, now -31.568 mmb

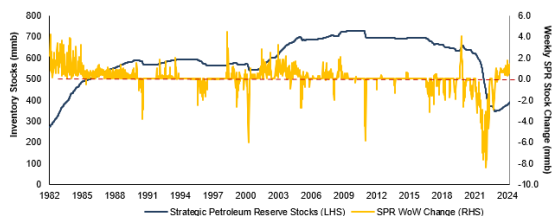
The US Strategic Petroleum Reserves (SPR) continues to be much lower than total US commercial crude oil reserves. The SPR went back below commercial for the first time since 1983 in the Sep 16, 2022, week. This week, we saw a build on the SPR side and a draw on the commercial side. The EIA's weekly oil data for Nov 29, [LINK](#) saw the SPR reserves increase +1.445 mmb WoW to 391.807 mmb, while commercial crude oil reserves decreased -5.073 mmb to 423.375 mmb. There is now a -31.568 mmb difference between SPR reserves and commercial crude oil reserves. The below graphs highlight the difference between

US SPR reserves

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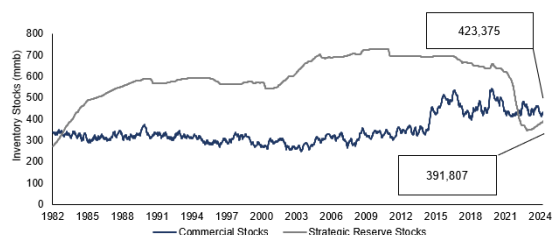
commercial and SPR stockpiles, along with the weekly changes to SPR stockpiles.

Figure 26: Strategic Petroleum Reserve Stocks and SPR WoW Change



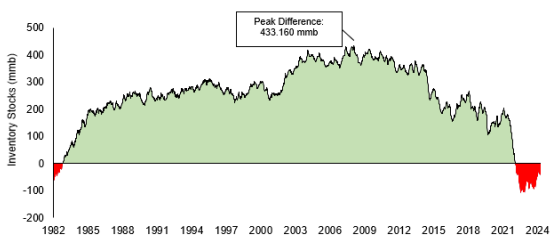
Source: EIA

Figure 27: US Oil Inventories: Commercial & SPR



Source: EIA

Figure 28: US Oil Inventories: SPR Less Commercial



Source: EIA

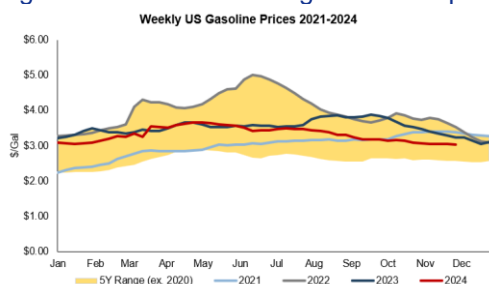
Oil: AAA reports US national average gasoline price $-\$0.04$ WoW to $\$3.02$ on Dec 7

Yesterday, we tweeted [\[LINK\]](#) “AAA National average gasoline prices $-\$0.04$ WoW at $\$3.02$ on Dec 7, $-\$0.09$ MoM & $-\$0.18$ YoY. California average prices $-\$0.05$ WoW to $\$4.37$, $-\$0.16$ MoM & $-\$0.37$ YoY. National average gasoline price hasn't been below $\$3$ since May 11, 2021. Thx @AAAnews #OOTT.” National average gasoline prices were $\$3.02$ so just above the $\$3$ level and the last time national average gasoline prices were below $\$3$ was May 11, 2021. Yesterday, AAA reported that US national average prices were $\$3.02$ on Dec 7, which was $-\$0.04$ WoW, $-\$0.09$ MoM, and $-\$0.18$ YoY. Yesterday, AAA also reported California average gasoline prices were $\$4.37$ on Dec 7, which was $-\$0.05$ WoW, $-\$0.16$ MoM and $-\$0.37$ YoY. Below is our graph of Bloomberg’s National Average weekly gasoline prices.

US gasoline prices

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Figure 29: National Average Gasoline prices



Source: Bloomberg

Oil: Does captive seller or captive buyer or the consumer lose if Trump tariffs Cdn oil

One of the continuing big discussion points on the Cdn/US oil front is will Trump slap his 25% tariff on Cdn oil, natural gas, and electricity. Or will he just be negotiating that threat away to get something else from Canada. Trump has been clear that he plans to sign all papers to put the 25% tariff on Cdn products. On Nov 30, we posted [\[LINK\]](#) “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.” Last week, one off 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.

**US needs Cdn
heavy/medium
crude3**

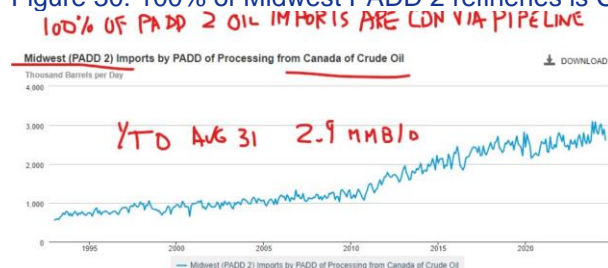
Will Trump tariff Cdn oil as US refineries can't live without Cdn heavy/medium

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 from 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

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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



eia Data source: U.S. Energy Information Administration

Source: EIA

AFPM "there is no easy, fit-for-purpose replacement" for Cdn oil

The major US industry associations have been clear that Midwest refineries really can't replace Cdn medium/heavy oil. Here is what we wrote in last week's (Dec 1, 2024) Energy Tidbits memo. "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

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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.”

Oil: Crack spreads +\$0.23 WoW to \$15.95 on Dec 6, WTI -\$0.80 WoW to \$67.20

On Friday, we tweeted [LINK](#) “321 crack spreads +\$0.23 WoW to \$15.95 on Dec 6. WTI - \$0.80 WoW to \$67.23. Reinforces WTI is impacted more by global markets than by cracks as WTI was softer to end the week as market watchers weren't excited about OPEC moves. Thx @business #OOTT.” Crack spreads were +\$0.23 WoW to \$15.95 on Dec 6 and WTI was - \$0.80 to \$67.20. WTI closed down to end the week as markets were soft following the OPEC+ decisions early Thursday morning. As a general rule, over the past few months, WTI has been driven more by global factors and not crack spreads. Crack spreads at \$15.95 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 \$15.95 on Dec 6 followed \$15.72 on Nov 29, \$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, and \$14.79 on Sept 6,

**Crack spreads
closed at \$15.95**

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 and this week's OPEC actions.. 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 up modestly and WTI was down modestly as markets weren't impressed by OPEC's decisions. 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 \$15.95 on Friday Dec 6.

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Figure 31: Cushing Oil 321 Crack Spread & WTI Dec 6, 2014 to Dec 6, 2024



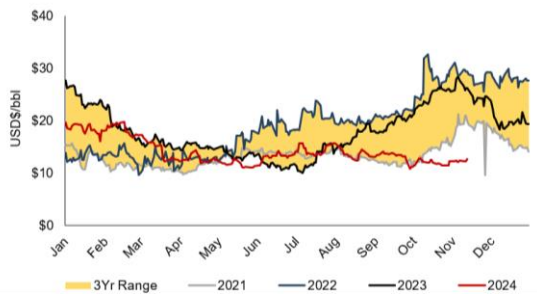
Source: Bloomberg

Oil: Cdn heavy oil differential widen +\$0.10 WoW to close at \$12.35 on Dec 6

WCS less WTI differentials widened small this week +\$0.10 WoW to close at \$12.35 on Dec 6. 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 worked as hoped, if not better, in keeping WCS less WTI differentials way lower than would be expected in Aug/Sept/Oct/Nov. Sept/Oct/Nov is when we normally see a significant seasonal widening of the WCS less WTI differentials. And WCS less WTI differentials have 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 Dec 6 at \$12.35 which was a widening of +\$0.10 WoW vs \$12.25 on Nov 29.

WCS differential widens

Figure 32: WCS less WTI oil differentials to December 6 close



Source: Bloomberg

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

The start of TMX pipeline in Q2 was 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. \$6 narrower vs a year ago and approx. \$15 narrower than two years ago. That is a big

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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 kept WCS less WTI differentials from normal Sept/Oct/Nov widening. WCS less WTI diffs: 12/06/24: \$12.35. 12/06/23: \$18.65. 12/06/22: \$27.50. Thx @garquake @business #OOTT." Our tweet included the below chart that shows how WCS less WTI differential were low in the summer and have stayed fairly flat in Aug/Sept/Oct/Nov and how differentials were widening in Sept/Oct/Nov in 2022 and 2023.

Figure 33: WCS less WTI differentials to Dec 6, 2024 close



Source: Bloomberg

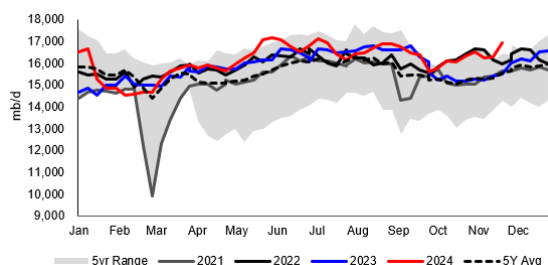
Oil: Refinery Inputs up +0.615 mmb/d WoW to 16.910 mmb/d

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 29 [\[LINK\]](#). The EIA reported crude inputs to refineries were up +0.615 mmb/d this week to 16.910 mmb/d and are up +0.709 mmb/d YoY. Refinery utilization was up +2.8% WoW to 90.5% and was up +2.8% YoY.

**Refinery inputs
+0.615 mmb/d
WoW**

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Figure 34: US Refinery Crude Oil Inputs



Source: EIA, SAF

Oil: US net oil imports up +1.635 mmb/d WoW as oil exports down -0.428 mmb/d

The EIA reported US “NET” imports were up +1.635 mmb/d to 3.055 mmb/d for the week of November 29. US imports were up +1.207 mmb/d to 7.290 mmb/d, while exports were down -0.428 mmb/d to 4.235 mmb/d. Top 10 was up +0.676 mmb/d. (i) Give the EIA credit for putting out weekly oil import estimates, but it’s a reminder that we must be careful about using the weekly oil import estimates. Rather we need to make sure we go to the monthly data for oil imports. (ii) Canada was down -0.037 mmb/d to 4.044 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 +0.144 mmb/d to 0.392 mmb/d. (iv) Mexico was up +0.128 mmb/d to 0.279 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 up +0.141 mmb/d to 0.283 mmb/d. (vi) Iraq was up +0.120 mmb/d to 0.397 mmb/d. (vii) Ecuador was down -0.015 mmb/d to 0.103 mmb/d. (viii) Nigeria was down -0.036 mmb/d to 0.110 mmb/d. (ix) Venezuela was down -0.094 mmb/d to 0.173 mmb/d.

**US net imports
+1.635 mmb/d
WoW**

Figure 35: US Weekly Preliminary Imports by Major Country

	Oct 4/24	Oct 11/24	Oct 18/24	Oct 25/24	Nov 1/24	Nov 8/24	Nov 15/24	Nov 22/24	Nov 29/24	WoW
Canada	3,499	3,537	3,719	3,660	3,879	3,953	3,862	4,081	4,044	-37
Saudi Arabia	285	314	150	13	443	140	220	248	392	144
Venezuela	315	134	289	250	212	359	211	267	173	-94
Mexico	382	406	258	621	247	384	768	151	279	128
Colombia	149	223	365	150	72	142	414	142	283	141
Iraq	241	70	237	216	183	121	237	277	397	120
Ecuador	228	35	138	67	37	247	355	118	103	-15
Nigeria	44	134	125	145	86	77	86	146	110	-36
Brazil	134	154	285	88	202	280	498	227	348	121
Libya	28	0	81	89	238	0	86	0	204	204
Top 10	5,305	5,007	5,647	5,299	5,599	5,703	6,737	5,657	6,333	676
Others	934	522	784	676	641	806	947	426	957	531
Total US	6,239	5,529	6,431	5,975	6,240	6,509	7,684	6,083	7,290	1,207

Source: EIA, SAF

Oil: Baker Hughes International -31 rigs MoM to 919 rigs in November, down -6% YoY

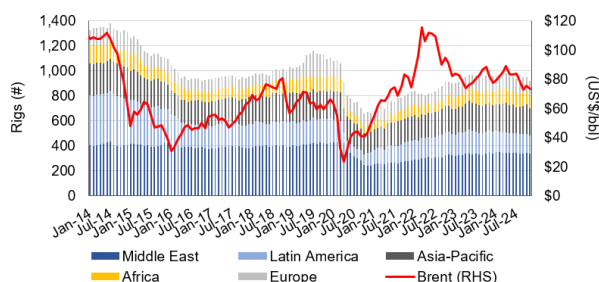
On Friday, Baker Hughes posted its monthly update to international rigs, in total, rigs in November decreased -31 rigs MoM. (i) Note that Baker Hughes has changed its report format which doesn’t allow us to break out all country-by-country information. (ii) Total international rigs fell by -31 rigs MoM to 919 rigs in November and total rigs are up +113 rigs from the recent low of 806 in April 2022. The MoM rig count is as follows: Africa flat, Asia-Pacific -12

**International
rigs -31
MoM in
November**

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rigs, Europe -4 rigs, Latin America -9 rigs, and the Middle East is -6 rigs MoM. The YoY rig count is as follows: Africa -20 YoY, Asia-Pacific +1 rigs, Europe flat YoY, Latin America -29 rigs, and the Middle East is -11 rigs MoM. (iii) We were not able to summarize the MoM data by country due to Baker-Hughes' new format. (iv) November's count of 919 rigs was down -6% YoY from 978 in November 2023, and down -15% vs pre-Covid February 2020 of 1,085 rigs. Below is our graph of international rigs by region and avg monthly Brent price.

Figure 36: Baker Hughes International Rig Count and Brent Price



Source: Baker Hughes, Bloomberg, SAF

Oil: Russian refineries processing reaches 3-month high in November

We have previously noted how the majority of refinery turnarounds in Russia wrapped up in Nov and that has led to increasing refinery runs. And when refineries process more crude oil, it means that typically means there is less available for export. The first 27-days of Nov saw processing rates at Russian refineries reach a three-month high. Primary crude-processing rates averaged 5.350 mmb/d during Nov 1-27, which is up +0.230 mmb/d compared to the average October processing figures, however, YoY production is down -0.127 mmb/d. The report also notes that production for the week of Nov 21-27 reached 5.430 mmb/d, which is up +0.014 mmb/d WoW. The report noted “Russia’s primary crude-processing rates averaged 5.35m b/d during Nov. 1-27 as refineries largely completed their seasonal maintenance, according to a person with knowledge of the matter. That’s more than 230k b/d above the average for most of October, but some 127k b/d less than in November 2023, historic data shows Russia’s average crude processing for Nov. 21-27 reached 5.43m b/d, an increase of around 14k b/d from the previous seven days”. Our Supplemental Documents package includes the Bloomberg report.

Russian oil refineries

Oil: Russia’s seaborne crude oil exports increase ahead of OPEC+ meeting

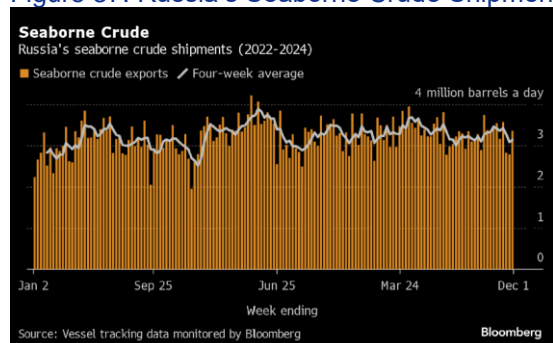
On Tuesday, Bloomberg released their weekly Russian Seaborne crude tracker, this week, titled “Russia’s Seaborne Crude Exports Jump Before Pivotal OPEC+ Talks”. This week, exports reversed the previous two-week trend of decline which was driven by the end of refinery maintenance related to seasonal fall turnarounds. The increase in exports came ahead of the December 5th, OPEC meeting; presumably due to the possibility of OPEC further delaying restoring production cuts. Increased exports were primarily concentrated at the country’s western ports. The four-week average volumes increased by +50,000 b/d for the week to December 1. Bloomberg reported “Four-week average volumes increased by about 50,000 barrels a day in the period to Dec. 1, driven higher for the first time in three weeks by a surge in weekly shipments. The gains were concentrated at the country’s western ports, where flows from all export terminals recovered from two weeks of below-normal rates.

Russia’s seaborne crude exports

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Cargo loading at the key Pacific site of Kozmino was hit by strong winds during part of the week, which reduced operations by a third". 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 into 2025. Our Supplemental Documents package includes the Bloomberg report.

Figure 37: Russia's Seaborne Crude Shipment



Source: Bloomberg

Russia oil exports to China back just below 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 are up +0.050 mmb/d on Dec 1, 2024, when compared to the end of Oct 27, 2024. Bloomberg highlighted the four-week average of Russia oil shipments to China were down -0.140 mmb/d WoW to 1.290 mmb/d for the week ending December 1, 2024, down from last week's 1.430 mmb/d for the week of November 24, 2024. This compares to 1.240 mmb/d for the last week of Oct. (ii) On November 6, 2024, 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

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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, so 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 38: 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 27, 2024	1.24	1.82	0.00	0.06	0.00	3.12
November 3, 2024	1.34	1.65	0.00	0.06	0.00	3.05
November 10, 2024	1.39	1.58	0.00	0.09	0.00	3.06
November 17, 2024	1.34	1.46	0.00	0.12	0.00	2.91
November 24, 2024	1.43	1.17	0.00	0.10	0.00	2.70
December 1, 2024	1.29	1.14	0.00	0.22	0.05	2.71

Source: Vessel tracking data compiled by Bloomberg Bloomberg

Source: Bloomberg

Oil: Bloomberg OPEC production +0.120 mmb/d MoM to 27.020 mmb/d in November

On Monday, Bloomberg posted its monthly survey of OPEC production. (i) The Bloomberg survey estimates OPEC production in Nov was up +0.120 mmb/d MoM to 27.020 mmb/d. (ii) Oct’s production estimates were not revised, rather held flat at 26.900 mmb/d. (iii) The largest MoM changes in Nov vs Oct were: Libya was up +0.110 mmb/d MoM to 1.140 mmb/d and is expected higher again in Dec as production returns to Aug levels. U.A.E. was up +0.090 mmb/d to 3.260 mmb/d, and Iraq was down -0.070 mmb/d to 4.060 mmb/d. Below is the Bloomberg survey table.

**OPEC Nov
production
+0.120 mmb/d**

Figure 39: Bloomberg Survey OPEC production in November (mmb/d)

Production ('000 b/d)	Nov	Oct	Chg	Capacity
▼ Total OPEC	27,020	26,900	+120	33,490
Algeria	890	900	-10	1,060
Congo, Republic	230	240	-10	300
Equatorial Guinea	80	50	+30	120
Gabon	230	230	0	220
Iran	3,360	3,360	0	3,830
Iraq	4,060	4,130	-70	4,800
Kuwait	2,470	2,440	+30	2,820
Libya	1,140	1,030	+110	1,200
Nigeria	1,470	1,510	-40	1,600
Saudi Arabia	8,950	8,950	0	12,000
U.A.E.	3,260	3,170	+90	4,650
Venezuela	880	890	-10	890

Source: Bloomberg

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Oil: Four-prong OPEC deal extends cuts lengthens voluntary cut return period

Brent oil was down \$0.22 to close at \$72.09 on Thursday despite OPEC having a four-prong deal that was more than the expected one-prong deal of pushing back the start for returning the ~2.2 mmb/d voluntary cut barrels to Apr 1/25. Rather early Thursday morning, OPEC issued two releases on what was a three-prong deal. (i) Saudi Arabia and the other seven members who have total voluntary cuts of ~2.2 mmb/d agreed to postpone the return of these barrels until Apr 1/25. The voluntary cut members are Saudi Arabia, Russia, Iraq, United Arab Emirates, Kuwait, Kazakhstan, Algeria, and Oman. (ii) It was overlooked to the most part but the eight voluntary cut countries posted a schedule for the gradual phasing back of the voluntary cuts on a monthly basis that would start in Apr/25 and end in Sept/26. What was overlooked is that gradual phase in over 18 months whereas the original time frame for the gradual phase in was to be done over a shorter 12 month period. (iii) The UAE also agreed to postpone their separate planned production increase of 300,000 b/d from Jan 1 until Apr 1 and that this will now be phased in over 18 months instead of 9 months. Recall, in June 2024, OPEC agreed to allow UAE to increase production by 300,000 b/d. (iv) The full OPEC+ cut of 2 mmb/d is extended until the end of 2026. These are total OPEC+ group cuts that don't come back until after the eight-member voluntary cuts of ~2.2 mmb/d have been returned to market. Our Supplemental Documents package includes the two OPEC releases.

OPEC four-prong deal

Saudi energy minister Abdulaziz pulled off more than was expected

As noted above, OPEC announced a four-prong deal instead of the expected one-prong deal of simply extending the start to bringing back the ~2.2 mmb/d voluntary cuts to Apr 1/25. On Thursday, we replied to a tweet by leading Cdn oil investor, Eric Nuttall [\[LINK\]](#) "What did we learn today? → OPEC+ cohesion is strong → There is no market share battle → OPEC+ will not "push" barrels onto the market → "speak gently but carry a big stick" works and HRH deservedly earns the respect of the energy community." We replied "agreed. saudi energy minister HRH Abdulaziz is THE MAN! #oott." Last week we had expected the delay in the meeting was due to Abdulaziz working on a bigger deal. Here is what we wrote in last week's (Dec 1, 2024) Energy Tidbits memo "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."

Oil: Saudi Energy Minister, OPEC delays barrels to Q2 as Q1 oil demand is down QoQ

We still don't get why so many people were working up different reasons for why OPEC would or would not bring back the voluntary cut barrels in Q1/25 when this simple oil demand fundamental has been known. Oil demand is always seasonally lower every Q1 vs the just finished Q4. And with lower oil demand, it means that Q1 is the season for global oil stocks build. And it is why we have always believed that OPEC would not be adding back barrels in

Saudi Energy Minister on OPEC decision

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Q1/25 if they hadn't done so in Q4/24 when demand was increasing QoQ vs Q3/24. (i) On Tuesday, we posted [\[LINK\]](#) *"Here's why expectations are moving for OPEC to defer adding back any voluntary cut barrels until after Q1/25. See 📌 11/25 post. Oil demand in Q1 every year is always seasonally lower than the preceding Q4. OPEC Nov MOMR forecasts Q1/25 demand down 1.27 mmb/d QoQ vs Q4/24. #OOTT."* We included an excerpt from the OPEC Nov MOMR showing OPEC's forecast for oil demand in Q1/25 to be down -1.27 mmb/d QoQ vs Q4/24. This simple fundamental is something we have been highlighting for months as to why OPEC wouldn't start adding back barrels in Q1/25 if they hadn't started adding them in Q4/24. (ii) On Friday, Saudi Energy Minister Abdulaziz highlighted this oil demand fundamental in his interview with CNBC's Dan Murphy. He said that the reason why they pushed back the return of barrels to Q2 is that Q1 is known to be a quarter for building oil stocks ie. demand is down. On Friday, we posted [\[LINK\]](#) *"Oil demand 101. OPEC decision to delay bringing barrels back to Q2" is more tied to the issue of the fact that 1st QT is not a good quarter to bring volumes because there is always, that quarter is known to be a quarter for building stocks..."* Saudi HRH Abdulaziz at 5:55 min mark to @dan_murphy [\[LINK\]](#) See 📌 11/25/24 post. *oil demand -1.27 mmb/d QoQ in Q1/25 is why oil stocks build in Q1. #OOTT."* We made a transcript of his quote, At 5:55 min mark "... But primarily, actually, the decision to delay bringing these barrels to 2nd quarter is more tied to the issue of the fact that 1st quarter is not a good quarter to bring volumes because there is always, that quarter is known to be a quarter for building stocks. So I would attribute more or less to the consent of the decision not to do anything 1st quarter is because of that."

Oil: What Trump does on Iran is the upside wildcard to oil in Q1/25

In the run up to the OPEC meeting, OPEC commentators were wondering/hoping for Saudi et al announce they were going to delay the return of the voluntary cuts for more than just Q1/25. That was never our expectation. So when we didn't see anyone post on the OPEC meeting that there was a near-term Trump upside wildcard to prices, a few hours after the OPEC decision, we posted [\[LINK\]](#) *"Upside wildcard to #Oil in Q1/25. And why Saudi et al only pushed back the return of voluntary cut barrels to Apr 1/25 and not longer. See 📌 my 11/26/24 post: Trump's NSA pick Waltz was clear they are going to cut off Iran's cash flow and that means oil exports. #OOTT."* We have been highlighting how Trump's key advisors have been clearly saying Trump will be going to cut off Iran's cash flow so they can't fund the terrorist groups. And we also highlighted how some of the first Trump calls post his win were to Saudi Arabia and UAE and we have to believe Trump and MBS would have had Iran on their discussion. So the question is what did Trump tell MBS? These are why we aren't surprised Saudi et al only postponed their return of barrels until Apr 1/25. Because if Trump does as implied by his NSA Waltz, we would expect that Trump's actions on Iran will be known as soon as he takes office on Jan 20.

**Trump is upside
wildcard to oil**

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

Here is what we wrote in last week's (Dec 1, 2024) Energy Tidbits memo. *"Trump NSA Waltz clearly points to Trump hitting Iran's oil exports. 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."*

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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 were 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

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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.”

Trump’s Day 1 calls were with Saudi Arabia, UAE, Egypt and Israel

We have been wondering if Trump has given and will 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.”

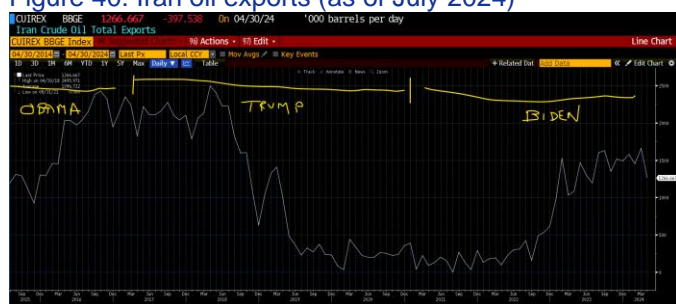
Trump’s big impact on oil will be from what he does on Iran and Venezuela

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

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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 Iran oil exports off global oil markets and likely at least 150,000 b/d of Venezuela oil out of US oil imports."

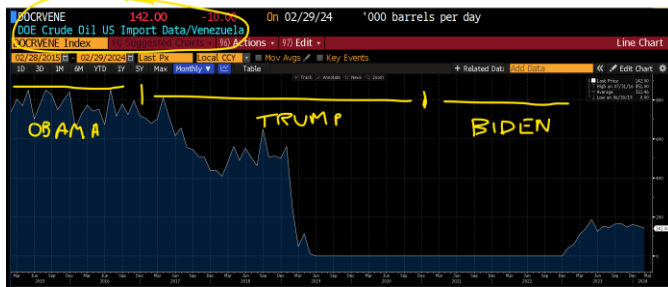
Figure 40: Iran oil exports (as of July 2024)



Source: Bloomberg

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Figure 41: US oil imports from Venezuela (as of July 2024)



Source: Bloomberg

Oil: Trump warns Hamas (also Iran?) release hostages by Jan 20

The headlines on Monday were Trump warns Hamas to release the hostages by Jan 20 or else there will be ALL HELL TO PAY. We couldn't help wonder if Trump's warning was also directed to some degree at Iran. On Monday, we tweeted [\[LINK\]](#) "Trump warns Hamas. Also Iran? ".will be ALL HELL TO PAY in the Middle East, and for those in charge who perpetrated these atrocities against Humanity. Those responsible will be harder than anybody has been in hit in t^he long and storied history of the USA" #OOTT" Our tweet included the Trump Truth Social post that said "Everybody is talking about the hostages who are being held so violently, inhumanely, and against the will of the entire World, in the Middle East - But it's all talk, and no action! Please let this TRUTH serve to represent that if the hostages are not released prior to January 20, 2025, the date that I proudly assume Office as President of the United States, there will be ALL HELL TO PAY in the Middle East, and for those in charge who perpetrated these atrocities against Humanity. Those responsible will be hit harder than anybody has been hit in the long and storied History of the United States of America. RELEASE THE HOSTAGES NOW!"

Looks like Trump
to hit Iran oil

Oil: Libya oil + condensate production of 1.422 mmb/d is above Aug 1 levels

Libya oil production returned to Aug 1 levels a month ago and continues to creep higher above Aug 1 levels. On Thurs, the Libya National Oil Corporation posted [\[LINK\]](#) "Libya's production of crude oil and condensates exceeded the target rate for the current year 2024 by 22 thousand barrels during the past 24 hours. Total crude oil and condensate production readings this morning were 1,422,142 barrels, while gas production was 207,655 barrels equivalent, bringing the total to 1,629,797 barrels." This is 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 when there were the forced interruptions. 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 1.422 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

Libya oil +
condensate now
1.422 mmb/d

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production included in the NOC reporting of total crude oil + condensate production ie. the current 1.422 mmb/d is 1.372 mmb/d of crude oil and 0.050 mmb/d of condensate.

Oil: China oil imports from Iran expected to move back up in 2025

We follow Victor Yang (Senior Analyst, JLC Network Technology) for his on-the-ground views on China and also because he was the first we saw highlight two key China oil trends – the rise of LNG fueled trucks to hit diesel demand, and how price discounts are what drives China imports from Russia and Iran. Yang reminded of why China oil imports from Iran are expected back up in 2025 – Iran’s refiners, in particular the independent refiners, want cheap oil supply and Iran has good quality oil for their refineries. We haven’t seen the China oil imports from Iran in Nov, but it sounded like they were down a little bit vs Oct. But Yang sees them returning to higher levels as Chinese refiner margins are low and they want discounted high quality Iran oil. On Friday, we posted [\[LINK\]](#) “On the ground China views from Victor Yang. Sees recent drop in China oil imports from Iran as temporary, back to normal in 2025. China will still be main importer of sanctioned crude as price discount is attractive. See [🔊 transcript](#) .Thx @sean_evers @gulf_intel Victor Yang #OOTT.” Our post included the transcript we made of comments by Victor Yang (Senior Analyst, JLC Network Technology) with Sean Evers (Founder, Managing Partner Gulf Intelligence) on the Gulf Intelligence Daily Energy Markets podcast on Dec 6, 2024. [\[LINK\]](#) Items in “*italics*” are SAF Group created transcript. At 22:10 min mark, Evers asks on the outlook for China imports of Iranian oil in the 1st quarter, 1st half of 2025, will China keep taking Iranian oil as there are some indications it is already starting to come off a little bit. Yang “*Well, probably refiners have been a little more cautious about taking such cargoes lately and as we heard, there has been drop, recently. But this will not be, this will be temporary, we believe, and, over the longer term say next year, it will be gradually back to previous, well normal. China will still be the main importer of sanctioned crude cargoes. Because I do not see anyone else, well taking such volumes from Iranians*” Evers follows up asking if the willingness to do so is there given the discount and the attractiveness of the quality of the crude. Yang “Yes. Particularly independent private refiners because they are already struggling with refining margins, bad refining margins this year. Even for imported crude with discount, the margins are still bad in 2024. So this will be the biggest attractiveness for them to continue in 2025 too.”

China imports of Iran oil

Iran oil keeps getting rebranded as Malaysia oil into China

Here is what we wrote in our Nov 24, 2024 Energy Tidbits memo on China oil imports from Iran. “*Iran oil keeps getting rebranded as Malaysia oil into China. Every month, we report on the unofficial data for China oil imports from Iran. We say unofficial as China reports zero oil imports from Iran but huge oil imports from Malaysia that are five or six times more than Malaysia’s total country oil production. These are what we understand are Iran oil that are rebranded as Malaysia oil for the purposes of official China oil import data. Here is what we wrote in our Nov 24, 2024 Energy Tidbits memo. “On Wednesday, we tweeted [\[LINK\]](#) “Iran #Oil keeps getting rebranded as Malaysia oil. China customs official data is zero oil imports from Iran since June 2022. BUT China oil imports from Malaysia in Oct 1.78 mmb/d (new record) vs OPEC Secondary Sources Malaysia Q3/24 production of 0.326 mmb/d. #OOTT.” Bloomberg had just posted the China customs data of crude oil imports by country for Oct. We checked Iran and there was no changes to China customs not showing any oil imports from Iran since June 2022. But then we looked as usual at*

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Malaysia and the China customs data shows China crude oil imports from 1.178 mmb/d in Oct, which was a new record. This followed 1.50 mmb/d in Sept, which followed 1.77 mmb/d in Aug, 1.47 mmb/d in July and 1.44 mmb/d in June. Our tweet also included the OPEC Monthly Oil Market Report Nov 2024, which included Secondary Sources estimate that Malaysia only produced 0.326 mmb/d in Q3/24ie. China is importing oil from Malaysia that is equal to over five times Malaysia total country production. Below is the Bloomberg graph of China oil imports from Malaysia that was attached to our tweet.”

Figure 42: China crude oil imports from Malaysia



Source: Bloomberg

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

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

Oil: Big jump in China international air freight to get goods before Trump

There seems to be no question that international customers want to get Chinese goods and products before Trump. The next item in the memo on Caixin China Manufacturing PMI notes how external orders ramped up post Trump winning the election. To support that statement on increasing external orders, on Tuesday Xinhua (state media) reported [\[LINK\]](#) that “the

**Big jump in
international air
freight**

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volume of China's air cargo has reached a historic peak, fueled by robust growth in international air freight, an official with the Civil Aviation Administration of China (CAAC) said on Tuesday." Then Xinhua reported that international air cargo for YTD Oct 31 was +48.5% YoY, but that international air cargo for the past week was +100.4% YoY. On Tuesday, we posted [LINK](#) "Trump boost to China economy. Big jump to record international air cargo as customers pay up for air cargo to get their China goods pre Trump. International air cargo. YTD Oct 31: +48.5% YoY. Last week: +100.4% YoY. Fits 📌 12/01/24 post. Caixin PMI external orders for China good up post Trump. #OOTT." Our Supplemental Documents package includes the Xinhua report.

China domestic air cargo last week was down 31% YoY

The Xinhua report highlighted the record air cargo was driven by international air cargo. And they provided total air cargo and international air cargo numbers so we were able back out domestic air cargo. The backed out domestic air cargo volume was +3.3% YoY for YTD Oct 31 ie. only modest growth in domestic air cargo. This makes sense given the modest China recovery so far. But since the Trump election, domestic air cargo has crashed and is down 31% YoY for last week. We have to believe that any available plane that has potential to fly any international cargo is being allocated to do so.

Oil: Caixin Manufacturing PMI accelerates in Nov as exports order ramp before Trump

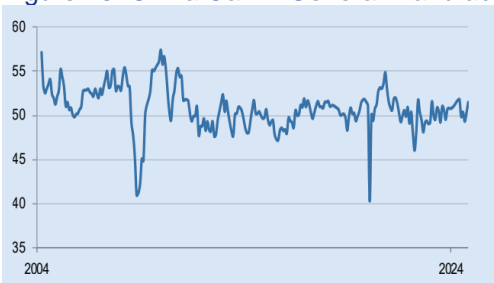
There was a good reminder this week as to why we focus on the Caixin China Manufacturing PMI moreso than the official China Manufacturing PMI. Out of the two China manufacturing PMI data reports that come out each month, the Official Manufacturing PMI that the National Bureau of Statistics publishes, and the Caixin Manufacturing PMI from S&P Global, we have focused on the Caixin Manufacturing PMI. The Caixin Manufacturing PMI is viewed as more of a leading indicator for how the China recovery is doing. In addition to this, it primarily focusses on smaller Chinese companies who are export-oriented PMI and exports have been the big driver of China for the past 20 years. The big positive surprise to China economy was last Sunday night, when the Caixin China Manufacturing PMI was released and it surprised to upside driven by international buyers ramping up orders ahead of Trump becoming President. This surprised the market that export orders had really ramped up as international buyers rush to get Chinese goods prior to Trump. Last Sunday night, we tweeted [LINK](#) "Trump boosts China smaller & export oriented firms in Nov, expect more in Dec as buyers put in China orders before Trump takes over. "External demand bounced back, due partly to some overseas clients upping purchases after the us election, pushing the indicator into positive territory for the 1st time in 4 months" China Caixin Manufacturing PMI: Nov 51.5 vs Est 50.6 Oct 50.3 Sep 49.3 Aug 50.4 Jul 49.8 Jun 51.8 May 51.7 Apr 51.4 Mar 51.1 Feb 50.9 Jan 50.8 Dec 50.8 Thx @SPGlobalPMI #OOTT". The Caixin Manufacturing PMI for November was released Sunday night [LINK](#). The seasonally adjusted headline Caixin PMI was 51.5 in Nov, up from Oct's 50.3. Nov marked the second consecutive month of expansion. The report noted that the increase in exports was partially driven by increased purchasing ahead of the Trump administration. S&P said: "The headline seasonally adjusted [PMI] – a composite indicator designed to provide a single-figure snapshot of operating conditions in the manufacturing economy – rose to 51.5 in November, up from 50.3 in October... External demand bounced back, due partly to some overseas clients upping

**Caixin
Manufacturing
November PMI**

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purchases after the U.S. election, pushing the indicator into positive territory for the first time in four months". Our Supplemental Documents package includes the China Caixin Manufacturing PMI report.

Figure 43: China Caixin General Manufacturing PMI



Source: S&P Global

China official Nov Manufacturing PMI 2nd mth of expansion

The official China Manufacturing PMI came out last Friday night and it did not get the China followers excited even though it was the second month of expansion. And it doesn't come with a commentary so there was no highlighting of a boost to the China economy ahead of Trump. Here is what we wrote in last week's (Dec 1, 2024) Energy Tidbits memo. "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."

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Figure 44: China Official General Manufacturing PMI



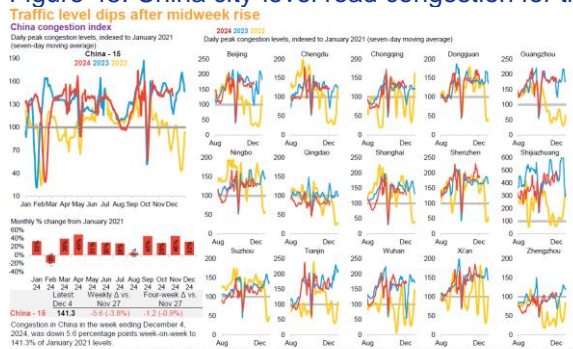
Source: Bloomberg

Oil: Baidu China city-level road congestion in Dec is down -9.9% YoY

On Wednesday, BloombergNEF posted its China Road Traffic Indicators Weekly Dec 5 report, which includes the Baidu city-level road congestion for the week ended Dec 4. BloombergNEF reported Baidu city-level road congestion saw a decrease of -3.8% WoW to 141.3% of Jan 2021 levels. December MTD data has seen average daily peak congestion down -9.9% YoY when compared to December 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 falls after a midweek high”. Below are the BloombergNEF key figures.

China city-level road congestion down YoY

Figure 45: China city-level road congestion for the week ended Dec 4, 2024:



Source: Bloomberg

Figure 46: China city-level road congestion for the week ended Dec 4, 2024

City	Indexed to January 2021 = 100												Indexed to the same month in previous year = 100													
	Dec 23	Jan 24	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Dec 23	Jan 24	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
China-15	146	133	81	138	148	130	129	127	104	144	129	145	131	187	151	55	100	114	110	96	104	87	94	99	99	90
Beijing	161	145	73	151	169	143	141	146	123	171	147	163	161	276	135	42	92	113	103	93	106	90	95	92	97	100
Chengdu	116	120	68	134	140	125	119	126	98	135	113	126	108	124	144	51	106	107	115	91	116	85	104	93	102	93
Chongqing	116	111	80	112	138	122	129	119	75	119	119	133	125	224	136	64	101	125	125	112	113	85	94	107	110	108
Dongguan	144	121	82	129	139	138	138	126	103	141	123	151	136	156	258	41	99	127	120	108	108	101	96	94	107	94
Guangzhou	181	161	76	171	195	174	170	162	156	179	158	183	155	307	199	45	99	127	127	107	107	105	98	99	102	86
Ningbo	142	127	79	144	146	120	128	121	94	140	119	131	114	127	203	59	115	140	121	112	106	81	110	101	90	81
Qingdao	103	78	51	71	78	72	75	91	80	87	79	81	68	195	175	62	94	97	98	87	95	76	82	85	81	66
Shanghai	150	115	79	146	152	130	132	119	93	151	121	136	115	172	155	54	98	117	105	101	98	76	93	95	88	77
Shenzhen	170	149	68	160	164	172	163	162	155	184	159	193	168	156	189	41	96	120	132	99	113	106	102	105	114	99
Shijiazhuang	461	454	350	400	390	311	329	334	308	364	356	422	387	258	156	69	93	85	81	77	89	70	75	104	86	84
Suzhou	136	118	79	134	137	113	112	105	96	115	106	114	108	157	171	60	111	130	117	97	99	88	86	98	90	79
Tangjin	196	133	85	160	165	145	132	106	98	186	150	163	152	244	136	60	114	121	119	100	96	86	107	100	97	86
Wuhan	159	167	105	174	171	146	144	141	117	169	154	167	161	187	151	55	94	100	97	85	86	88	88	107	105	102
Xi'an	155	152	98	141	147	129	123	135	107	145	136	158	132	152	132	66	110	112	105	91	110	97	96	101	101	85
Zhengzhou	108	110	85	95	96	80	78	86	66	91	83	103	90	164	119	76	98	102	90	82	98	72	86	103	106	84

Source: Bloomberg

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Oil: Victor Yang forecasts a modest rebound in China oil demand in 2025

We follow Victor Yang (Senior Analyst, JLC Network Technology) for his on-the-ground views on China and also because he was the first we saw highlight two key China oil trends – the rise of LNG fueled trucks to hit diesel demand, and how price discounts are what drives China imports from Russia and Iran. Yang sees modest rebound in China oil demand in 2025, in part because the rate of increase in LNG-fueled trucks is a little slower but also modest recoveries in key industries like real estate. On Friday, we posted [\[LINK\]](#) *“We expect a modest rebound [China oil demand] in 2025..... In 2024, a lot happened to contribute to the decline... so we do not expect a drop again like in 2024...”* Victor Yang with on the ground #Oil views from China. See [👉 transcript](#). Thx @sean_evers @gulf_intel Victor Yang #OOTT.” Our post included the transcript we made of comments by Victor Yang (Senior Analyst, JLC Network Technology) with Sean Evers (Founder, Managing Partner Gulf Intelligence) on the Gulf Intelligence Daily Energy Markets podcast on Dec 6, 2024. [\[LINK\]](#) Items in *italics* are SAF Group created transcript. At 24:45 min mark, Evers asks if China oil demand, consumption that declined a little bit in 2024 could also decline again in 2025. Yang *“We expect a modest rebound in 2025. Because we see in 2023 there was a jump and then in 2024, it retreated. In 2024, a lot happened to contribute to the decline. Particularly, the surge of LNG-powered trucks at the beginning months of the year. We still see fast development of such alternative energy but not as fast as in the first few months of 2024 as the price difference has now narrowed quite significantly. And another factor is the real estate industry. We do not expect such a decline again in 2025. And some industries, well, also recovering gradually, but not as strong as before but they are still recovering gradually. So we do not expect a drop again like in 2024. Another fact as well is the removal of all outdated refiners is still quite slow and we still see increasing capacities such as the new refiner in Shandong that come on line in September this year. And we expect an increase in the country’s non-state import quotas too for 2025.”*

**Modest rebound
in China oil
demand**

Oil: Vitol, China total oil demand growth on trend even as peak transport fuel reached

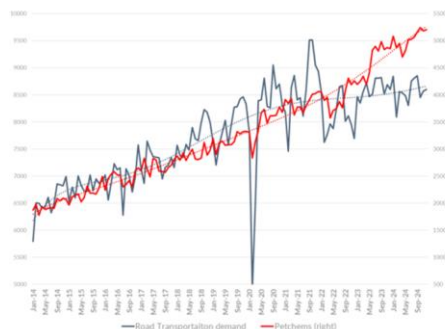
Earlier we noted Victor Yang’s expectation for China to return to modest oil demand growth in 2025 after dropping in 2024. One of the other recent views we have seen on increasing China oil demand was from Vitol on Nov 23. Here is what we wrote in our Nov 24, 2024 Energy Tidbits memo. *“Yesterday, we 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 and the strong growth in petchems to give the overall trend. Below is his road transport fuels and

**Vitol’s China oil
demand view**

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petchem demand growth graph. Our Supplemental Documents package includes the excerpt from his comments.”

Figure 47: China road transportation fuels & petchems demand



China demand trends / kbpd

Source: Vitol

Oil: Vortexa crude oil floating storage est 66.36 mmb at Dec 6, -6.90 mmb WoW

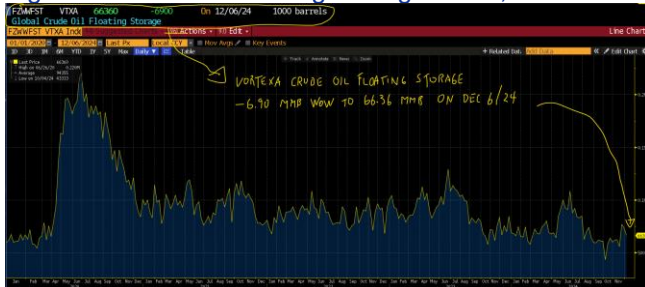
We are referencing the Vortexa crude oil floating storage data posted on the Bloomberg terminal as of 9am MT yesterday. Note that these estimates get revised over the course of the week and the revisions can go back months. We do not check daily for the revisions, so our comments on the new estimates are compared to the prior week's Vortexa estimates posted on Bloomberg on Nov 30 at 9am MT. (i) Yesterday, we tweeted [\[LINK\]](#) "Vortexa crude #Oil floating storage. 66.36 mmb on Dec 6, -6.90 mmb WoW vs revised up by +4.36 mmb Nov 29 of 73.26 mmb. Worth watching as has been higher last 3 wks incl Asia (35.18, 38.92 & 33.75 mmb) highest since Aug. Last 7 wks all revised up by average +3.12 mmb per wk. Thx @vortexa @business #OOTT." (ii) As of 9am MT Dec 7, Bloomberg posted Vortexa crude oil floating storage estimate for Dec 6 was 66.36 mmb, which was -6.90 mmb WoW vs revised up Nov 29 of 73.26 mmb. Note Nov 29 of 73.26 mmb was revised up +4.36 mmb vs 68.90 mmb originally posted at 9am on Nov 30. (iii) The 7-wk average is now over 65 mmb with the last 7 wks revised up by an average of +3.12 mmb per week and Asai back to highest levels since early Aug. It's only the last few 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. All of the prior seven weeks were revised up with an average +3.12 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 30. Nov 29 revised +4.36 mmb. Nov 22 revised +6.81 mmb. Nov 15 revised +2.08 mmb. Nov 8 revised +2.02 mmb. Nov 1 revised +1.57 mmb. Oct 25 revised +4.06 mmb. Oct 18 revised +0.86 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 Dec 6 is 65.22 mmb vs last week's then 7-week moving average of 61.76 mmb. The moving 7-week was up because of the upward revisions in all of the last seven weeks. (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

Vortexa floating storage

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to Jan 1, 2020 to show the run up to Covid and then how Covid started to impact Covid in March/April 2020. (viii) Dec 6 estimate of 66.36 mmb is -62.78 mmb vs the 2023 peak on June 25, 2023 of 129.14 mmb. Recall Saudi Arabia stepped in on July 1, 2023 with its voluntary cuts. (ix) Dec 6 estimate of 66.36 mmb is -9.35 mmb YoY vs Dec 8, 2023 at 75.71 mmb. Below are the last several weeks of estimates posted on Bloomberg as of 9am on Dec 7, Nov 30, and Nov 23.

Figure 48: Vortexa Floating Storage Jan 1, 2000 – Dec 6, 2024, posted Dec 7 at 9am MT



Source: Bloomberg, Vortexa

Figure 49: Vortexa Estimates Posted 9am MT on Dec 7, Nov 30 and Nov 23

Posted Dec 7, 9am MT						Nov 30, 9am MT						Nov 23, 9am MT					
FZWWFST VTXA Inck						FZWWFST VTXA Inck						FZWWFST VTXA Inck					
ID	3D	1M	6M	YTD	YTD	ID	3D	1M	6M	YTD	YTD	ID	3D	1M	6M	YTD	YTD
01/01/2020				12/06/2024	66360	01/01/2020				11/29/2024	70153	01/01/2020				11/22/2024	69112
				Date	Last Pk					Date	Last Pk					Date	Last Pk
				Fr 12/06/2024	66360					Fr 11/29/2024	68898					Fr 11/22/2024	69112
				Fr 11/29/2024	73260					Fr 11/22/2024	70153					Fr 11/15/2024	56755
				Fr 11/22/2024	76959					Fr 11/15/2024	53796					Fr 11/08/2024	62493
				Fr 11/15/2024	55875					Fr 11/08/2024	60067					Fr 11/01/2024	61908
				Fr 11/08/2024	62090					Fr 11/01/2024	60411					Fr 10/25/2024	59394
				Fr 11/01/2024	61980					Fr 10/25/2024	55962					Fr 10/18/2024	67691
				Fr 10/25/2024	60020					Fr 10/18/2024	63009					Fr 10/11/2024	60729
				Fr 10/18/2024	63865					Fr 10/11/2024	56173					Fr 10/04/2024	44189
				Fr 10/11/2024	58003					Fr 10/04/2024	41971					Fr 09/27/2024	62602
				Fr 10/04/2024	43333					Fr 09/27/2024	59461					Fr 09/20/2024	59929
				Fr 09/27/2024	61223					Fr 09/20/2024	59363					Fr 09/13/2024	60894
				Fr 09/20/2024	61158					Fr 09/13/2024	59403					Fr 09/06/2024	58619

Source: Bloomberg, Vortexa

Oil: Vortexa crude oil floating storage WoW changes by regions

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 29 was revised +4.36 mmb. The major revision was Middle East revised +2.05 mmb and Asia revised +1.83 mmb. (ii) Total floating storage at Dec 6 of 66.36 mmb was -6.90 mmb WoW vs the revised up Nov 29 of 73.26 mmb. The major WoW changes were Asia - 3.74 mmb, Other +3.51 mmb and Middle East -2.24 mmb. (iii) See below chart. Asia is worth watching. Dec 6 is estimated at 35.18 mmb, which was -3.74 mmb WoW vs revised up Nov 29. Nov 29 was revised +1.83 to 38.,92 mmb, which is the highest Asia floating storage since Aug 9 of 38.54 mmb. 2 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) Dec 6 estimate of 66.36 mmb is -

Vortexa floating storage by region

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62.78 mmb vs the 2023 high on June 23, 2023 of 129.14 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 -38.11 mmb and Other -18.28 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 29 that was posted on Bloomberg at 9am MT on Nov 30.

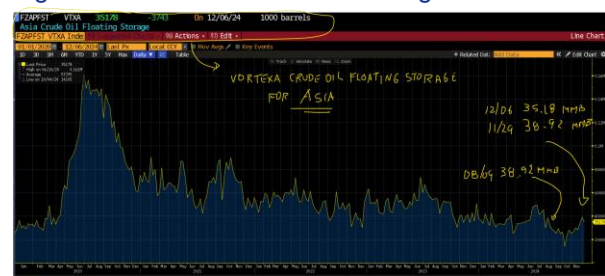
Figure 50: Vortexa crude oil floating by region

Region	Original Posted			Recent Peak	
	Dec 6/24	Nov 29/24	WoW	Nov 29/24	Jun 23/23
Asia	35.18	38.92	-3.74	28.66	73.29
North Sea	0.75	1.37	-0.62	3.14	4.71
Europe	1.31	3.06	-1.75	5.68	6.02
Middle East	9.54	11.78	-2.24	12.43	6.59
West Africa	6.95	8.80	-1.85	9.45	7.62
US Gulf Coast	1.02	1.23	-0.21	2.51	1.02
Other	11.61	8.10	3.51	7.24	29.89
Global Total	66.36	73.26	-6.90	69.11	129.14

Vortexa crude oil floating storage posted on Bloomberg 9am MT on Dec 7
Source: Vortexa, Bloomberg

Source: Bloomberg, Vortexa

Figure 51: Vortexa crude oil floating for Asia Jan 1, 2020 to Dec 6, 2024



Source: Bloomberg, Vortexa

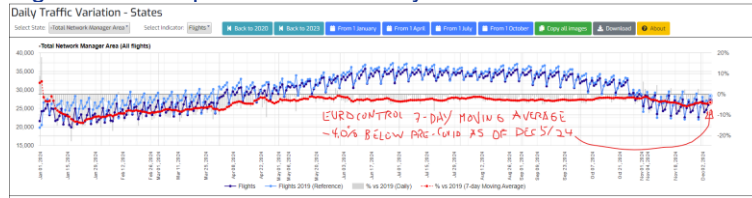
Oil: Europe airports daily traffic 7-day moving average is -4.0% below pre-Covid

Yesterday, we tweeted [\[LINK\]](#) “A pinched EU consumer? Daily Europe air traffic lowest since Apr. 7-day moving average as of: Dec 5: -4.0% below pre-Covid. Nov 28: -4.3%. 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%.. Thx @eurocontrol #Oil #OOTT.” Daily Europe air traffic is 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 -4.0% below pre-Covid as of Dec 5, which followed -4.3% as of Nov 28, -5.5% below as of Nov 21, -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, and -2.9% as of Oct 3. Please note the Eurocontrol website was under maintenance on Saturday until 5pm MT. Normally we try to pull the data early Saturday mornings for a consistent weekly comparison. Eurocontrol updates this data daily and it is found at [\[LINK\]](#).

Europe airports daily traffic

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Figure 52: Europe Air Traffic: Daily Traffic Variation to end of Dec 5



Source: Eurocontrol

Oil: IATA total air travel & domestic air above pre-Covid, international below pre-Covid

Overall global air travel is above pre-Covid levels driven by domestic air travel continuing to hit historical highs while it looks like international air travel is still below pre-Covid levels. On Wednesday, the International Air Transport Association (IATA) released air passenger data for October 2024 [\[LINK\]](#). The IATA wrote “Industry international passenger traffic climbed 9.5% YoY in October. North American and European carriers achieved higher growth this month than the previous, while the remaining regions saw further deceleration in RPK increase in line with general expectations. International traffic within Europe is at an all-time high, North American international markets were strong again this month, and the growth momentum in Asia Pacific international route areas continues”. Importantly, they also noted that domestic RPK increased +3.5% YoY, and in actual volume, domestic passenger traffic surpassed the historical record; which puts domestic passenger traffic above pre-Covid levels. They weren’t as specific this month on international travel whereas in prior months they noted that international air travel was below pre-Covid. Rather they specifically highlight a couple of regions that are above pre-Covid but don’t specifically comment on other regions. International RPK was up +9.5% YoY, and total market was up +7.1% YoY. The IATA also noted that total market Available Seat Kilometers (ASK) were up +6.1% YoY, with international ASK +8.6% YoY, and domestic up +2.0% YoY. Willie Walsh, IATA’s Director General, commented “Continued strong and stable demand is good news, but just as important is the steady improvement in load factors. It shows what a great job the industry is doing in flying people more efficiently. Average seat factors have risen from around 67% in the 1990’s to over 83% today. Politicians thinking of trying to tax passengers off planes to reduce emissions would do well to note this. Even if fewer people fly because taxes make it too expensive, it doesn’t automatically mean reduced emissions because the planes will still fly, just with fewer passengers. That would reverse decades hard won progress. We need to see the planes full to generate the economic and social benefits of travel with the most minimal emissions possible”. Our Supplemental Documents package includes the official IATA report.

October air travel up YoY

Figure 53: October 2024 Air Passenger Market

World share ¹	October 2024 (% year-on-year)				October 2024 (% year-to-date)				
	RPK	ASK	PLF (%-pt)	PLF (level)	RPK	ASK	PLF (%-pt)	PLF (level)	
TOTAL MARKET	100.0%	7.1%	6.1%	0.8%	83.9%	10.8%	9.3%	1.2%	83.5%
International	60.1%	9.5%	8.6%	0.6%	83.5%	14.1%	13.8%	0.2%	83.2%
Domestic	39.9%	3.5%	2.0%	1.2%	84.5%	5.9%	2.6%	2.6%	83.9%

Source: IATA

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Oil: IATA, global air cargo Oct was 15th consecutive month of YoY growth

We look at international air cargo as the data that affirms the level of export orders and trade. On Tuesday, the International Air Transport Association (IATA) announced cargo data for the month of October [LINK](#). October global air cargo, measured through Cargo Tonne-Kilometers, increased 9.8% YoY. This marks the fifteenth consecutive month of YoY growth. The IATA wrote “Total demand, measured in cargo tonne-kilometers (CTKs*), rose by 9.8% compared to October 2023 levels (10.3% for international operations) for a 15th consecutive month of growth. Capacity, measured in available cargo tonne-kilometers (ACTKs), increased by 5.9% compared to October 2023 (7.2% for international operations). This was largely driven by an 8.5% increase in international belly capacity. Dedicated freighter capacity increased by 5.6%, the seventh consecutive month of growth with volumes nearing 2021 peak levels”. Willie Walsh, IATA’s Director General, commented “Air cargo markets continued their strong performance in October, with demand rising 9.8% year-on-year and capacity up 5.9%. Global air cargo yields (including surcharges) continue to rise, up 10.6% on 2023 and 49% on 2019 levels. While 2024 is shaping up to be a banner year for air cargo, we must look to 2025 with some caution. The incoming Trump Administration’s announced intention to impose significant tariffs on its top trading partners—Canada, China and Mexico—has the potential to upend global supply chains and undermine consumer confidence. The air cargo industry’s proven adaptability to rapidly evolving geopolitical and economic situations is likely to be tested as the Trump agenda unfolds” Our Supplemental Documents package includes the official IATA report.

**IATA October
global air cargo**

Figure 54: October 2024 Air Cargo Market

	World share ¹	October 2024 (% year-on-year)				October 2024 (% year-to-date)			
		CTK	ACTK	CLF (%-pt)	CLF (level)	CTK	ACTK	CLF (%-pt)	CLF (level)
TOTAL MARKET	100.0%	9.8%	5.9%	1.7%	47.3%	12.2%	8.1%	1.7%	45.4%
International	86.6%	10.3%	7.2%	1.5%	52.9%	13.1%	10.4%	0.2%	50.9%

Source: IATA

Oil & Natural Gas: Atlantic hurricane season ended with above average activity

Last week, the NOAA released their reflection on the recently ended Atlantic hurricane season [LINK](#). This year’s Atlantic hurricane season officially came to an end on November 30th, 2024, and exemplified above-average activity. The Atlantic basin saw 18 storms with winds of 39 mph or greater, of which 11 were classified as hurricanes (with winds of 74 mph or greater), and 5 progressed to become major hurricanes (with winds of 111 mph or greater); compared to the season average of 14 storms with winds of 39 mph or greater with 7 hurricanes, and 3 major hurricanes. This hurricane season notably started off with significant activity, followed by a lull before a record-breaking ramp up; other records include Hurricane Beryl as the earliest Cat-5 on record. The NOAA said: “The Atlantic basin saw 18 named storms in 2024 (winds of 39 mph or greater). Eleven of those were hurricanes (winds of 74 mph or greater) and five intensified to major hurricanes (winds of 111 mph or greater). Five hurricanes made landfall in the continental U.S., with two storms making landfall as major hurricanes. The Atlantic seasonal activity fell within the predicted ranges for named storms and hurricanes issued by NOAA’s Climate Prediction Center in the 2024 August Hurricane Season Outlook. An average season produces 14 named storms, seven hurricanes and three major hurricanes.” The NOAA saw improved predictions this year, which

**2024 Atlantic
Hurricane Season
Wraps-up**

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were attributed to the use of a new Hurricane Analysis and Forecast System which was launched in 2023. Our Supplemental Documents Package includes the NOAA report.

Figure 55: 2024 Atlantic tropical Cyclone Names:



Source: NOAA

Oil & Natural Gas: CAOEC calls for Cdn wells drilled to increase by +7.3% YoY in 2025

On Monday, CAOEC (Canadian Association of Energy Contractors) released its Q4/24 drilling forecast for the upcoming 2025 drilling year [\[LINK\]](#). The CAOEC forecasts wells drilled to increase +7.3% YoY to 6,604 wells in 2025, up from an estimated 6,156 wells in 2024. The Association also forecasts an increase of +7.3% YoY in projected operating days to 69,344 days, up from estimated 64,638 days in 2024. The higher drilling levels lead the CAOEC to forecast an increase in jobs by +2,719 YoY to a total of 41,800 direct and indirect jobs. The CAOEC notes “Building on the modest but steady growth of last year, the Association is optimistic that growth will continue through 2025. With increased pipeline capacity following the completion of the Trans Mountain Expansion (TMX) and LNG Canada projects, combined with the new U.S. administration’s strong interest in securing more affordable energy, Canada’s growth potential in oil and gas is only expected to increase”. The CAOEC noted the positive impact of the TMX on WCS, as well discussed the growth opportunity that lies ahead with the Trump Administrations push for affordable energy; however, they also noted some concerns with Ottawa’s negligence of the Canadian oil patch, and cited Bill C-59 as a risk to investment in the space. Our Supplemental Documents package includes the CAOEC forecast release.

2025 Cdn Drilling forecast sees +7.3% YoY increase

Figure 56: CAOEC historical drill count and forecast:

Year	Average Active Rigs	Rig Release Wells Drilled	Operating Days
2014	358	13,989	131,021
2015	176	6,199	64,893
2016	119	4,627	43,229
2017	184	7,091	66,524
2018	176	7,426	64,722
2019	122	5,545	45,426
2020	81	3,293	29,790
2021	119	4,638	43,840
2022	161	5,723	58,853
2023	159	5,389	57,944
2024 Actual + Q4 Forecast	178	6,156	64,638
2025 Forecast	190	6,604	69,344

Source: CAOEC

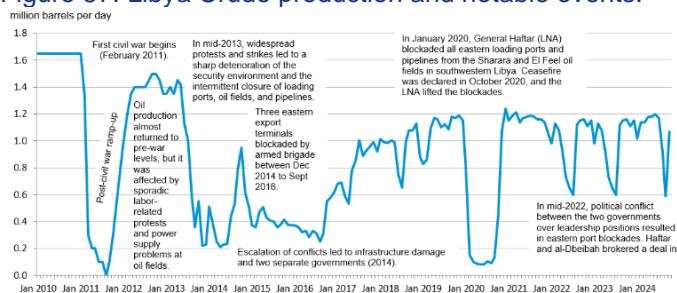
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Oil & Natural Gas: EIA’s updated Libya Country Analysis Brief

We continue to recommend adding the EIA’s country analysis briefs to reference libraries as good quick overview of key areas within each country’s energy world. On Tuesday, the EIA updated its country analysis brief for Libya. [LINK](#) The Libya oil story has been one of domestic fighting that shut-in oil and natural gas production several times over the past 25 years, in particular following Ghadafi’s falling in Oct 2011. Libya was the 7th largest OPEC production in 2023 and 3rd largest African oil producer. We believe that, with sustained internal peace, could see production up >50% in a short 2-3 year period to over 2 mmb/d (ie. higher than the 1.7 mmb/d prior to the 2011 civil war). Libya is exempt from OPEC’s production quotas due to this history of shut-in production from fighting. Below is the EIA’s oil production graph showing the big swings up and down in Libya oil production. The latest interruptions in Aug/Sept/Oct were ended with the resolution of the Central Bank conflict and production has steadily risen to its current 1.400 mmb/d of oil + condensate production. Libya currently maintains Africa’s largest proved oil reserves, coming in at 48.0 billion barrels, which is approx 41% of the continent’s total reserves. Libya also has 53 tcf of proved natural gas reserves, and produced 1.1 bcf/d in 2023, which was down -0.1 bcf/d YoY. Output has declined from 2017’s high, primarily driven by slowed upstream investment associated with volatile security situation, as well as unfavourable regulations. The NOC aims to avoid shortages which are forecasted to arise in with the upcoming decline of the Bahr Essalam and Wafa fields, with new proposed projects, but currently lacks the foreign investment required. Natural gas consumption in 2023 was 0.8 bcf/d. Our Supplemental Documents package includes the EIA country brief.

**EIA’s country
brief on Libya**

Figure 57: Libya Crude production and notable events:



eia Data source: U.S. Energy Information Administration, Short-term Energy Outlook, November 2024

Source: EIA

Oil & Natural Gas: A rare 7.0 earthquake was just off the coast of northern California

On Thursday, the USGS reported that a 7.0 earthquake hit at 10:44am PT approx. 30 miles off the northern California coast west of Petrolia. There was a brief Tsunami warning that was quickly pulled. Fortunately, it was off the coast so there were no reports of any deaths. Earthquakes at 7.0 or greater are rare and this is only the 13th such earthquake in California history. Below is our running table of earthquakes 7.0 or stronger since Jan 1, 2017 that average out to 12-13 such earthquakes each year. .

**7.0 earthquake off
coast of California**

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Figure 58: Earthquakes 7.0 or stronger since Jan 1, 2017

Country	Earthquakes With 7.0+ Magnitude								
	2017	2018	2019	2020	2021	2022	2023	2024	Total
Indonesia	-	1	3	-	3	-	6	-	13
Japan	-	-	-	-	2	1	-	2	5
Papua New Guinea	1	2	1	1	-	1	1	-	7
US	-	2	1	2	1	-	-	1	8
Mexico	2	1	-	1	1	-	-	-	5
Peru	-	2	3	-	1	1	-	-	8
Russia	1	1	-	2	-	-	-	-	5
New Zealand	-	-	1	1	2	-	2	-	6
Vanuatu	-	-	-	-	1	1	2	-	4
New Caledonia	1	2	-	-	1	-	2	-	6
Fiji	-	2	-	-	-	2	-	-	4
Philippines	1	1	-	-	1	1	1	-	5
Chile	-	-	-	-	-	-	-	1	1
China	-	-	-	-	1	-	-	1	2
Cuba	-	-	-	1	-	-	-	-	1
Ecuador	-	-	1	-	-	-	-	-	1
Greece	-	-	-	1	-	-	-	-	1
Guatemala	-	-	-	-	-	1	-	-	1
Haiti	-	-	-	-	1	-	-	-	1
Honduras	-	1	-	-	-	-	-	-	1
Iran	1	-	-	-	-	-	-	-	1
Pakistan	-	-	-	-	1	-	-	-	1
Philippines	-	-	-	-	-	1	-	1	2
Solomon Islands	-	-	-	-	2	1	-	-	3
South Georgia Islands	-	1	-	-	-	-	-	-	1
Taiwan	-	-	-	-	-	-	-	1	1
Turkey	-	-	-	-	1	-	2	-	3
Tonga	-	-	-	-	-	1	2	-	3
Venezuela	-	1	-	-	-	-	-	-	1
Total	7	17	10	9	19	11	19	9	101

Updated as of Dec. 6, 2024
Source: Wikipedia, USGS

Source: USGS, Wikipedia

Energy Transition: Saudi Aramco reminds the need for-low cost coal is increasing

We recognize that most groups look at 2023 and 2024 as anomalies and that the increasing consumption of coal is over and that coal consumption will be declining. It’s like it was a fluke. Saudi Aramco CEO Nasser has a more simplistic view – the world needs available, affordable energy and that is why coal consumption has been increasing. Coal is a proven 24/7 energy provider and is lower cost. But it comes back to the world needs 24/7 power and not intermittent power. On Tuesday, we posted [\[LINK\]](#) “Reality why #Coal isn’t going away soon. *“we need to always ensure that we do have available, affordable energy. If we don’t do that because what we are seeing today is coal, which was supposed to have peaked and declined, is increasing. Maybe because it provides security of supply And it is a lower cost.” Aramco CEO Nasser #OOTT.*” Our post included the transcript we made of Nasser’s comments. SAF Group created transcript of comments by Saudi Aramco CEO Amin Nasser with CNBC Dan Murphy at the Saudi Green Initiative on Dec 3, 2024. [\[LINK\]](#) Items in “italics” are SAF Group created transcript. At 0:45 min mark, Nasser “... if you look at last year alone, out of 2% growth last year in energy consumption, 60% of that came from conventional energy. So we need to always ensure that we do have available, affordable energy. If we don’t do that, what we are introducing is more coal because what we are seeing today is coal, which was supposed to have peaked and declined, is increasing. Maybe because it provides security of supply for certain countries. And it is a lower cost.”

Need for coal is increasing

Energy Transition: Meta’s \$10b AI data center powered by natural gas?

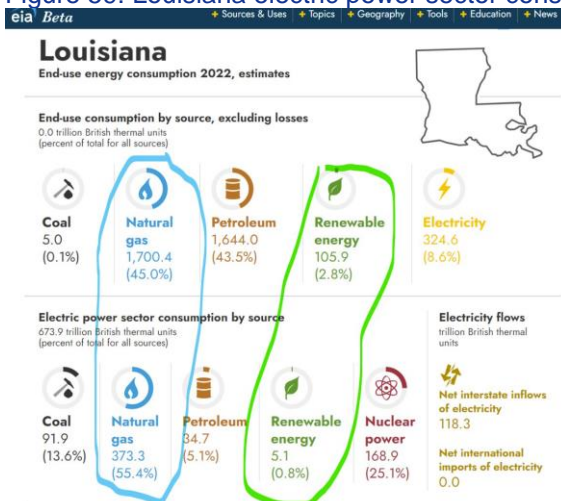
It’s another of the dirty little secrets in the energy transition that companies and agencies should do what they can to avoid specifically saying fossil fuels are the primary fuel source for their AI data centers and that they wouldn’t be able to have a 24/7 AI data center if they didn’t have fossil fuels. That was the case this week with the crafty drafting and avoiding the dirty little secret Meta’s new \$10b AI data center will be powered by natural gas, that is

Meta’s \$10b AI data center

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unless Meta is able to displace existing nuclear power from going into the grid. This will be Meta’s largest AI data center. On Wed, we posted [LINK](#) “Bullish #NatGas for coming decade. Meta’s \$10b AI data center to be in Louisiana. Read release closely, doesn’t say the data center will be powered by renewables. And carefully doesn’t mention #NatGas power. AI data centers need reliable, available 24/7 power. Louisiana is a big #NatGas producer incl the Haynesville shale. EIA’s electricity profile shows LA’s electricity generation is driven by #NatGas and renewable energy is immaterial. Unless Meta can divert existing nuclear from going into the grid, no one may want to say it BUT it will be #NatGas providing the 24/7 power. #OOTT.” There was no mention that natural gas would power the \$10b AI data center. Rather the crafty drafting. Entergy seems to infer that they will add clean efficient power plants (whatever they are) to power Meta \$10b AI data center, but that is the inference. Rather they are adding these clean efficient power plants to the overall Entergy system to meet demand including from the data center. This is NOT saying the new clean efficient power plants are what will power the \$10b data center. And then Meta says they have pledged to match its electricity use with 10% clean and renewable power. They aren’t saying they will run the \$10b AI data center on clean and renewable power.. Here is the other reality check on why Meta isn’t going to run this on renewable power - Louisiana has essentially no renewable energy. Our post included the below EIA Louisiana electric power sector consumption by source. Sure they will add some renewable power in Louisiana, but the reality is if Meta wants affordable, reliable, available 24/7 power, it will be relying on natural gas unless Meta can take the nuclear power instead of the nuclear power going into the grid. Lastly, we reminded that Louisiana’s Haynesville 2024 production is forecast by the EIA to be 15.0 bcf/d vs total US production of 113.1 bcf/d. Our Supplemental Documents package includes the press release.

Figure 59: Louisiana electric power sector consumption by sources



Source: EIA

Energy Transition: Shell slows offshore wind spending

We think it is simple for electricity for the last half of the decade – there are only limited

Shell slows offshore wind

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options to provide electricity at scale over the next five years. To add electricity at scale in the next five years can only mean retaining coal and nuclear or adding natural gas. On Wed, Reuters reported *“Shell is stepping back from new offshore wind investments and is splitting its power division following an extensive review of the business that was once seen as a key driver of the company's energy transition strategy ... “While we will not lead new offshore wind developments, we remain interested in offtakes where commercial terms are acceptable and are cautiously open to equity positions, if there is a compelling investment case,” a company spokesperson said in a statement.”* It's why when we saw the Reuters report that Shell was slowing its offshore wind spending, on Wed we posted [\[LINK\]](#) *“What else besides new #NatGas generation, not retiring #Coal #Nuclear generation can scale up to provide 24/7 electricity to meet growing electricity demand given disappointing ramp up in renewables by big players such as Shell? Exclusive: Shell slows offshore wind spending reports @ronbousso1. #OOTT [\[LINK\]](#).”* Slower offshore wind spending means less offshore wind generation being added. And we think it is simple that for the world's next decade want for reliable, affordable, available 24/7 power, what else is there in scale besides not retiring nuclear and coal plants, maybe some new coal plants and of course adding natural gas. Our Supplemental Documents package includes the Reuters report.

Energy Transition: EDF extends life for four UK nuclear power plants

As noted above and before, we don't see a lot of options to add 24/7 reliable available electricity at scale over the next decade besides extending coal and nuclear, possibly adding some coal and adding natural gas. And adding 24/7 power is even more important with the forecast increased electricity needs and with delays in adding renewables. There shouldn't have been anyone surprised to see the BBC report on Wed that *“The lifespan of Scotland's last remaining nuclear power station and three other plants in England are to be extended. EDF Energy says Torness, in East Lothian, and its sister site Heysham 2, in Lancashire, will continue generating for an extra two years until 2030. Two other sites - Hartlepool and Heysham 1 - will continue for an extra year until 2027. The French state-owned company says it will now invest £1.3bn across its operational nuclear estate over the next three years.”* Retaining nuclear power in the UK for longer is a necessity. This was reinforced in the BBC report that concluded *“Energy Secretary Ed Miliband added: “These extensions are a major win for our energy independence. “We can't achieve clean power by 2030 without nuclear, which provides an all important steady supply of homegrown clean energy.”* Our Supplemental Documents package includes the BBC report.

UK extends nuclear power plants

Energy Transition: China's NEV Nov preliminary sales +52% YoY, +7% MoM

We have not yet seen the splits for China's preliminary retail passenger car sales for NEV (New Energy Vehicle) split between BEV and PHEV. But, on a total NEV basis, on Wed Bloomberg reported on the China Passenger Car Association data for China's total (NEV + ICE) preliminary retail passenger car sales in Nov were +18% YoY and +8% MoM to 2.446 million units. And China's preliminary retail NEV sales in Nov were +52% YoY and +7% MoM to 1.277 million units. NEV sales were 52.3% of total car sales. We could not find any BEV vs PHEV split on the China Passenger Car Association English website disclosure.

China NEV sales for Nov

BYD was 40% of China Nov NEV sales, its PHEVs outsell BEVs 1.5x to 1

As noted above, we could not find the China Passenger Car Association Nov NEV

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retail sales split between BEV and PHEV. We did have the BYD Nov NEV sales split between BEV and PHEV and BYD accounted for 40% of total China NEV sales. Here is what we wrote in last week’s (Dec 1, 2024) Energy Tidbits memo on the then just released BYD Nov car sales. “China’s BYD Nov PHEV sales continue to dominate vs BEV 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 60: 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: BYD 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

Here is another item from last week’s (Dec 1, 2024) Energy Tidbits memo. “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

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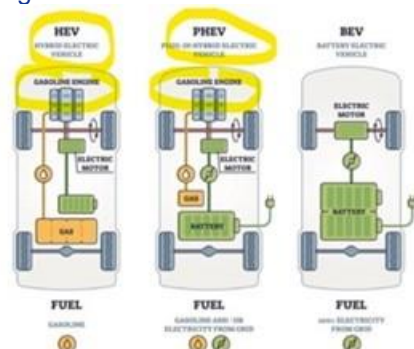
conference call on how the km driven by their PHEVs is about 50/50 split ICE vs electric mode. Our BYD tweet noted this unknown as the vast majority of Chinese in cities live in apartments vs single family homes. And given that most of these apartments were built in the big China boom from 2000 to Covid, 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 on Dec 1, 2024, 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 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.

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Figure 61: HV vs PHEV vs BEV



Source: Engineering Infrastructure

Energy Transition: Big cost disadvantage for UK who have to use public EV charging

Apparently, we weren't the only ones surprised by the huge cost disadvantage for UK who have to use public charging. We always hear about how the cost of public EV charging isn't that bad but that certainly isn't the cost in the UK. Our Energy Tidbits memos have highlighted comments by Vertu Motors CEO Robert Forrester and Vertu has one of the largest number of car dealerships. So we listened to Forrester's interview on BBC Radio 4 to discuss the issues the car industry is facing for EV sales. Last Sunday night, 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." Forrester compared the cost of EV charging in his private drive of his home of 7 pence/kw compared to public charge cost of 60-80 pence/kw. That's a 10x higher cost.

UK public EV
charging

Capital Markets: Can/will Trudeau try to stand up to Trump on tariffs & other items?

For all Canadians sake, we hope Trudeau can and will be able to stand up firmly for Canada in his dealings with Trump on tariffs and other items. Trudeau made the trip to Mar-a-lago for a dinner with Trump. On Sunday, Trudeau tweeted [\[LINK\]](#) "Thanks for dinner last night, President Trump. I look forward to the work we can do together, again." We didn't think much of it until we saw the Fox News report on Monday night, when we posted [\[LINK\]](#) "A joke but feels like Trump is already toying with Trudeau. "if Canada can't survive without ripping off the U.S. to the tune of \$100 billion a year then maybe Canada should become the 51st state and Trudeau could become its governor" Hope Trudeau can at least try to be like Rocky Balboa after Apollo Creed toyed with him? Thx @pdoocy #OOTT." Here is the full reporting by Fox News Peter Doocy. "When Trudeau told President-elect Trump that new tariffs would 'kill' the Canadian economy, Trump joked to him that if Canada can't survive without ripping off the U.S. to the tune of \$100B a year, then maybe Canada should become the 51st state & Trudeau could become its governor." We recognize it's a joke but it reminded us of the start of the Rocky I boxing match between Rocky Balboa and Apollo Creed. Creed is toying with Rocky, landing jabs at will, mocking, toying, teasing until Rocky lands big punch. Trump is setting the stage to put Trudeau on the defense and our concern is that it puts Trudeau in a position to be happy to minimize the damage and declare a moral victory in any deals with the Trump. So hopefully Trudeau can or is willing to pull a Rocky and fight back to win. Our

Trump toying
with Trudeau?

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tweet included the Fox News video report. Then on Tues, Trump did it again with his below Instagram post. We posted [LINK](#) “It's like when a comedian tries out new material on the audience & gets big applause. Trump isn't going to stop toying with Trudeau. Nothing to lose if Trudeau starts to be like Rocky Balboa after Apollo Creed keeps hitting Rocky to start the fight until Rocky hits back hard. #OOTT.”

Figure 62: Trump's Dec 3, 2024 Instagram post



Source: realdonaldtrump

Capital Markets: UN FAO Food Price Index up MoM in November, +5.7% YoY

The UN Food Price Index is a monthly food commodities measure and not an index of consumer food prices or food prices in grocery stores. However, increases or decreases in food commodity prices should, in theory, eventually work their way into grocery prices. The UN Food Price index has been gradually decreasing since the middle of 2023; however, November was up +0.5% MoM compared to October; which notably pushed the index to the highest level since April 2023. On Friday, the UN posted its monthly update of its FAO Food Price Index titled “The FAO Food Price Index (FFPI) averaged 127.5 points in November 2024, up 0.5 percent from the October level and reaching its highest value since April 2023. The increase was driven by higher price quotations for dairy products and vegetable oils, which slightly outweighed declines in the meat, cereals, and sugar quotations” [LINK](#). Note that the index is calculated on a Real Price basis. The FFPI averaged 127.5 points in November, up +0.5% from the revised October figures, and is up +5.7% YoY. The FFPI reported categories saw some decreases, which were offset from increases. The Vegetable Oil Index was up +7.5% MoM, and up +24.5% YoY, and marked the highest level since July 2022. The increase was driven by increasing quotations for, rapeseed, soy, and sunflower oil, as well as prospects of subdued supply. The Dairy Price Index was up +0.6% MoM and up +20.1% YoY. The Cereal Price Index was up +2.7% MoM which is +8.0% YoY. The Meat Price Index was down -0.8% MoM and up +5.9% YoY. The Sugar Price Index was up +2.4% MoM and down -21.7% YoY.

UN food price index up MoM

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Figure 63: UN FAO Food Price Index



Source: UN FAO

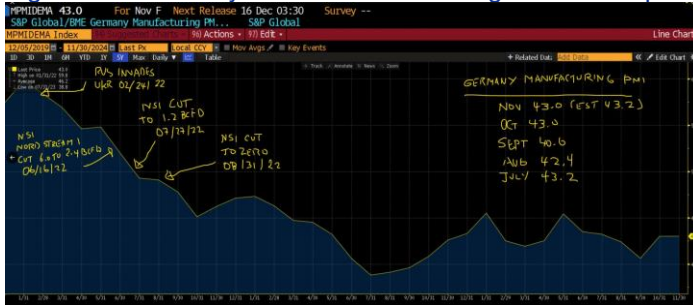
Capital Markets: Germany manufacturing PMI flat MoM, but outlook is grim

Germany manufacturing/industry started its big slide before Russia invaded Ukraine when Europe natural gas prices spiked and went into a steady big decline as cheap Russian natural gas via pipeline was cut to zero in 2022 following Russia's invasion of Ukraine. Cutting off cheap Russian natural gas has been the big hit to Germany's heavy industry. On Tuesday, we posted [LINK](#) "Headline "situation for Germany industry is looking pretty grim" HCOB Manufacturing PMI: Nov 43.0. Oct 43.0. Sept 40.6. Aug 42.4. July 43.2. Overlooked: "Co's are more confident about their future hope that the new govt will finally bring about a real economic turnaround. This would involve things like lower energy prices ..." What else can DEU control to lower energy prices in 2025 besides more #Coal and cheaper #NatGas i.e. return of RUS pipeline gas. Can't make the wind blow more or sun shine more or add nuclear energy in 2025. Should be an interesting election. Thx @HCOB_Economics @SPGlobal #OOTT" On Monday, the HCOB Manufacturing PMI for Germany came in at 43.0 for Nov, flat from 43.0 in Oct. The interesting comment was on how companies are more confident with a new govt to be elected and that "would involve things like lower energy prices". Our post noted what else can Germany directly control that would think they can lower energy prices other than keeping coal and bringing back cheap Russian natural gas. Chief Economist at Hamburg Commercial Bank, Dr. Cyrus de la Rubia, noted this point, saying "Companies are more confident about their future than they have been in recent months. This could be because of the coalition collapse and the hope that the new government will finally bring about a real economic turnaround. This would involve things like lower energy prices and a reform of the debt brake. However, confidence is still very low compared to historical standards". Below is the Bloomberg graph of HCOB Manufacturing PMI and we noted the key events of Russia cheap natural gas pipeline gas being cut off and that looks like a correlation to lower German manufacturing PMI. Our Supplemental Documents package includes excerpts from the HCOB Manufacturing PMI.

Germany
 manufacturing
 PMI remains flat

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Figure 64: Germany HCOB Manufacturing PMI incl Sept & Russian natural gas events



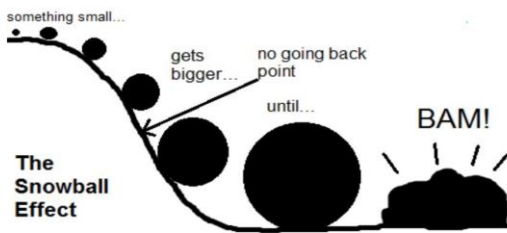
Source: Bloomberg

Capital Markets: A new home in Canada requires \$100k in infrastructure

We have to believe this is an issue for any North American city (and even moreso for towns) that has rapidly growing population – it’s infrastructure is aging and it isn’t adding enough infrastructure to support the growing population. Early Saturday mornings, we try to catch Amanda Lang’s Taking Stock as she normally highlights topical subjects and issues on the Cdn economy. Yesterday morning she caught our attention with her view that each new home requires ~\$100,000 in new infrastructure. The aging and shortfall in infrastructure is something we all notice in our daily lives – our towns and cities infrastructure isn’t keeping pace with growth in population in Alberta. The most visible is always the yearly growing pothole problem. But it’s more than roads. And as Amanda reminded – the infrastructure problem is growing. And the other issue is that just gets pushed down to municipalities. Yesterday, we posted [LINK](#) “Snowball effect! “Canada’s cities are suffering from an infrastructure deficit with aging roads & bridges just the start. As we aim to build more homes, the gap will only be getting bigger since every new home requires up to \$100k worth of new infrastructure” @AmandaLang on @CANURB data. Need federal/provincial/municipal govts to recognize & deal with this accelerating problem before it’s unstoppable. Thx Amanda for interesting economy issues on @takingstockca #OTT.” Below is the picture we included with our post.

Canada’s infrastructure problem

Figure 65: 2024 The Snowball Effect



Source: SlideServe

Source: SlideServe

Demographics: Beijing population hit 21.858 million in 2023 incl 22.6% over 60 years

Earlier this morning, Global Times (state media) reported “Beijing’s population hit 21.858 million in 2023, up by 15,000 from previous year: blue book” [LINK](#) And this YoY increase is “reflecting population stability”. It may be population stability in terms of essentially flat YoY

Beijing 21.858 million population

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total numbers but the real question for Beijing and most countries is how does a rapidly aging population effect population stability. Global Times also noted that Beijing’s population is rapidly aging. They wrote “In 2023, the elderly population aged 60 and above in Beijing reached 4.948 million, accounting for 22.6 percent of the resident population, with a significant increase compared to 2022. The proportion of children, however, decreased to 12 percent. Although the total dependency ratio has risen yearly, increasing from 20.9 percent in 2010 to 38.7 percent in 2023.” Our Supplemental Documents package includes the Global Times report.

Beijing ranks #8 in most populous cities

We recognize that there are different ranking systems on what part of urban sprawl is included in a city’s population. But using the World Population Review “Largest Cities by population 2024” [LINK](#), Beijing is ranked #8.

Figure 66: Largest Cities by population 2024

RANK	CITY	COUNTRY	2024 POP. ↓	2023 POP.	CHANGE
1	Tokyo	Japan	37,115,000	37,194,100	-0.21%
2	Delhi	India	33,807,400	32,941,300	2.63%
3	Shanghai	China	29,867,900	29,210,800	2.25%
4	Dhaka	Bangladesh	23,935,700	23,209,600	3.13%
5	Sao Paulo	Brazil	22,806,700	22,619,700	0.83%
6	Cairo	Egypt	22,623,900	22,183,200	1.99%
7	Mexico City	Mexico	22,505,300	22,281,400	1%
8	Beijing	China	22,189,100	21,766,200	1.94%
9	Mumbai	India	21,673,100	21,296,500	1.77%
10	Osaka	Japan	18,967,500	19,013,400	-0.24%

Source: World Population Review

Demographics: NRF reports 197 million shoppers during U.S. Thanksgiving weekend

On Tuesday, the National Retail Federation (NRF) released their report for shopping figures over the U.S. Thanksgiving weekend [LINK](#). The NRF reported that there were 197.0 million shoppers which is down -3.4 million when compared to the all-time record of 200.4 million in 2023. The data also showed that 86% of shoppers purchased gifts for the holidays, spending an average of \$235 on others, which is up +\$8 YoY. The NRF wrote “The five-day holiday weekend from Thanksgiving through Cyber Monday saw an estimated 197 million shoppers... Even with this year’s shortened shopping period and the multitude of early sales promotions from retailers, this past weekend exceeded expectations in terms of the sheer volume of shoppers”. In-store purchases were made by 121.4 million consumers, and online purchases were made by 124.3 million consumers. The NRF also noted the top destinations, as a percentage of U.S. shoppers; 42% of consumers shopped at department stores, 42% shopped online, 40% shopped at grocery stores and supermarkets, 37% shopped at clothing and accessories stores, and 32% shopped at discount stores. Our Supplemental Documents package includes the NRF report.

Thanksgiving weekend shopping 2nd highest ever

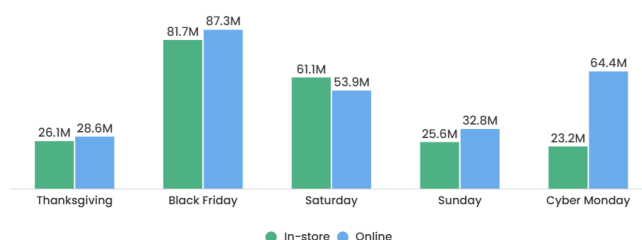
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Figure 67: 2024 Thanksgiving weekend shoppers:



Source: NRF

Figure 68: 2024 Thanksgiving weekend in-store and online shoppers by day:



Source: NRF

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

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, I am 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. My Twitter/X handle is @Energy_Tidbits and can be followed at [\[LINK\]](#). I wanted to use Energy Tidbits since I have been writing Energy Tidbits memos for over 20 consecutive years. Please take a look thru my tweets and you can see I don't just retweet other tweets. Rather I try to use Twitter for early views on energy items. Our Supplemental Documents package includes our tweets this week.

**@Energy_Tidbits
on Twitter**

Misc Facts and Figures.

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

Wine of the week: Ramey Claret 2003

In August, I started the wine of the week when I realized I had to get to opening up some wines bought 20 to 30 years ago that included some that, unfortunately, were getting past their prime. One of the negatives of the change in life from Covid was a huge absence of entertaining at home, which means there has been a big shortfall in wine drinking at our home. So am now making sure what, when I bought them 15-25 years ago, were some good wines and make sure bottles get opened especially as many are 20 to 40 years old. On Friday, I tweeted out the wine of the week, which

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was Ramey Claret 2003. It was okay but was much better when I drank the first couple bottles ten years ago. I used to buy the Ramey Claret every year in the early 2000s.

Figure 69: Ramey Claret 2003



Source: SAF Group

Petrolia is where the oil industry started in California, Canada & Pennsylvania

The USGS reported that this week's 7.0 earthquake was off the coast of California west of the town of Petrolia, California. There is also a Petrolia in Ontario and in Pennsylvania and all three Petrolia's are named this because they were the start of the oil industry in Canada, California and Pennsylvania. Here is what we wrote in our June 23, 2019 Energy Tidbits memo. "California 5.6 earthquake reminds of history of oil patch. Last night, there was a 5.6 earthquake that hit Petrolia (California) in a relatively uninhabited part of northern California. We just checked (7am MT) and the only reports are no injuries or major damages. Wikipedia says Petrolia is a community of 300 to 500 people. The 5.6 earthquake should not have any impact on oil and gas as there isn't any major oil and gas infrastructure or production in that area. A 5.6 earthquake is not the norm in California. The reports on last night's earthquake say that there are normally only 5 earthquakes per year in California/Nevada that are over 5.0. This week, there were a lot of stories on the swarm of earthquakes (small ones) hitting California, mostly in southern California. Besides being a 5.6 earthquake, this will catch any oil person's eye because its at Petrolia. Petrolia is a famous name in the oil patch. Petrolia is also the name of a city in SW Ontario and in Pennsylvania. Petrolia California is the site of the first producing California oil well in 1865. Petrolia PA is one of the early PA oil boom towns and with oil wells in 1872. Petrolia Ontario is generally considered where the North American oil industry started in the early 1850's.

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