

Energy Tidbits

December 22, 2024

Produced by: Dan Tsubouchi

Putin Says Not Russia's Problem That Its Pipeline Natural Gas Flowing to EU Thru Ukraine Stops on Dec 31

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. HH was +\$0.47 to \$3.75 despite warm temps over Xmas/New Years driven up by Putin confirming Russian pipeline natural gas to Europe via Ukraine will stop flowing on Dec 31. [\[click here\]](#)
2. Chinese consumer continues to get hit by another month of declining new and 2nd hand home values. [\[click here\]](#)
3. EU's BEV sales continue to be weak, -9.5% YoY in Nov and now -5.4% YoY for YTD Nov 30. [\[click here\]](#)
4. IEA makes big upward revision to its coal consumption forecast moving away from peak coal consumption in 2023 to "could" plateau in 2027. [\[click here\]](#)
5. NERC's electricity reliability new 10-yr forecasts highlights natural gas as the critical fuel to meet its huge YoY increase to its electricity demand forecast. [\[click here\]](#)
6. Wishing everyone a Merry Christmas!
7. Please follow us on Twitter at [\[LINK\]](#) for breaking news that ultimately ends up in the weekly Energy Tidbits memo that doesn't get posted until Sunday noon MT.
8. For new readers to our Energy Tidbits and our blogs, you will need to sign up at our blog sign up to receive future Energy Tidbits memos. The sign up is available at [\[LINK\]](#)

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Natural Gas: -125 bcf draw in US gas storage; now +20 bcf YoY

HH was up \$0.21 on Thursday to \$3.58 following a 47 bcf narrowing of the YoY storage surplus from +67 bcf YoY last week to +20 bcf YoY . For the week ending Dec 13, 2024, the EIA reported a -125 bcf draw [\[LINK\]](#). Total storage is now 3.622 tcf, representing a surplus of +20 bcf YoY compared to a surplus of +67 bcf last week. It wasn't so much that it was cold for the Dec 13 week, rather it is that the comps are to Dec 2023, which was the hottest Dec 1 the last 129 years. 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 two weeks ago we saw the storage once again rise above the max, but this week returned to below this figure. The week of Dec 13, 2024, saw storage come in -336 bcf below the previous 5-yr maximum of 3.958 tcf. Total storage is now +132 bcf above the 5-year average, below last week's +165 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.

-125 bcf draw in US gas storage

Figure 1: US Natural Gas Storage

Region	Stocks billion cubic feet (Bcf)				Historical Comparisons			
	12/13/24	12/06/24	net change	implied flow	Year ago (12/13/23)		5-year average (2019-23)	
East	822	856	-34	-34	841	-2.3	833	-1.3
Midwest	1,007	1,055	-48	-48	1,031	-2.3	1,002	0.5
Mountain	274	282	-8	-8	238	15.1	204	34.3
Pacific	296	302	-6	-6	285	3.9	262	13.0
South Central	1,222	1,251	-29	-29	1,208	1.2	1,189	2.8
Salt	338	340	-2	-2	332	1.8	333	1.5
Nonsalt	884	911	-27	-27	875	1.0	856	3.3
Total	3,622	3,747	-125	-125	3,602	0.6	3,490	3.8

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/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
Dec/06	3,747	-190	67	165
Dec/13	3,622	-125	20	132

Source: EIA

Natural Gas: Putin/Zelensky drive up HH prices despite warm weather for Lower 48

We always say warm end of Dec and start to Jan is never a positive for natural gas prices. But it was a great week for HH gas prices with Putin saying no more flows of Russia natural gas via Ukraine starting Jan 1 is not his problem. This is forcing Europe to look for US LNG and other LNG to replace Russian natural gas via Ukraine. On Friday, we posted [\[LINK\]](#) "Great week for HH #NatGas +\$0.47 WoW to \$3.75. Despite continued @NOAA temperature forecasts for much warmer than normal temps in the coming days. 📌 post, Putin says not his problem that RUS pipeline NatGas stops flowing via UKR to Europe on Jan 1. NatGas LNG,

Putin drives up HH prices

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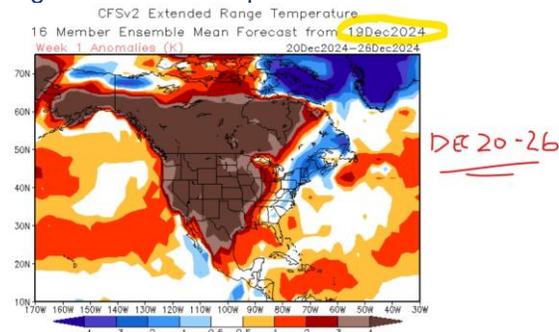
incl HH, up with Europe having to replace RUS pipeline gas. #OOTT.” Normally, continued forecasts for warmer than normal temperatures across the Lower 48 this week would send HH prices crashing lower. But that wasn’t the case and HH was up strong to finish the week at \$3.75. It is a great reminder that HH prices can be impacted by global natural gas/LNG supply issues and not just how cold it is in Dec. Earlier this morning, we posted [LINK](#) “Just came off a great week for HH +\$0.47 to \$3.75 driven by Putin/Zelensky confirming no more RUS #NatGas via pipeline to EU on Jan 1. Even in face of continued @NOAA forecasts for warmer than normal temps for end of Dec/start to Jan. #OOTT.” Our post included NOAA’s Sat updated 6-10 and 8-14 day temperature outlook which also call for much warmer than normal temperatures across the Lower 48 to end Dec and start Jan. Below are NOAA’s temperature forecast maps for Dec 20-26 and Dec 27-Jan 2, and yesterday’s 6-10 and 8-14 day temperature outlooks that were attached to our posts.

Figure 3: HH gas prices to Dec 20



Source: Bloomberg

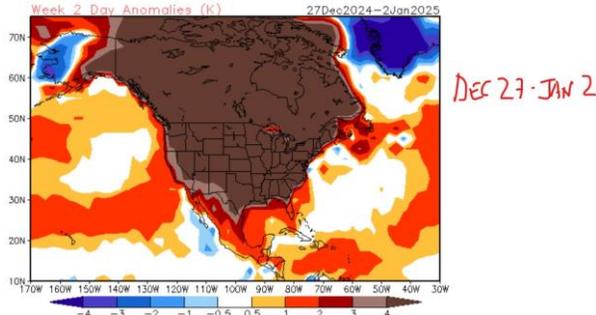
Figure 4: NOAA temperature forecast Dec 20-26



Source: NOAA

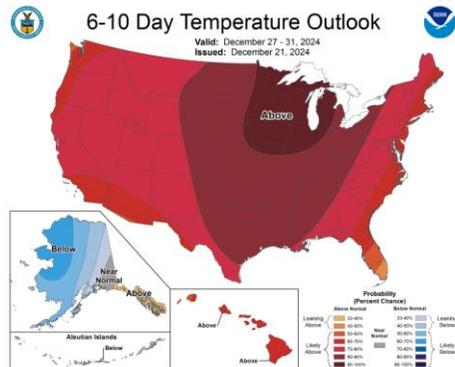
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Figure 5: NOAA temperature forecast Dec 27-Jan 2



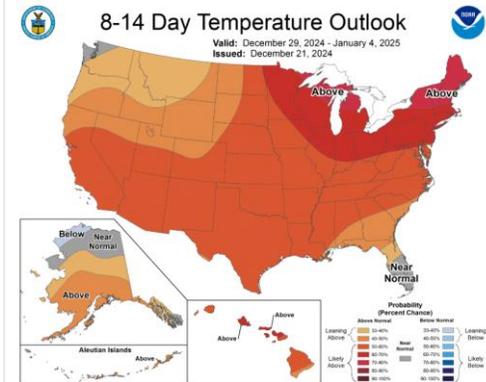
Source: NOAA

Figure 6: NOAA 6-10 day temperature outlook made Dec 21



Source: NOAA

Figure 7: NOAA 8-14 day temperature outlook made Dec 21



Source: NOAA

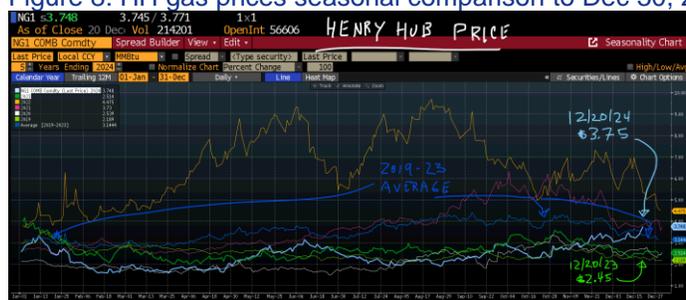
Natural Gas: Tough for HH prices to catch up if it's warm to end Dec/start Jan
HH prices had a big win this week driven by global natural gas supply issues as Putin

Risk to HH prices to end Dec

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confirmed Russian pipeline natural gas will stop flowing to Europe via Ukraine on Dec 31. This has been in the face of continued NOAA forecasts for a much warmer than normal end to Dec and start to Jan. Our concern has been that normally a warm end to Dec/start to Jan (normally part of the peak winter temperature demand for natural gas) leads to HH gas prices starting a slope down that doesn't recover in the winter. Here is the Bloomberg weekly graph as of the Friday Dec 20 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 just adds up to a reason to be cautious on natural gas.

Figure 8: HH gas prices seasonal comparison to Dec 30, 2024 close



Source: Bloomberg

Natural Gas: NOAA expects generally warmer than normal temp for Jan

We have always said a warm Dec and Jan is never a positive for HH gas prices. But it looks like, at least for now, HH gas prices are being driven more by global supply concerns in Europe with it looking like Russia natural gas will stop flowing thru Ukraine on Dec 31 more so than the normal how cold is it in Dec and in Jan. But, ultimately, a warm end of Dec/start to Jan will have some sort of negative impact on HH gas prices. On Thursday, the NOAA posted its 30-day forecast for January and it looks like temperature probability call for warmer than normal temperatures, on average, for the Lower 48. NOAA forecasts above normal temperatures in the South and populous NE, with the rest of the lower 48 forecasted to have equal chances of above or below average temperatures. We recognize that weather forecasts are far from 100% accurate, but near-term forecasts tend to have greater accuracy. Below is the NOAA temperature probability outlook forecast for January released on Dec 19.

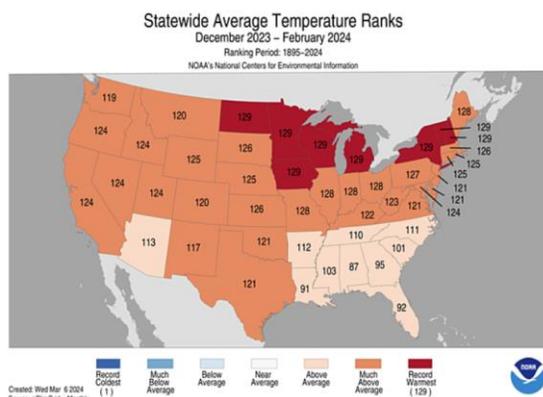
Forecast for a mixed Jan

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NOAA, winter 2023/24 was the hottest on record

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

Figure 11: NOAA Historical US Temperature Ranks by State – Dec/Jan/Feb 2023/24



Source: NOAA

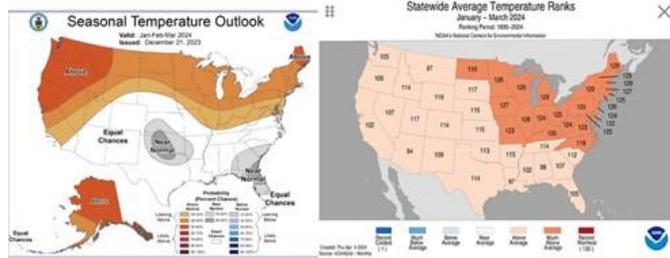
Natural Gas: Last 2 JFM actual temperatures were warmer than NOAA Dec forecasts

We always say weather forecasts are far from 100%. We looked back at NOAA’s Dec seasonal forecasts for Jan/Feb/Mar for 2022, 2023 and 2024. On Thursday, we tweeted [\[LINK\]](#) “Lookback at @NOAA’s Dec seasonal forecasts. Dec 2023 fcast JFM warmer than normal, actual JFM was 4th warmest in 130 yrs. Dec 2022 fcast JFM warmer than normal, actual JFM was 20th warmest in 129 yrs. @Josh_Young_1 #OOTT.” Dec 2021 fcast was for much warmer than normal JFM, actual was 45th warmest in 128 yrs. So at least based on the last two Dec forecasts, JFM actuals turned out even warmer than NOAA’s call for warmer than normal temps. Below are the forecast vs actual temperature maps we attached to our tweet.

Actual JFM vs NOAA’s Dec Forecast

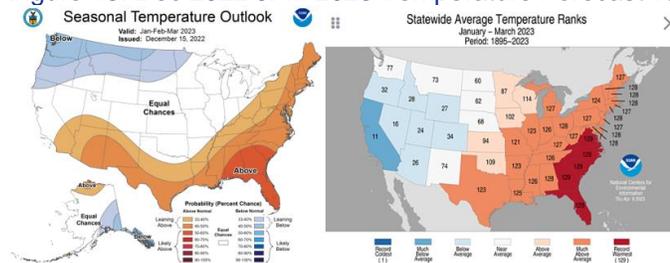
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Figure 12: Dec 2023 JFM 2024 Temperature Forecast vs Actual JFM 2024 Temperature



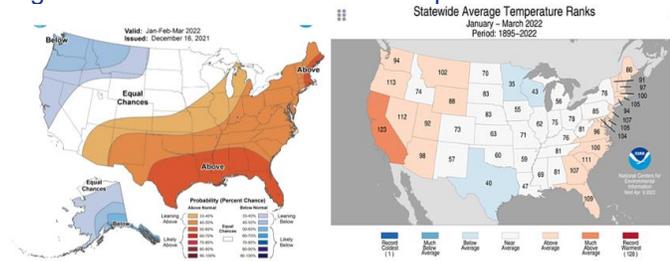
Source: NOAA
Source: NOAA

Figure 13: Dec 2022 JFM 2023 Temperature Forecast vs Actual JFM 2023 Temperature



Source: NOAA
Source: NOAA

Figure 14: Dec 2021 JFM 2022 Temperature Forecast vs Actual JFM 2022 Temperature



Source: NOAA
Source: NOAA

Natural Gas: AAV, WCSB gas markets undersupplied in H2/25 w/ LNG Canada Phase 1

Last week's (Dec 15, 2024) Energy Tidbits memo highlighted Advantage Energy calling for Western Canada natural gas markets to move to undersupply in H2/25. This seemed to surprise many people. Here is what we wrote in last week's memo. "AAA, WCSB gas markets undersupplied in H2/25 w/ LNG Canada Phase 1. We were surprised by the number of people who were surprised by our Tuesday post [\[LINK\]](#) on Advantage Energy calling for the WCSB gas markets being natural gas undersupplied in H2/25 driven primarily by the expected start of commercial LNG cargoes from LNG Canada 1.8 bcf/d Phase 1. We posted "Long awaited positive AECO #NatGas basis tightening is soon to happen in H2/25 says \$AAV. "WCSB gas markets likely to become undersupplied from 2H25 to 2027" Key driver is startup of #LNGCanada 1.8 bcf/d Phase 1 but also intra Alberta demand growth ie. oil sands, petrochemicals. #OOTT." Our surprise is that either forgot about or didn't believe LNG

WCSB gas markets move to undersupply in H2/25

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Canada 1.8 bcf/d Phase 1 would be moving into commercial LNG cargoes. Advantage posted a new investor slide deck with the below chart on WCSB gas markets moving to undersupply in H2/25 for a period of 18 months. And then Advantage highlights the mid-longer term natural gas demand factors that should lead to increased call on WCSB natural gas.”

Figure 15: WCSB Natural Gas Markets to move to undersupply



Source: Advantage Energy

Natural Gas: ADNOC signs long-term 0.08 bcf/d LNG deal with EnBW

On Monday, ADNOC announced that the company signed a long-term LNG sales agreement with EnBW for 0.08 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 third Sales and Purchase Agreement (SPA) for the lower-carbon Ruwais liquefied natural gas (LNG) project, with Germany’s EnBW Energie Baden-Württemberg AG (EnBW), one of the largest operators of energy infrastructure in Germany and across Europe. The 15-year SPA for supplying 0.6 million tonnes per annum (mtpa) of LNG converts a previous Heads of Agreement between ADNOC and EnBW into a definitive agreement”. The Executive Vice President, Downstream Business Management at ADNOC, Fatema Al Nuaimi, said: “We are very pleased to partner with EnBW, one of the largest energy supply companies in Germany, in our second Sales and Purchase Agreement to the country from the Ruwais LNG project. This partnership underscores ADNOC’s dedication to fostering sustainable and strategic energy collaborations. By supplying lower-carbon LNG to EnBW, we are not only enhancing our partner’s energy security but also contributing to decarbonization efforts, reaffirming ADNOC’s position as a trusted partner in the evolving energy landscape”. Our Supplemental Documents Package includes the ADNOC press release.

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

Natural Gas: Energy Transfer signs long-term 0.26 bcf/d LNG deal with Chevron

On Thursday, Energy Transfer announced that the company signed a long-term LNG sales agreement with Chevron for 0.26 bcf/d for 20-years, which we are projecting to begin in 2026 with the start-up of the Lake Charles facility [\[LINK\]](#). The fuel will be supplied on a free-on-board basis from the Lake Charles LNG facility. The press release said “Energy Transfer LNG Export, LLC, has entered into a 20-year LNG Sale and Purchase Agreement (SPA) with Chevron U.S.A. Inc. related to its Lake Charles LNG project. Under the SPA, Energy Transfer

**Energy Transfer
/ Chevron sign
LT LNG supply
deal**

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LNG will supply 2.0 million tonnes of LNG per annum (mtpa) to Chevron. The LNG will be supplied on a free-on-board (FOB) basis and the purchase price will consist of a fixed liquefaction charge and a gas supply component indexed to the Henry Hub benchmark". The President of Energy Transfer LNG, Tom Mason, said: "We believe that Lake Charles is the most compelling LNG project on the Gulf Coast and we continue to make significant progress towards full commercialization of this project". Our Supplemental Documents Package includes the Energy Transfer press release.

There have been 27.99 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 27.99 bcf/d of long-term LNG deals since July 1, 2021. 64% 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.

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Figure 16: Long-Term LNG Buyer Deals Since July 1, 2021

Long-Term LNG Buyer Deals Since July 1, 2021										Long-Term LNG Buyer Deals Since July 1, 2021													
Date	Buyer	Seller	Country	Volume (bct/d)	Start	End	Date	Buyer	Seller	Country	Volume (bct/d)	Start	End	Date	Buyer	Seller	Country	Volume (bct/d)	Start	End			
Jul 7, 2021	CH2DCC	Chiyoh	China / Canada	0.30	10.0	2022	2022	Jul 25, 2021	PNIG	Venture Global LNG	France / US	0.28	2020	2023	2023	Jul 25, 2021	PNIG	Venture Global LNG	France / US	0.28	2020	2023	2023
Jul 9, 2021	CPC	Chiyoh	France / Qatar	0.16	15.0	2022	2027	Nov 12, 2021	Enbridge	Chiyoh	France / US	0.11	2020	2023	2023	Nov 12, 2021	Enbridge	Chiyoh	France / US	0.11	2020	2023	2023
Jul 9, 2021	Guangzhou Gas	Chiyoh	China / US	0.13	12.0	2022	2024	Mar 7, 2022	Shell	Venture Global LNG	US / US	0.26	2020	2024	2024	Mar 7, 2022	Shell	Venture Global LNG	US / US	0.26	2020	2024	2024
Jul 12, 2021	Korea Gas	Chiyoh	Korea / Qatar	0.25	20.0	2023	2043	Mar 18, 2022	NRC	Venture Global LNG	US / US	0.13	2020	2023	2043	Mar 18, 2022	NRC	Venture Global LNG	US / US	0.13	2020	2023	2043
Sep 20, 2021	CH2DCC	Chiyoh	China / Qatar	0.30	15.0	2022	2037	Mar 18, 2022	NRC	Venture Global LNG	US / US	0.13	2020	2023	2043	Mar 18, 2022	NRC	Venture Global LNG	US / US	0.13	2020	2023	2043
Oct 7, 2021	Shell	BP	China / US	0.04	10.0	2022	2032	May 2, 2022	Enbridge	NextDecade	France / US	0.23	1.50	2022	2041	May 2, 2022	Enbridge	NextDecade	France / US	0.23	1.50	2022	2041
Oct 11, 2021	ENR	Chiyoh	China / US	0.12	11.0	2022	2035	May 17, 2022	PNIG	Sempra Infrastructure	France / US	0.40	2020	n.a.	n.a.	May 17, 2022	PNIG	Sempra Infrastructure	France / US	0.40	2020	n.a.	n.a.
Nov 4, 2021	Unicac	Venture Global LNG	China / US	0.46	20.0	2023	2043	May 25, 2022	TRM Supply & Trading	Sempra Infrastructure	Germany / US	0.30	1.50	n.a.	n.a.	May 25, 2022	TRM Supply & Trading	Sempra Infrastructure	Germany / US	0.30	1.50	n.a.	n.a.
Nov 4, 2021	Shengac	Venture Global LNG	China / US	0.03	20.0	2023	2043	Jun 3, 2022	Equator	Chiyoh	Norway / US	0.23	1.50	2028	2041	Jun 3, 2022	Equator	Chiyoh	Norway / US	0.23	1.50	2028	2041
Nov 9, 2021	Shengac	Chiyoh	China / US	0.12	11.0	2022	2040	Jun 21, 2022	ENBW	Venture Global LNG	Germany / US	0.20	2020	2028	2040	Jun 21, 2022	ENBW	Venture Global LNG	Germany / US	0.20	2020	2028	2040
Nov 22, 2021	Fosen	Chiyoh	China / US	0.50	20.0	2023	2043	Jun 22, 2022	INEOS Energy	Sempra Infrastructure	UK / US	0.21	2020	2027	2047	Jun 22, 2022	INEOS Energy	Sempra Infrastructure	UK / US	0.21	2020	2027	2047
Dec 6, 2021	Guangzhou Energy	Chiyoh	China / Qatar	0.13	10.0	2024	2034	Jun 22, 2022	Chiyoh	Venture Global LNG	US / US	0.28	2020	n.a.	n.a.	Jun 22, 2022	Chiyoh	Venture Global LNG	US / US	0.28	2020	n.a.	n.a.
Dec 6, 2021	S&I International	Chiyoh	China / Qatar	0.13	15.0	2022	2037	Jun 22, 2022	Chiyoh	Chiyoh	US / US	0.26	1.50	2021	2042	Jun 22, 2022	Chiyoh	Chiyoh	US / US	0.26	1.50	2021	2042
Dec 10, 2021	Suzhou Green Energy	Chiyoh	China / Qatar	0.13	15.0	2022	2037	Jul 12, 2022	Shell	Mexico Pacific Ltd	US / Mexico	0.34	2020	2028	2048	Jul 12, 2022	Shell	Mexico Pacific Ltd	US / Mexico	0.34	2020	2028	2048
Dec 15, 2021	SFC Guangzhou	BP	China / US	0.03	10.0	2023	2033	Jul 13, 2022	Vitol	Defin Midstream	US / US	0.07	1.50	n.a.	n.a.	Jul 13, 2022	Vitol	Defin Midstream	US / US	0.07	1.50	n.a.	n.a.
Dec 20, 2021	CH2DCC Gas & Power	Venture Global LNG	China / US	0.28	20.0	2023	2043	Aug 9, 2022	Centrica	Defin Midstream	UK / US	0.13	1.50	2028	2041	Aug 9, 2022	Centrica	Defin Midstream	UK / US	0.13	1.50	2028	2041
Dec 20, 2021	Fosen	Venture Global LNG	China / US	0.01	10.0	2023	2032	Aug 24, 2022	Shell	Energy Transfer	US / US	0.28	2020	2028	2048	Aug 24, 2022	Shell	Energy Transfer	US / US	0.28	2020	2028	2048
Jan 11, 2022	ENR	NextDecade	China / Russia	0.08	11.0	2024	2035	Oct 6, 2022	ENR	Venture Global LNG	Germany / US	0.28	2020	2022	2042	Oct 6, 2022	ENR	Venture Global LNG	Germany / US	0.28	2020	2022	2042
Jan 11, 2022	Jhansiy Energy	NextDecade	China / Russia	0.13	15.0	2024	2035	Dec 5, 2022	ENR	Sempra Infrastructure	France / US	0.12	1.50	n.a.	n.a.	Dec 5, 2022	ENR	Sempra Infrastructure	France / US	0.12	1.50	n.a.	n.a.
Feb 4, 2022	CPC	Chiyoh	China / Russia	0.08	10.0	2023	2033	Dec 20, 2022	Gap	NextDecade	France / US	0.13	2020	n.a.	n.a.	Dec 20, 2022	Gap	NextDecade	France / US	0.13	2020	n.a.	n.a.
Mar 24, 2022	Guangzhou Energy	NextDecade	China / US	0.20	20.0	2028	2048	Dec 20, 2022	Shell	Orion LNG	UK/China	0.11	1.00	2025	2035	Dec 20, 2022	Shell	Orion LNG	UK/China	0.11	1.00	2025	2035
Mar 26, 2022	ENR	Energy Transfer	China / US	0.36	20.0	2028	2048	Jan 25, 2023	PRN OPLEN	Sempra Infrastructure	USA/US	0.13	2020	2027	2047	Jan 25, 2023	PRN OPLEN	Sempra Infrastructure	USA/US	0.13	2020	2027	2047
Apr 5, 2022	Guangzhou Gas	NextDecade	Mexico / Mexico	0.28	20.0	n.a.	n.a.	Jan 30, 2023	SCOR	Orion	Turkey / Oman	0.13	1.00	2025	2035	Jan 30, 2023	SCOR	Orion	Turkey / Oman	0.13	1.00	2025	2035
Apr 8, 2022	ENR	NextDecade	China / US	0.28	20.0	2028	2028	Mar 27, 2023	Shell	Mexico Pacific Ltd	UK / Mexico	0.15	2020	n.a.	n.a.	Mar 27, 2023	Shell	Mexico Pacific Ltd	UK / Mexico	0.15	2020	n.a.	n.a.
Apr 22, 2022	Kooper	BP	Korea / US	0.20	18.0	2025	2043	Apr 24, 2023	Marine Partners LP	US / US	0.08	2020	n.a.	n.a.	Apr 24, 2023	Marine Partners LP	US / US	0.08	2020	n.a.	n.a.		
May 2, 2022	Garma Singapore Pte	Energy Transfer LNG	Singapore / US	0.28	20.0	2028	2048	Jun 21, 2023	Equator	Chiyoh	Norway / US	0.23	1.50	2027	2042	Jun 21, 2023	Equator	Chiyoh	Norway / US	0.23	1.50	2027	2042
May 2, 2022	S&I Gas Trading Ltd	Energy Transfer LNG	Korea / US	0.09	18.0	2028	2042	Jun 22, 2023	SCOR	Venture Global LNG	USA/US	0.30	2020	2028	2048	Jun 22, 2023	SCOR	Venture Global LNG	USA/US	0.30	2020	2028	2048
May 10, 2022	Enbridge	NextDecade	China / US	0.28	n.a.	n.a.	n.a.	Jul 14, 2023	ONE (Monaco)	Shell	Alcoa/US	0.05	1.20	2024	2038	Jul 14, 2023	ONE (Monaco)	Shell	Alcoa/US	0.05	1.20	2024	2038
May 11, 2022	Palone LNG	Venture Global LNG	Malaysia / US	0.13	20.0	n.a.	n.a.	Jul 15, 2023	KOC	Adnoc	India/UAE	0.16	1.40	2028	2040	Jul 15, 2023	KOC	Adnoc	India/UAE	0.16	1.40	2028	2040
May 24, 2022	NextDecade	NextDecade	China / US	0.08	10.0	2023	2033	Jul 25, 2023	OMV	BP	Austria/UK	0.13	1.00	2028	2038	Jul 25, 2023	OMV	BP	Austria/UK	0.13	1.00	2028	2038
May 25, 2022	POSCO International	Chiyoh	Korea / US	0.05	20.0	2028	2038	Aug 4, 2023	ConocoPhillips	Mexico Pacific Ltd	US/Mexico	0.20	2020	2025	2040	Aug 4, 2023	ConocoPhillips	Mexico Pacific Ltd	US/Mexico	0.20	2020	2025	2040
June 2, 2022	China Gas Holdings	Energy Transfer	China / US	0.09	20.0	2028	2035	Aug 22, 2023	GAFF	Chiyoh	Germany / US	0.10	1.70	2028	2043	Aug 22, 2023	GAFF	Chiyoh	Germany / US	0.10	1.70	2028	2043
Jun 5, 2022	China Gas Holdings	NextDecade	China / US	0.03	20.0	2027	2047	Aug 30, 2023	Shell	Orion LNG	US / China	0.11	1.00	2025	2035	Aug 30, 2023	Shell	Orion LNG	US / China	0.11	1.00	2025	2035
Jun 21, 2022	NextDecade	Chiyoh	China / US	0.24	20.0	2028	2035	Oct 11, 2023	TotalEnergies	Chiyoh	France / Qatar	0.46	2.70	2028	2033	Oct 11, 2023	TotalEnergies	Chiyoh	France / Qatar	0.46	2.70	2028	2033
Jul 28, 2022	PTT Global	Chiyoh	Thailand / US	0.13	20.0	2028	2048	Oct 18, 2023	Shell	Chiyoh	Netherlands / Qatar	0.46	2.70	2028	2033	Oct 18, 2023	Shell	Chiyoh	Netherlands / Qatar	0.46	2.70	2028	2033
Jul 27, 2022	Enbridge Asia Pacific	NextDecade	Singapore / US	0.13	20.0	2028	2048	Oct 23, 2023	ENR	Chiyoh	Italy / Qatar	0.13	2.70	2028	2033	Oct 23, 2023	ENR	Chiyoh	Italy / Qatar	0.13	2.70	2028	2033
Sep 1, 2022	Woodside	NextDecade	Chiyoh	0.13	20.0	2028	2048	Oct 31, 2023	Vitol	Chiyoh	Sweden / US	0.13	1.50	2028	2043	Oct 31, 2023	Vitol	Chiyoh	Sweden / US	0.13	1.50	2028	2043
Sep 21, 2022	Shengac	Chiyoh	China / Qatar	0.53	27.0	2028	2033	Nov 20, 2023	OMV	Chiyoh	Netherlands / US	0.11	1.50	2020	2044	Nov 20, 2023	OMV	Chiyoh	Netherlands / US	0.11	1.50	2020	2044
Dec 26, 2022	INRA	Venture Global LNG	Japan / US	0.13	20.0	n.a.	n.a.	Dec 5, 2023	Woodside Energy	Mexico Pacific Ltd	Australia / Mexico	0.17	2.00	2024	2044	Dec 5, 2023	Woodside Energy	Mexico Pacific Ltd	Australia / Mexico	0.17	2.00	2024	2044
Jan 21, 2023	ENR	Orion LNG	Japan / Oman	0.11	10.0	2025	2035	Mar 16, 2024	SCOR	ADNOC	Germany / UAE	0.13	2.00	2024	2044	Mar 16, 2024	SCOR	ADNOC	Germany / UAE	0.13	2.00	2024	2044
Jan 19, 2023	ROCHU	NextDecade	Mexico / Mexico	0.13	20.0	n.a.	n.a.	Apr 17, 2024	Shell	Orion LNG	US / China	0.21	1.00	2025	2035	Apr 17, 2024	Shell	Orion LNG	US / China	0.21	1.00	2025	2035
Feb 7, 2023	Enbridge Asia Pacific	Mexico Pacific Ltd	Singapore / Mexico	0.28	20.0	n.a.	n.a.	Apr 22, 2024	TotalEnergies	Orion LNG	France / Oman	0.11	1.00	2025	2035	Apr 22, 2024	TotalEnergies	Orion LNG	France / Oman	0.11	1.00	2025	2035
Feb 21, 2023	China Gas Holdings	Venture Global LNG	China / US	0.28	20.0	n.a.	n.a.	May 5, 2024	ENBW	ADNOC	Germany / UAE	0.08	1.50	2028	2043	May 5, 2024	ENBW	ADNOC	Germany / UAE	0.08	1.50	2028	2043
Mar 6, 2023	Garma Singapore Pte	Chiyoh	China / US	0.28	20.0	n.a.	n.a.	June 13, 2024	Saudi Aramco	NextDecade	Saudi Arabia / US	0.16	2.00	2020	2040	June 13, 2024	Saudi Aramco	NextDecade	Saudi Arabia / US	0.16	2.00	2020	2040
Apr 28, 2023	INRA	Venture Global LNG	Japan / US	0.13	20.0	n.a.	n.a.	June 28, 2024	Saudi Aramco	Sempra Infrastructure	Saudi Arabia / US	0.08	2.00	2020	2040	June 28, 2024	Saudi Aramco	Sempra Infrastructure	Saudi Arabia / US	0.08	2.00	2020	2040
May 16, 2023	KOBEKO	Chiyoh	Korea / US	0.05	18.0	2027	2048	July 23, 2024	Tuvalu	ConocoPhillips	Belgium / US	0.10	1.80	2027	2040	July 23, 2024	Tuvalu	ConocoPhillips	Belgium / US	0.10	1.80	2027	2040
Jun 1, 2023	Shengac	Chiyoh	Singapore / Qatar	0.24	15.0	2028	2037	Aug 9, 2024	Gap	Chiyoh	France / US	0.07	2.00	2020	2030	Aug 9, 2024	Gap	Chiyoh	France / US	0.07	2.00	2020	2030
Jun 21, 2023	Chiyoh	Chiyoh	Singapore / Qatar	0.33	27.0	2027	2034	Sep 19, 2024	Galena	Commonwealth LNG	Switzerland / US	0.28	2.00	2028	2048	Sep							

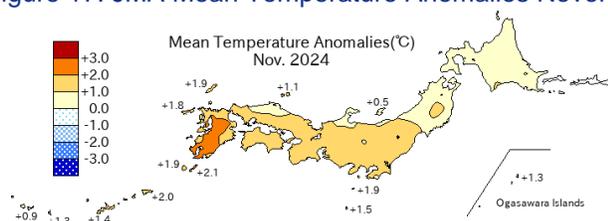
company's equity interests in the Chevron-operated Gorgon and Wheatstone facilities, and the North West Shelf Venture... From fuelling high heat manufacturing processes, such as in alumina, to providing a flexible energy source for electricity generation, reliable gas supply plays a crucial role in supporting WA's energy security and economic development". The Managing Director of Chevron Australia said: "As one of WA's largest domestic gas producers, we're proud to continue our relationship with Alcoa's WA operations which we've supplied from our portfolio since 2020". Our Supplemental Documents Package includes the Chevron press release.

Natural Gas: Japan saw above average temperatures in November

It was warmer than normal in Japan in November, which means there was no significant weather driven natural gas demand. Rather we need to see colder weather to drive electricity and natural gas demand. On Thursday, the Japan Meteorological Agency posted its climate recap for November [\[LINK\]](#). The JMA reported that monthly mean temperatures were significantly above normal in Western Japan and Okinawa/Amami, and above average in northern and eastern Japan. The JMA wrote "Monthly mean temperatures were significantly above normal in western Japan and Okinawa/Amami, and above normal in northern/eastern Japan, because Japan was less affected by cold air". Below is a temperature map of Japan for November.

November's temperature recap in Japan

Figure 17: JMA Mean Temperature Anomalies November 2024



Source: Japan Meteorological Agency

Natural Gas: JMA forecasts see colder than normal temps in Japan for Dec and Jan

In Japan, the weather turned colder in Dec and that is expected to continue as the JMA forecasts colder than normal temperatures for the rest of Dec, and the first three weeks of Jan. On Thursday, the Japan Meteorological Agency updated its temperature forecast for the next 30 days, Dec 21 - Jan 20, in Japan [\[LINK\]](#). There is no JMA commentary on the forecast. JMA is calling colder than normal temperatures during the period, with a 50% probability of below-normal temperature occurrences forecasted everywhere. During the period of Dec 28 – Jan 3, the JMA forecasts that there is a 60% probability of a below normal temperature occurrence everywhere except the Pacific Ocean side of Tohoku, and Hokkaido, which are both forecasted to have a 50% probability of a below normal temperature occurrence. It is important to note that only two weeks ago, the JMA began forecasting colder temperature forecasts in Japan. We checked AccuWeather for Tokyo and for the period there are forecasted daily highs in the 8-12C range and overnight lows from 0-3C. 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 21 – Jan 20.

JMA temperature forecast for next 30 days

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Figure 18: JMA Average Temperature Outlook for Dec 21 - Jan 20



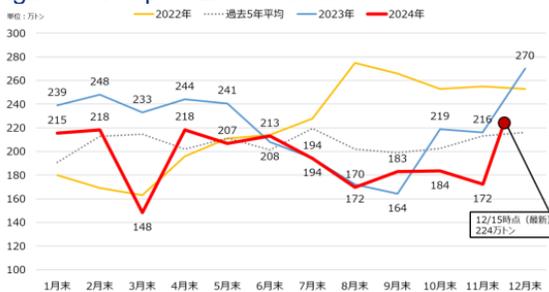
Source: Japan Meteorological Agency

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

Japan's LNG stocks are up WoW, down YoY, and are up when compared to the 5-year average. On Wednesdays, Japan's METI releases its weekly LNG stocks data [LINK](#). LNG stocks on December 15, were 107.6 bcf, up +5.7% WoW from December 8, figures of 101.8 bcf, and down -17.0% from 129.7 bcf from a year ago. Stocks are up compared to the 5-year average of 103.7 bcf. Below is the Japanese LNG stocks graph from the METI weekly report.

Japan LNG stocks up WoW

Figure 19: Japan LNG Stocks



Source: METI

Natural Gas: China Nov LNG imports down MoM, natural gas pipeline imports up MoM

No one should be surprised that we continue to see China preferentially move, when possible, to cheaper Russian pipeline natural gas vs LNG imports. On Wed, the China's General Administration of Customs ("GACC") released their pipeline, LNG split for natural gas for Nov [LINK](#). We continue to highlight that, where possible, China favors imports of cheaper natural gas from pipelines over more expensive LNG imports but will take advantage of lower LNG spot pricing when possible. But since China has been taking maximum pipeline natural gas from China in 2023, it created a higher base for YoY comparisons and China is only able to have more modest YoY increases. i) LNG imports. GACC reported that over Nov, China imported 9.85 bcf/d of LNG, down -3.0% MoM from 10.15 bcf/d in Oct and down -8.7% YoY from Nov 2023. ii) Natural Gas via pipeline imports. GACC reported that over November, China imported 7.44 bcf/d of natural gas via pipeline, which is up +20.4% MoM from 6.18 bcf/d in Oct and +12.0% YoY from Novr 2023. China has been benefitting from cheap natural gas exports from Russia but have also been opportunistic in their buying of LNG given weak spot prices in recent months.

China natural gas and LNG imports

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China prioritizes Russian pipeline gas imports as it is cheaper than 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: Putin says not Russia’s problem gas stops flowing thru Ukraine Dec 31

As of our 7am MT news cut off, we have not seen any updates that would suggest the potential for Russia pipeline natural gas to Europe via Ukraine will continue after Dec 31 So the latest was the Putin confirming the stoppage of these flows on Dec 31 and that it wasn’t Russia’s problem. Putin’s comments on Thurs seemed to be the reality check for markets that this natural gas flow would stop on Dec 31. On Friday morning, we posted [LINK](#) *“Putin/Zelensky driving up #NatGas #LNG prices incl HH. Putin says not his problem that RUS pipeline NatGas stops flowing via UKR on Jan 1. @a_shiryaevskaya. EU need to get more US LNG ASAP has been great this week for HH prices. EU needs a warm Jan. #OOTT.”* Our post included Bloomberg’s Thurs report *“European gas futures jumped the most in more than a month after the leaders of Ukraine and Russia both ruled out the renewal of a key transit deal for the region. President Volodymyr Zelenskiy indicated Ukraine won’t transit Russian-origin gas unless he has assurances the Kremlin won’t benefit financially while the war continues. President Vladimir Putin said Kyiv has refused to extend the five-year deal beyond its expiry at year’s end. “There will be no such contract, it’s clear now,” Putin said during his annual press conference in Moscow. “There is a question of what to do with it now — but that’s not our problem.”* Prior to Putin’s Thursday comments, it almost felt like Zelensky was negotiating with Europe when he met with European leaders and told them he was not going to allow any Russia natural gas even if in some indirect deal structure. Many thought he was negotiating to get more weapons, support, etc. However, if he was, it looks like Putin wanted to put an end to the negotiation.

**Putin says not
Russia’s problem**

Natural Gas: Russia continues to ship NatGas to Ukraine up until Jan 1

As noted above, Putin seemed to be the one that convinced markets Russia’s natural gas transit to Europe via Ukraine will end on Dec 31. But, it looks like Gazprom will keep sending the maximum unchanged natural gas via pipeline to Europe via Ukraine. This has been

**Russia still
shipping gas**

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unchanged and even 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. Gazprom has confirmed almost daily, if not daily, that there has been no interruption in natural gas supplies. On Friday, Bloomberg reports on the Gazprom volumes most days and the latest confirmation we saw was on Friday Dec 20 that Gazprom continues to ship the same volume of natural gas of 1.50 bcf/d via Sudzha. Below is a 2018 map from Oxford Institute for Energy Studies showing Sudzha.

Figure 20: The Ukrainian pipeline system



Source: Oxford Institute for Energy Studies

Natural Gas: Qatar reiterates won't supply LNG to EU if CSDDD is in effect in 2027

Qatar reiterated its Dec 8, 2024 warning to the EU that they won't supply LNG to EU if EU applies its Corporate Sustainability Due Diligence Directive against Qatar's LNG exports. Yesterday, FT reported [\[LINK\]](#) "Qatar has threatened to stop vital gas shipments to the EU if member states strictly enforce new legislation that will penalise companies which fail to meet set criteria on carbon emissions, human and labour rights. Qatari energy minister Saad al-Kaabi told the Financial Times that if any EU state imposed non-compliance penalties on a scale referenced in the corporate due diligence directive Doha would stop exporting its liquefied natural gas to the bloc. The law requires EU countries to introduce powers to impose fines for non-compliance with an upper limit of at least 5 per cent of the company's annual global revenue. "If the case is that I lose 5 per cent of my generated revenue by going to Europe, I will not go to Europe . . . I'm not bluffing," Kaabi said. "Five per cent of generated revenue of QatarEnergy means 5 per cent of generated revenue of the Qatar state. This is the people's money . . . so I cannot lose that kind of money — and nobody would accept losing that kind of money."

Qatar says won't supply LNG to EU in 2027

12/08/24: Qatar warns won't supply LNG to EU if CSDDD is in effect in 2027

Earlier this morning, we posted [\[LINK\]](#) "Qatar was reminding yesterday that it won't supply LNG to EU if CSDDD comes into effect in 2027. See 📌 12/08/24 post of Qatar Energy CEO telling this to @dan_murphy. #OOTT #NatGas #LNG." Here is what we wrote in our Dec 8, 2024 Energy Tidbits memo when Qatar Energy CEO first warned on stopping LNG supply to EU. "Qatar says won't supply LNG to EU if CSDDD is in effect in 2027. Earlier this morning, we posted [\[LINK\]](#) "Qatar Energy

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CEO says won't supply LNG to EU if its Corporate Sustainability Due Diligence Directive comes into effect in 2027. At 3:30 min. "What will make you I think be shocked is the penalty can be up to 5% of your total generated revenue worldwide. So the EU can penalize Qatar Energy for not being compliant with one of these things with my worldwide sales revenue to the world. So it makes absolutely no sense. So to me, my message to Europe and to the EU Commission is: that are you telling us "I don't want your LNG into the EU?" Because I sure am not going to supply EU with LNG to 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."

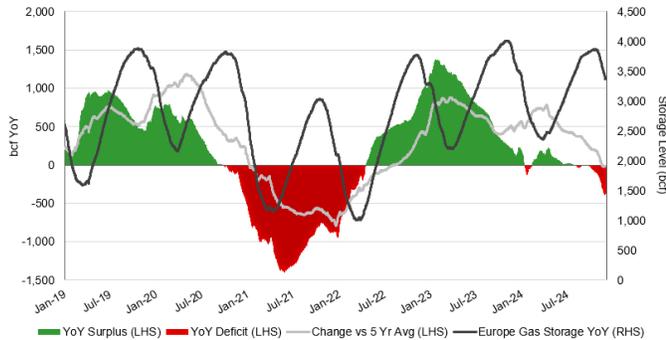
Natural Gas: Europe storage down -3.0% WoW to 76.5% full, down -11.5% YoY

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. It would have been full if Europe hadn't cut back on LNG imports in Q2 and Q3 for fear of being full early. But with some colder temperatures and low wind in early Dec, storage draws picked up. . This week, on Dec 19, Europe storage was down -3.0% WoW to 76.5% vs 79.4% on Dec 12. Recall that winter 2023/24 was one of the hottest winters in Europe. Storage is now down -11.5% from last year's levels of 87.9% on December 19, 2023, and down against the 5-year average of 79.5%. Below is our graph of European Gas Storage Level.

Europe gas storage

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Figure 21: 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 18, 2024, natural gas in Ukraine storage was at 19.1% of its total capacity, down compared to 21.7% of its total capacity on December 11. 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 22: Ukraine Gas Storage Facilities as of June 2023



Source: Bloomberg

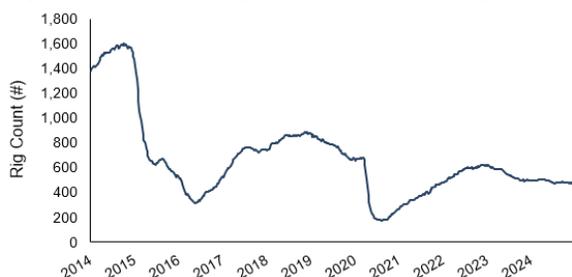
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Oil: U.S. oil rigs not decreasing as normally happens after Thanksgiving

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 +1 rig WoW to 483 oil rigs as of Dec 20, 2024. The rig count being up +1 rig was a surprise, as 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 -15 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 -15 YoY to 483 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; Mississippian +1 rig, Utica +1 rig, and Marcellus -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 -33 rigs YoY to 585 rigs including US oil rigs -15 oil rigs YoY to 483 oil rigs. And for the key basins, the Permian is -3 rigs YoY, Haynesville is -13 rigs YoY, DJ Niobrara is -7 rigs YoY, Marcellus -4 rigs YoY, Williston up +4 rigs YoY, Arkoma Woodford flat YoY, Granite Wash is up +6 rigs YoY, Eagle Ford is down -8 rigs YoY, Barnett up +1 rig YoY, Ardmore Woodford was -2 rig YoY, and Cana Woodford -2 rig YoY. (v) US gas rigs were down -1 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, and up +2 rigs YoY.

**US oil rigs up
+1 WoW**

Figure 23: Baker Hughes Total US Oil Rigs



Source: Baker Hughes

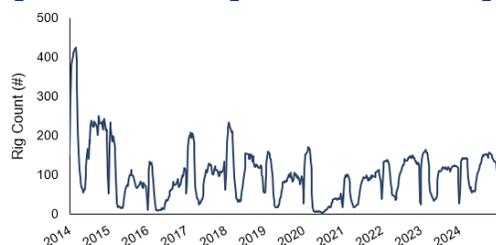
Oil: Total Cdn oil rigs down -10 WoW on Friday, with gas rigs down -15 rigs WoW

On Friday, Baker Hughes released its weekly North American drilling rig data. This week's total oil and gas rig count was down -25 rigs WoW to 166 rigs on Dec 20, which is in line with the normal big drop in rigs for Xmas. This week we saw a significant fall in rigs, which is in line with the normal Xmas slowdown. Total rigs were down -25 rigs WoW this week to 166 rigs and are up +20 rigs YoY. Oil rigs are down -10 rigs WoW to 110, and up +29 rigs YoY. Gas rigs are down -15 rig WoW to 56 rigs and are down -9 rigs YoY, and miscellaneous rigs are flat WoW and flat YoY at 0 rigs total. As a reminder Baker Hughes changed their reporting format which does not allow us to see the provincial breakouts.

**Cdn oil rigs -10
WoW**

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Figure 24: Baker Hughes Total Cdn Oil Rigs



Source: Baker Hughes

Oil: US weekly oil production down -0.027 mmb/d WoW to 13.604 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 first nine months of 2024, 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, down -0.027 mmb/d WoW to 13.604 mmb/d for the week ending Dec 13. This is up +0.304 mmb/d YoY from 13.300 mmb/d for the week ended December 15, 2023. The November STEO forecast was posted on December 10 and slightly increased its US crude expectations for 2024 by +0.010 mmb/d to 13.240 mmb/d which will exceed the Q4/19 peak of 12.880 mmb/d, with all quarters in 2024 expected to exceed 13.200 mmb/d, other than Q1/24 at 12.940 mmb/d. 2025 estimates were revised downwards to 13.520 mmb/d, with all quarters exceeding 13.400 mmb/d and reaching a peak of 13.580 mmb/d in Q4/25. The EIA is no longer releasing a DPR, so we no longer have MoM expectations. This week, the EIA's production estimates were down -0.027 mmb/d WoW to 13.604 mmb/d for the week ended Dec 13. Alaska production figures were down -0.009 WoW to 0.432 mmb/d, compared to 0.441 mmb/d last week. Below is a table of the EIA's weekly oil production estimates.

US weekly oil production

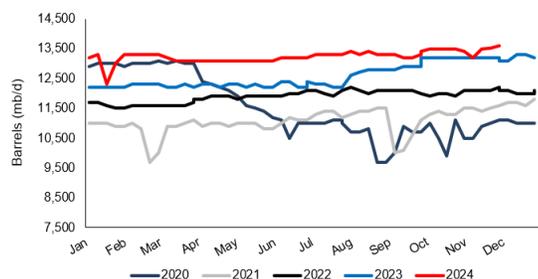
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Figure 25: EIA's Estimated Weekly US Field Oil Production (mb/d)

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value								
2023-Jan	01/06	12,200	01/13	12,200	01/20	12,200	01/27	12,200		
2023-Feb	02/03	12,300	02/10	12,300	02/17	12,300	02/24	12,300		
2023-Mar	03/03	12,200	03/10	12,200	03/17	12,300	03/24	12,200	03/31	12,200
2023-Apr	04/07	12,300	04/14	12,300	04/21	12,200	04/28	12,300		
2023-May	05/05	12,300	05/12	12,200	05/19	12,300	05/26	12,200		
2023-Jun	06/02	12,400	06/09	12,400	06/16	12,200	06/23	12,200	06/30	12,400
2023-Jul	07/07	12,300	07/14	12,300	07/21	12,200	07/28	12,200		
2023-Aug	08/04	12,600	08/11	12,700	08/18	12,800	08/25	12,800		
2023-Sep	09/01	12,800	09/08	12,900	09/15	12,900	09/22	12,900	09/29	12,900
2023-Oct	10/06	13,200	10/13	13,200	10/20	13,200	10/27	13,200		
2023-Nov	11/03	13,200	11/10	13,200	11/17	13,200	11/24	13,200		
2023-Dec	12/01	13,100	12/08	13,100	12/15	13,300	12/22	13,300	12/29	13,300
2024-Jan	01/05	13,200	01/12	13,300	01/19	13,200	01/26	13,000		
2024-Feb	02/02	13,300	02/09	13,300	02/16	13,300	02/23	13,300		
2024-Mar	03/01	13,200	03/08	13,100	03/15	13,100	03/22	13,100	03/29	13,100
2024-Apr	04/05	13,100	04/12	13,100	04/19	13,100	04/26	13,100		
2024-May	05/03	13,100	05/10	13,100	05/17	13,100	05/24	13,100	05/31	13,100
2024-Jun	06/07	13,200	06/14	13,200	06/21	13,200	06/28	13,200		
2024-Jul	07/05	13,300	07/12	13,300	07/19	13,300	07/26	13,300		
2024-Aug	08/02	13,400	08/09	13,300	08/16	13,400	08/23	13,300	08/30	13,300
2024-Sep	09/06	13,300	09/13	13,200	09/20	13,200	09/27	13,300		
2024-Oct	10/04	13,400	10/11	13,500	10/18	13,500	10/25	13,500		
2024-Nov	11/01	13,500	11/08	13,400	11/15	13,201	11/22	13,493	11/29	13,513
2024-Dec	12/06	13,631	12/13	13,604						

Source: EIA

Figure 26: EIA's Estimated Weekly US Oil Production



Source: EIA

Oil: Wildfires led to North Dakota Oct oil production down MoM to 1.178 mmb/d

As a reminder, no one should be surprised to have seen North Dakota report Oct oil production was down MoM. This was well known because wildfires in Oct led to production shut-ins. On Wed, the North Dakota Industrial Commission posted its monthly Director's Cut, which includes October's oil and natural gas production data as well as other data such as well completions, DUCs, number of producing wells, etc. [\[LINK\]](#). North Dakota's oil production in Oct was down MoM -0.022 mmb/d to 1.178 mmb/d from 1.200 mmb/d in Sept and is down -6.1% YoY against 1.254 mmb/d in Oct 2023. This is in line with our expectations as noted in our prior Energy Tidbits memos. Oct well completions were up to 95 compared to Sept's 58 wells completed. Our Supplemental Documents package includes excerpts from the NDIC Director's Cut.

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Figure 27: North Dakota Oil Production by Month

(b/d)	2018	2019	2020	2021	2022	2023	2024	24/23
Jan	1,179,564	1,403,808	1,430,511	1,147,377	1,088,613	1,060,708	1,102,976	-4.0%
Feb	1,176,316	1,336,591	1,451,681	1,083,564	1,089,091	1,158,837	1,252,102	8.0%
Mar	1,162,134	1,391,760	1,430,107	1,108,906	1,122,640	1,122,693	1,229,636	9.6%
Apr	1,226,391	1,392,485	1,221,019	1,123,166	900,597	1,133,435	1,243,678	9.7%
May	1,246,355	1,394,648	859,362	1,128,042	1,059,060	1,135,009	1,198,086	5.6%
June	1,227,320	1,425,230	893,591	1,133,498	1,096,783	1,166,604	1,186,394	1.7%
July	1,269,290	1,446,934	1,042,081	1,076,594	1,072,632	1,180,611	1,169,499	-0.9%
Aug	1,292,505	1,480,475	1,165,371	1,107,359	1,075,307	1,223,617	1,179,728	-3.6%
Sept	1,369,282	1,443,980	1,223,107	1,114,020	1,121,063	1,280,052	1,199,764	-6.3%
Oct	1,382,369	1,517,936	1,231,048	1,111,910	1,121,754	1,254,475	1,177,992	-6.1%
Nov	1,375,803	1,519,037	1,227,138	1,158,622	1,098,389	1,278,909		
Dec	1,402,741	1,476,777	1,191,429	1,144,999	967,864	1,274,869		

Source: NDIC, NDPA

Oil shutdowns from Oct wildfires led to lower MoM North Dakota oil production

Here is what we wrote in our Oct 20, 2024 Energy Tidbits memo on comments from the NDIC Oct 17, 2024 webcast on the wildfires. “October had higher completions but also had wildfires impacting production. On Thursday, NDIC held its monthly webcast conference call on the NDIC Director’s Cut, which covers the August production data. But the reason why we listen to the webcasts is that we always get some insight into oil production for the next one or two Director’s Cut. In this case, there was added colour on the October oil production that will be in the December Director’s Cut. On the call, North Dakota was asked if they had any estimate of the impact on production from the October wildfires. North Dakota’s update was that there was a 100,000 b/d impact at the peak, but it was down to 50,000 to 80,000 b/d in about a week for an estimated total impact of approx. 500,000 b/d, which would work out to 16,000 b/d over the month of October ie. a very small impact.”

No major added insights from NDIC monthly webcast

Perhaps it is because the NDIC warmed on the Oct and Nov webcasts about the Oct wildfires impacting Oct oil production but we didn’t get an added insights from the NDIC monthly webcast on Wed. They didn’t give any forward looking to comments on North Dakota year end exit production.

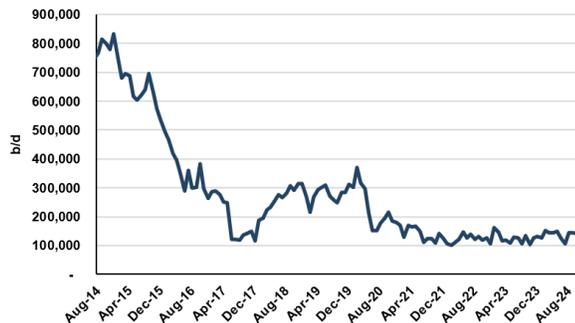
Oil: North Dakota crude by rail down small MoM to 141,917 b/d in October

On Wednesday, the North Dakota Pipeline Authority posted its Monthly Update “October 2024 Production & Transportation” [\[LINK\]](#) containing October’s data. Please note that we always go to the backup excel sheets from the North Dakota Pipeline Authority that provide low and high estimates for Williston crude by rail exports. While the NDPA’s chart shows a high and low estimate by month, we always take the midpoint when summarizing the update. In the backup excel, the NDPA estimates crude by rail in October from a low of 126,917 b/d and a high of 156,917 b/d for an average of 141,917 b/d. There was a downward revision to September figures which previously had an average of 145,077 b/d, but is now 144,746 b/d. The NDPA did not comment on the MoM changes. Below is a chart showing the crude by rail volumes since 2014. Our Supplemental Documents package includes excerpts from the NDPA Monthly Update.

**North Dakota
 CBR down MoM
 in October**

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Figure 28: Estimated North Dakota Rail Export Volumes



Source: NDPA

Oil: Trump Admin sees Drill Baby Drill to take oil “back towards \$50”

We may not understand how Trump squares the circle but his senior people are out emphasizing the importance of Drill Baby Drill is in fighting inflation driven by their view that this should get oil prices back towards \$50/b like in is first Admin. On Tuesday, we posted [\[LINK\]](#) “*IMAGINE IF Trump/Navarro are right on Drill Baby Drill impact? Navarro sees Drill Baby Drill is #1 factor to break the back of Inflation, and that will bring oil down from \$75-80 under Biden-land “back down towards \$50 where we were with Trump.” Equity & debt capital would rush to abandon ship on Oil stocks if co’s crank up drilling & production to send oil towards \$50. Also note Biden’s EV mandate “that is gone like the wind”. #OOTT* @JoeSquawk @SquawkCNBC.” Navarro is incoming White House Senior Trade Counselor.

We may not get how Trump sees this working, but it is something we should be aware of because if Trump is right, there is massive value and cash flow to be lost in oil stocks. The key assumption to this is that Trump believes US oil players will crank up drilling and oil production such that oil price goes back down to \$50. So call it a 40% decrease in oil prices vs some sort of call it maybe 10% increase in oil production. So we just don’t understand how they think oil companies will willing work to increase oil supply to get oil back towards \$50 oil. Here is the transcript we created of comments by Peter Navarro (incoming White House Senior Trade Counselor) with CNBC’s Joe Kernan on CNBC Squawk Box on Dec 17, 2024. [\[LINK\]](#) Items in “*italics*” are SAF Group created transcript. At 3:02 min mark, Navarro “... for me Joe, this all adds up to, first of all, is we’re going to be able to break the back of the persistent inflation we’ve been experiencing. And it’s going to happen, first and foremost, with Drill Baby Drill. The team we have at energy and interior is Burgum and Wight. They’re going to get that right. Joe, just going from an average of 75 to 80 dollar a barrel of oil, which we’ve been suffering through in Biden-land back down towards 50 where we were with Trump. That diffuses thru the economy in a beautiful way. We’re going to deal that way with the cost/push inflation. All of these government efficiency reforms that the Batman and Robin, Elon and Vivek are going to do. That’s going to help break the back of inflation. And then on the demand/pull side, what we have is, first of all is those green mandates, that EV mandate, that is gone. That is gone like the wind. That’s going to help mute prices, the price level. “

Oil: US SPR less commercial reserve deficit narrows, now -27.966 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

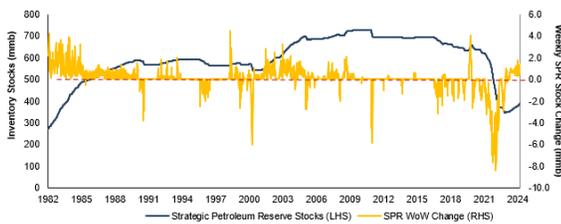
Can Trump take
oil back to \$50?

US SPR reserves

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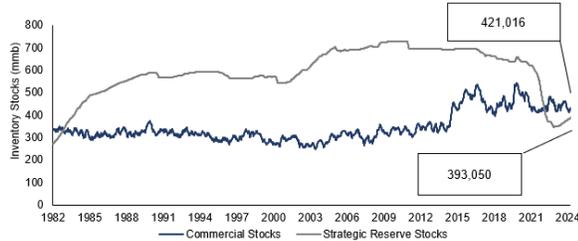
1983 in the Sep 16, 2022, week. This week, we saw a build on the SPR side and a draw on the commercial side. The EIA’s weekly oil data for Dec 13, [LINK](#) saw the SPR reserves increase +0.519 mmb WoW to 393.050 mmb, while commercial crude oil reserves decreased -0.934 mmb to 421.016 mmb. There is now a -27.966 mmb difference between SPR reserves and commercial crude oil reserves. The below graphs highlight the difference between commercial and SPR stockpiles, along with the weekly changes to SPR stockpiles.

Figure 29: Strategic Petroleum Reserve Stocks and SPR WoW Change



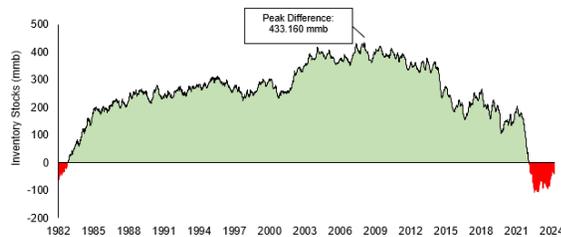
Source: EIA

Figure 30: US Oil Inventories: Commercial & SPR



Source: EIA

Figure 31: US Oil Inventories: SPR Less Commercial



Source: EIA

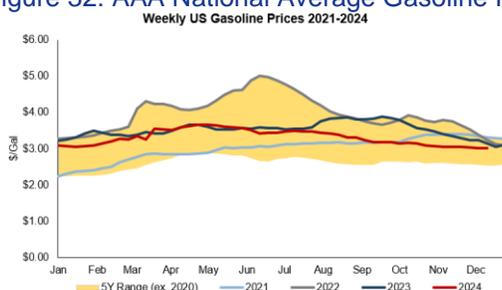
Oil: AAA reports US national average gasoline price +\$0.03 WoW to \$3.05 on Dec 21
 Yesterday, we posted [LINK](#) “AAA National average gasoline prices +\$0.03 WoW at \$3.05 on Dec 21, -\$0.01 MoM & -\$0.07 YoY. California average prices -\$0.01 WoW to \$4.32, -\$0.13 MoM & -\$0.26 YoY. National average gasoline price hasn’t been below \$3 since May 11, 2021. Thx @AAAnews #OOTT.” National average gasoline prices moved away from the \$3 level, a level not seen since May 11, 2021, after getting close at \$3.02 for the last two weeks. Yesterday, AAA reported that US national average prices were \$3.05 on Dec 21,

US gasoline prices

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which was +\$0.03 WoW, -\$0.01 MoM, and -\$0.07 YoY. Yesterday, AAA also reported California average gasoline prices were \$4.32 on Dec 21, which was -\$0.01 WoW, -\$0.13 MoM and -\$0.26 YoY. Below is our graph of Bloomberg's National Average weekly gasoline prices.

Figure 32: AAA National Average Gasoline Prices



Source: AAA

Oil: Crack spreads **-\$0.09 WoW to \$16.44 ON Dec 20**, WTI **-\$1.83 WoW to \$69.46**

On Friday, we posted [\[LINK\]](#) “321 crack spreads +\$0.09 WoW to \$16.44 on Dec 20. WTI - \$1.83 WoW to \$69.46. Reinforces WTI is impacted more by global markets than by cracks i.e. changing market views post Fed changing view for slower rate reductions. Thx @business #OOTT.” Crack spreads were -\$0.09 WoW to \$16.44 on Dec 20 and WTI was -\$1.83 WoW to \$69.46. WTI was down this week driven by changing market views post the Fed signaling a changing view to slower rate reductions and also continued concern on the China recovery. As a general rule, over the past few months, WTI has been driven more by global factors and not crack spreads. Crack spreads at \$16.44 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 \$16.44 on Dec 20 followed \$16.53 on Dec 13, \$15.95 on Dec 6, \$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, and \$15.57 on Sept 20.

**Crack spreads
closed at \$16.44**

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

It hasn't been normal times for oil markets for the past months with Iran/Israel, Chinese stimulus, Trump win, stronger US\$, Putin's new nuclear doctrine and its 1st hypersonic ballistic missile hit on Ukraine, OPEC and Trump NSA Waltz reminding Trump will clamp down on Iran oil and now a changing Fed view. So for the most part, the last few months are good examples that global oil and market items impact WTI more than crack spreads. As noted above, that was the case last week when crack spreads were down only \$0.09 whereas WTI was down \$1.83 with a changing Fed view to slower rate reductions. 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.

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So if crack spreads are wide/high, it is normally a positive for the very near term look ahead to WTI. Conversely, if crack spreads are narrow/low, it doesn't give refineries any real incentive to take more crude, which is normally softness for the very near term look ahead to WTI. People often just say "cracks", which refers to the 321 crack spread. This is the spread or margin that refiners make from buying crude at a certain price and then selling the finished petroleum products at their respective prices. The 321 crack spread is meant to represent what a typical US refinery produces. It assumes that for every three barrels of crude oil, the refinery will produce two barrels of gasoline and one barrel of distillates. So the crack spread is based on that formula and worked back to a crack spread per barrel. Below is the current 321 crack spread vs WTI that we put in our tweet where we marked the gaps where the crack spread normally drags up oil prices. 321 Crack spread closed at \$16.44 on Friday Dec 20.

Figure 33: Cushing Oil 321 Crack Spread & WTI Dec 20, 2014 to Dec 13, 2024



Source: Bloomberg

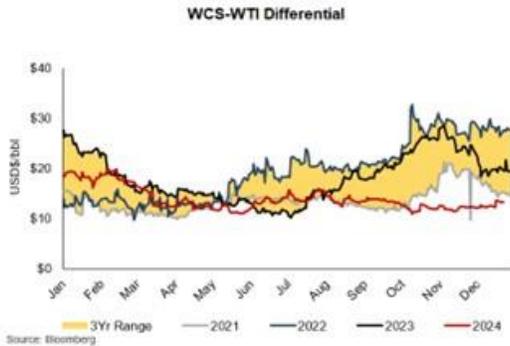
Oil: Cdn heavy oil differentials widens +\$1.05 WoW to \$13.25 on Dec 20

WCS less WTI differentials continue to trade in a narrow range relative to prior years and widened this week +\$1.05 WoW to close at \$13.25 on Dec 20. As noted in the following item, we have been saying that the real test for WCS less WTI differentials was in Sept/Oct/Nov as to how much the startup of the 590,000 b/d TMX expansion and ramp up of tanker exports 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 and now Dec. 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 in H2/24. 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, and continue to be much narrower than in prior years. The WCS less WTI differential closed on Dec 20 at \$13.25 which was a widening of +\$1.05 WoW vs \$12.20 on Dec 13.

WCS differential widens

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Figure 34: WCS less WTI differentials



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. \$7 narrower vs a year ago and approx. \$14 narrower than two years ago. That is a big win for cash flows for all Cdn oil producers. For the past 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, Oct and Nov when differentials normally start to seasonally widen. It is clear increasing tanker exports has worked and differentials did not widen as normally happens. On Friday, we posted [LINK](#) "Big continuing win for Cdn #Oil in Q4/24 cash flows. Increasing tanker exports post June start 590,000 b/d TMX kept WCS less WTI differentials from normal Sept/Oct/Nov widening. WCS less WTI diffs: 12/20/24: \$13.25. 12/20/23: \$20.45. 12/20/22: \$27.00. Thx @garquake @business #OOTT. Our post 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/Dec and how differentials were widening in Sept/Oct/Nov in 2022 and 2023.

Figure 35: WCS less WTI differentials to Dec 20, 2024 close



Source: Bloomberg

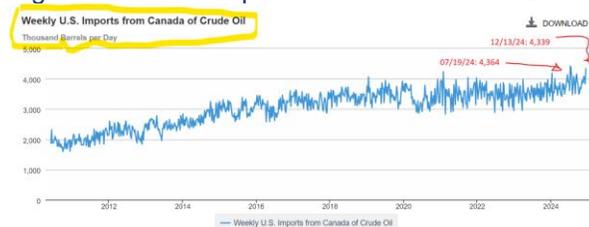
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Oil: US imported near record 4.339 mmb/d of Cdn medium/heavy for Dec 13 week

US oil imports from Canada were 4.339 mmb/d for the Dec 13 week, which is just below to all-time record of 4.364 mmb/d or the July 19, 2024 week. The big increase in US oil imports from Canada have happened with the startup of the 590,000 b/d TMX expansion and more Cdn crude being loaded in Vancouver and tinkered down to US west coast refineries. We continue to see no backing off from the Trump incoming administration of Trump's threat/promise to tariff all Cdn imports including oil. And we haven't seen any public statements from incoming Energy Secretary Wright (CEO of Liberty Energy) or incoming Interior Secretary Burgum (Governor of North Dakota) saying that these tariffs will crank up gasoline prices in the US in particular in the Midwest/Great Lakes. Maybe Trump will do so but, if he does, he will be increasing gasoline prices when his mantra is he will be lowering gasoline prices and inflation. The PADD 2 Midwest refineries import ~3 mmb/d of Cdn medium/heavy via Enbridge mainline and there aren't logistics to get medium/heavy any other way to these refineries. On Thursday, we posted [\[LINK\]](#) "US refiners imported 4.339 million b/d of Cdn medium in Dec 13 week. ~70% to captive Midwest refinery buyers set up to process Cdn medium via Enbridge pipeline and couldn't logistically get ~3 mmb/d of medium oil in any other way. Hard for Trump to tariff Cdn oil without sending gasoline prices higher. #OOTT." Our post included the EIA oil imports graph including the Dec 13 week as well as Enbridge's mainline pipeline overview. Our Supplemental Documents package includes the Enbridge mainline pipeline overview..

US needs Cdn heavy/medium crude

Figure 36: US oil imports from Canada thru Dec 13, 2024



eia Data source: U.S. Energy Information Administration

Source: EIA

Captive buyers/captive sellers for Cdn medium/heavy oil to Midwest refineries

We have heard how the shippers for the ~3 mmb/d of Cdn medium/heavy oil via pipeline to the Midwest PADD 2 will have to eat any Trump tariff costs as they have no other market for their oil. We agree that they are captive sellers. However, we have reminded that Midwest PADD 2 refineries are captive buyers of Cdn medium/heavy oil as they have no other way to replace ~3 mmb/d of Cdn medium/heavy oil. Sure the refineries could tweak it a little bit to run more US light oil. But that will have limitations. And then there is no logistics that could accommodate an additional 3 mmb/d of imports via tanker and then they have to find a way to get that oil from the Gulf Coast or East Coast or West Coast, without pipelines, to the Midwest refineries. It's why we posted, on Nov 27, [\[LINK\]](#) "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

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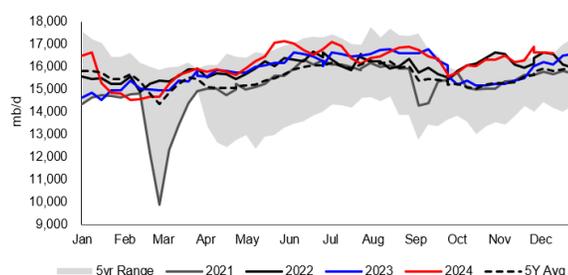
fuel, diesel, etc. #OOTT.”

Oil: Refinery Inputs down -0.048 mmb/d WoW to 16.611 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 refineries data for the week ended December 13 [\[LINK\]](#). The EIA reported crude inputs to refineries were down -0.048 mmb/d this week to 16.611 mmb/d and are up +0.163 mmb/d YoY. Refinery utilization was up -0.6% WoW to 91.8% and was down -0.6% YoY.

Refinery inputs
-0.048 mmb/d WoW

Figure 37: US Refinery Crude Oil Inputs



Source: EIA, SAF

Oil: US net oil imports down -1.131 mmb/d WoW as oil exports up +1.796 mmb/d

The EIA reported US “NET” imports were down -1.131 mmb/d to 1.754 mmb/d for the week of December 13. US imports were up +0.665 mmb/d to 6.649 mmb/d, while exports were up +1.796 mmb/d to 4.895 mmb/d. Top 10 was up +0.656 mmb/d. 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. (i) Canada was up +0.510 mmb/d to 4.339 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. (ii) Saudi Arabia was down -0.094 mmb/d to 0.081 mmb/d. (iii) Mexico was up +0.086 mmb/d to 0.526 mmb/d. 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. (iv) Colombia was up +0.011 mmb/d to 0.136 mmb/d. (v) Iraq was down -0.004 mmb/d to 0.209 mmb/d. (vi) Ecuador was down -0.034 mmb/d to 0.069 mmb/d. (vii) Nigeria was down -0.112 mmb/d to 0.056 mmb/d. (viii) Venezuela was up +0.334 mmb/d to 0.521 mmb/d.

US net imports
-1.131 mmb/d
WoW

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Figure 38: US Weekly Preliminary Imports by Major Country

	Oct 18/24	Oct 25/24	Nov 1/24	Nov 8/24	Nov 15/24	Nov 22/24	Nov 29/24	Dec 6/24	Dec 13/24	WoW
Canada	3,719	3,660	3,879	3,953	3,862	4,081	4,044	3,829	4,339	510
Saudi Arabia	150	13	443	140	220	248	392	175	81	-94
Venezuela	289	250	212	359	211	267	173	187	521	334
Mexico	258	621	247	384	768	151	279	440	526	86
Colombia	365	150	72	142	414	142	283	125	136	11
Iraq	237	216	183	121	237	277	397	213	209	-4
Ecuador	138	67	37	247	355	118	103	103	69	-34
Nigeria	125	145	86	77	86	146	110	168	56	-112
Brazil	285	88	202	280	498	227	348	251	178	-73
Libya	81	89	238	0	86	0	204	0	32	32
Top 10	5,647	5,299	5,599	5,703	6,737	5,657	6,333	5,491	6,147	656
Others	784	676	641	806	947	426	957	493	502	9
Total US	6,431	5,975	6,240	6,509	7,684	6,083	7,290	5,984	6,649	665

Source: EIA, SAF

Oil: Norway Nov oil production of 1.736 mmb/d is down -2.5% MoM down -3.8% YoY

On Friday, the Norwegian Offshore Directorate released its November production figures [\[LINK\]](#). It reported oil production of 1.736 mmb/d, down -2.5% from revised October figures of 1.781 mmb/d and down -3.8% YoY from 1.805 mmb/d in November 2023. November's production actuals came in +3.2% (+0.054 mmb/d) over the forecast volumes of 1.682 mmb/d. The NOD does not provide any explanation for any MoM changes so we don't know if the MoM increases are temporary. But, as we have been highlighting since early 2024, Norway oil production is expected to peak in early 2025 with the start of decline at Norway's biggest oilfield, Johan Sverdrup, and then move into decline. Note that, prior to 2024, the Norwegian Offshore Directorate was called the Norwegian Petroleum Directorate.

**Norway
November oil
production**

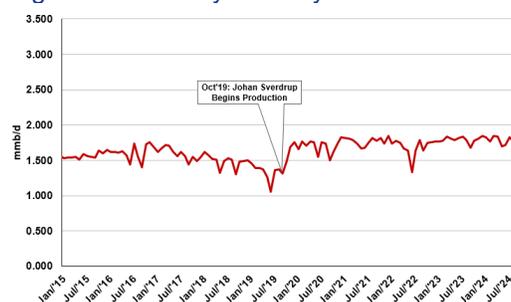
Figure 39: Norway November 2024 Production

		Oil mill bbl/day	Sum liquid mill bbl/day	Gas MSm ³ /day	Total MSm ³ o.e./day
Production	November 2024	1.736	1.975	360	0.674
Forecast for	November 2024	1.682	1.934	349.5	0.657
Deviation from forecast		0.054	0.041	10.5	0.017
Deviation from forecast in %		3.2 %	2.1 %	3 %	2.6 %
Production	October 2024	1.781	2.000	341.9	0.660
Deviation from	October 2024	-0.045	-0.025	18.1	0.014
Deviation in % from	October 2024	-2.5 %	-1.2 %	5.3 %	2.1 %
Production	November 2023	1.805	2.045	365	0.690
Deviation from	November 2023	-0.069	-0.070	-5	-0.016
Deviation in % from	November 2023	-3.8 %	-3.4 %	-1.4 %	-2.3 %

Source: Norwegian Offshore Directorate

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Figure 40: Norway Monthly Oil Production 2015-2024



Source: Norwegian Offshore Directorate

Oil: 10/24/24, Equinor, 755,000 b/d Johan Sverdrup to begin to decline in early 2025

As a reminder, Norway's largest oil field, the 755,000 b/d Johan Sverdrup, is operated by Equinor who has stated they expect Johan Sverdrup would come off plateau in early 2025 and then begin to decline. Here is what we wrote in our Oct 27, 2024 Energy Tidbits memo. "Johan Sverdrup is Norway's biggest oilfield and it is currently at ~755,000 b/d, which is approx. half of Norway's total oil production. On Feb 8, 2024, we first tweeted how Aker BP, a partner in Johan Sverdrup, was the first to note that Johan Sverdrup was moving from plateau to decline in late 24/early 25 as water was starting to hit some wells. That view hasn't changed all year. Our view is simple – when a country's giant oilfield that accounts for half of a country's production, it normally means the country's total oil production will start to decline. It is why, since Feb, we have warned that Norway oil production is about to start to decline. On Thursday, Equinor held its Q3 call and it also reminded how the best insights come from the Q&A portion of conference calls. Equinor confirmed that they see the 755,000 b/d Johan Sverdrup oilfield will come off plateau in early 2025, which is the way to say Johan Sverdrup oil production will begin to decline in early 2025. On Thursday, we tweeted [\[LINK\]](#) "Norway on track for peak #Oil production in 2025 & then decline. @Equinor CEO confirms Norway's 755,000 b/d field "will be on plateau until early 2025" ie. after plateau is decline. Fits 📌 08/21, 03/11 & 02/08 tweets, Norway sees its oil production peaking in 2025. #OOTT." In the Q&A, mgmt replied "Your second question, Henri, on Johan Sverdrup. Yes. So far, so good. We see that we are now in a position where we can say that the plateau, we will be on plateau until early 2025. I think it's very important for me to say that we are not surprised at all that we will come off plateau in 2025. It is a function of that we have invested in higher capacity, the 755,000 barrels per day pushing cash flow and net present value higher. And that leads to that we will get off plateau earlier."

Norway's
755,000 b/d
Johan Sverdrup

08/21/24: Norway forecast reaching peak oil production in 2025, then declining

No surprise given that Norway's largest oilfield is to be declining in early 2025 that Norway forecasts total country oil production to be declining in 2025. Here is what we wrote in our Aug 25, 2024 Energy Tidbits memo. "Equinor's confirming the 755,000 b/d Johan Sverdrup oilfield will begin to decline in early 2025 is in line with Norway's forecasts that its total country oil production will reach peak oil production in 2025 and then decline. Here is what we wrote in our Aug 25, 2024 Energy Tidbits memo. "Norway still forecasts reaching peak oil production in 2025, then declining. On Wednesday, Norway posted its "Resource report 2024", which is a report

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encouraging an increase in exploration. And it starts with their unchanged long-term oil production forecast from March that forecasts Norway's peak oil production is in 2025 and then decline under current levels of exploration i.e. include ongoing new field discoveries. Early Wednesday morning, we tweeted [LINK](#): "Norway still forecasts peak #Oil production in 2025 & then decline. EVEN WITH "multiple discoveries are made and brought on stream, accompanied by investments aimed at increasing recovery from existing fields. Despite this, resource growth will not be sufficient to offset the overall gradual decline, due to diminishing production from the major, mature fields." See 🗨️ 03/11/24 & 02/08/24 tweet, can't make up for giant Johan Sverdrup hitting peak oil in six mths. #OTT" Norway is warning that, even with new discoveries and production enhancement, peak oil supply is in 2025. Norway wrote that even with "multiple discoveries are made and brought on stream, accompanied by investments aimed at increasing recovery from existing fields. Despite this, resource growth will not be sufficient to offset the overall gradual decline, due to diminishing production from the major, mature fields." Despite this, resource growth will not be sufficient to offset the overall gradual decline, due to diminishing production from the major, mature fields." Norway is highlighting the reality that has been seen in other global basins that have a giant oil field – when the giant oilfield starts to decline, it normally points to decline in a country production. And that is the case in Norway with the giant Joahn Sverdrup expected to start to decline in late 2024 or early 2025. Norway does says that a big increase in exploration and oil and gas spending could lead to some modest growth and push back in oil decline. Our Supplemental Documents package includes excerpts from the Norway resource report."

Figure 41: Norway forecast long term Norway oil production

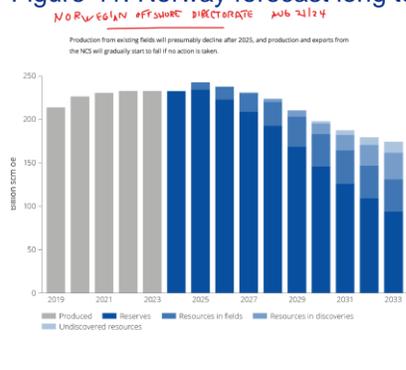


Figure 3.8 Production history and forecasts by resource class (Resource Accounts as of 31 December 2023(7) #NO 2024).

Source: Norwegian Offshore Directorate

Oil: Russia downplays Oreshnik retaliation with its precision guided strikes last week
As of our 7am MT news cut off, Russia has not used the hypersonic Oreshnik ballistic missile as most expected in response to a Ukraine's second use of US long range ATACMS missile attacks last week. The expectation was for another Oreshnik missile. However, Russia

Will Russia use Oreshnik?

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seemed to downplay an inferred use of Oreshnik on Monday when it used precision-guided missiles to hit Ukraine. On Monday, Bloomberg reported *“Russian strikes using precision-guided weapons have caused considerable damage to Ukraine's military industry and power supply facilities feeding it, Russian Defense Minister Andrei Belousov said. “Russian precision-guided weapons have caused considerable damage to Ukraine's military industry and power supply facilities linked to it. This has considerably reduced the enemy's ability to manufacture the required weapons, hardware, and ammunition,” Belousov said at a Defense Ministry expanded board meeting on Monday.”*

Oil: Russian refineries processing reaches highest since mid-Aug in early Dec

We have previously noted how the majority of refinery turnarounds in Russia wrapped up in Nov and this has led to increased refinery runs; when refineries process more crude oil, it means that typically means there is less available for export. During the period of Dec 5-11, Russia's average crude processing rate rose to 5.490 mmb/d, representing a +0.034 mmb/d increase when compared to Dec 1-4. MTD Crude processing rates in Dec are 5.480 mmb/d which is up +0.131 mmb/d when compared to Nov. The report noted *“Russia's average crude-processing rate rose to 5.49m b/d during Dec. 5-11, according to a person with knowledge of industry data... The increase earlier in the month was supported by the lifting of a gasoline-export ban for producers of the fuel and recent weakness in the ruble, benefiting export-focused refineries”*. Our Supplemental Documents package includes the Bloomberg report.

Russian oil refineries

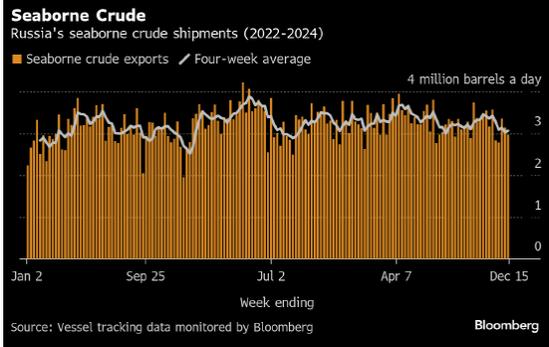
Oil: Russia's seaborne crude oil exports settle lower than October

On Tuesday, Bloomberg released their weekly Russian Seaborne crude tracker, this week, titled *“Russia's Seaborne Crude Shipments Slide by 11% Since October”*. This week, exports continued to be lower, as maintenance at one of the country's main export terminals kicked off. The daily crude flows fell -0.170 mmb/d to Dec. 15, as there was a four-day halt at the Baltic port of Primorsk; Bloomberg suggests this halt was due to maintenance. The four-week average volumes increased by +0.030 mmb/d for the week to Dec. 15. Bloomberg reported *“Flows have settled just above 3 million barrels a day after weekly fluctuations are smoothed out. Four-week average volumes stood at 3.06 million barrels a day in the period to Dec. 15, down from a recent peak of 3.46 million two months ago”*. 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.

Russia's seaborne crude exports

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Figure 42: Russia's Seaborne Crude Shipment



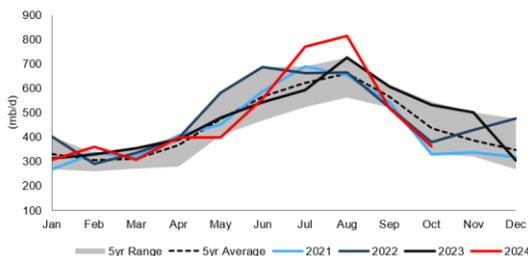
Source: Bloomberg

Oil: Saudi use of oil for electricity down big again in Oct i.e. more oil for export

The key seasonal theme for Saudi oil exports is that, all things being equal, Saudi can export more oil in winter months as it uses less oil for electricity and, conversely, it would have less oil for export in summer months as it uses more oil for electricity i.e. air conditioning. Note that a normal peak to trough decline is ~400,000 b/d. If there is less oil used for electricity, then there is more oil for export and vice versa. The JODI data for Saudi Arabia oil supply and demand for October [\[LINK\]](#) was updated on Wednesday. Saudi uses significantly less oil for electricity after August ends and the shoulder season begins. October saw a fall in oil usage when compared to September, which already saw a significant drop from the peak in August. Oil used for electricity generation in October was 362,000 b/d, (vs October 2023 of 518,000 b/d), September was 518,000 b/d, and August was 814,000 b/d (vs August 2023 of 726,000 b/d). Note that this year has exceeded the historical trough-to-peak swing of 400,000 b/d. The low was 308,000 b/d in January, and we saw 814,000 b/d in August. October in Riyadh saw daytime highs of 32-37°C, while the night cooled to 22-26°C. September saw daytime highs of 39-42°C, while the night sat around 26-28°C. Another factor impacting the use of oil for electricity is that Saudi Arabia is increasing its use of natural gas for electricity. Below are the AccuWeather temperature maps for Riyadh for October and September.

Saudi oil use for electricity down in Oct

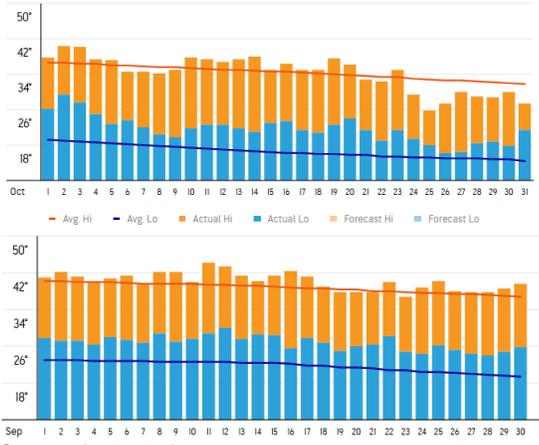
Figure 43: Saudi Arabia Direct Use of Crude Oil for Electricity Generation



Source: JODI, SAF

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Figure 44: Riyadh Temperature Recaps for October (top) and September (bottom)



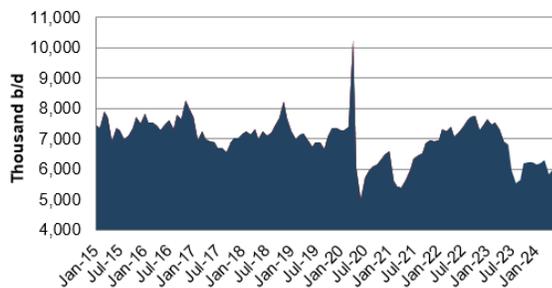
Source: Accuweather

Oil: Saudi net oil exports up +0.156 mmb/d to 5.788 mmb/d in October

As noted above, Saudi Arabia used -0.156 mmb/d MoM less oil for electricity so we would have expected to see a MoM increase in exports or MoM increase in oil inventories. Until recently, JODI did not have access to Saudi import data. But the oil import data is available, so we calculate net oil exports. In the shoulder season, as electricity demand falls from the August peaks, we expect to see net oil exports increase slightly. In October, the JODI data showed Saudi net oil exports were up +0.156 mmb/d MoM to 5.788 mmb/d. This comes as imports were up +0.018 mmb/d and exports were up +0.174 mmb/d. Below is our graph of Saudi Arabia monthly net oil exports.

Saudi net oil exports up MoM

Figure 45: Saudi Arabia Net Oil Exports (mb/d)



Source: JODI, SAF

2023/10/11: Saudi reminded oil exports are seasonal, less in summer

There are always unusual events but, as a rule, there is a seasonality to Saudi oil exports. Here is what we wrote in the Nov 12, 2023 Energy Tidbits memo. “We probably should have called it Saudi Oil 101, but we were a little surprised that Saudi Energy Minister felt the need to explain how there is seasonality to Saudi’s oil exports because Saudi domestic consumption of oil has a seasonal pattern. So seasonally, there is more Saudi oil available for export in the fall than in the summer. On Friday,

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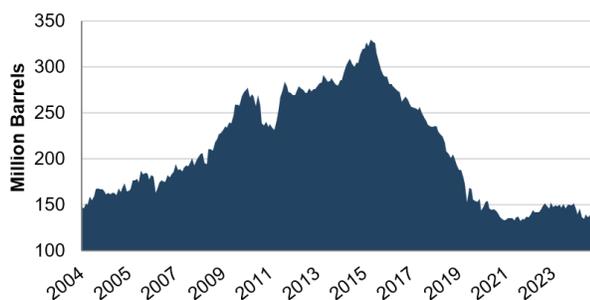
we tweeted [LINK](#) "Agreed, he is explaining Saudi Oil 101. Summer heat = more #Oil used to generate electricity for A/C ie. less for export. Aug 2023 was 726,000 b/d, +414,000 b/d vs Jan 2023. See 📌 SAF 10/22/23 Energy Tidbits graph. Thx @SVakhshouri for flagging. #OOTT." Well known oil strategist Dr. Sara Vakhshouri tweeted "Saudi Energy Minister on #oil price drop: demand is healthy & speculators are to blame for the recent drop. OPEC exports don't indicate increased production. Shipments are seasonal, dipping in summer & rebounding in Sep & Oct; not a sign of output changes." This is the theme we highlight every month when we report on the monthly Saudi oil data for oil to refineries, production, exports, oil for electricity and oil into inventories. Our tweet showed our Oct 22, 2023 Energy Tidbits graph on how Saudi used 414,000 b/d more oil for electricity in Aug than it did in Jan because of the weather. The hot summers always drive up Saudi use of oil for electricity."

Oil: Saudi oil inventories build +2.619 mmb MoM in October

As expected, given the MoM decrease in oil used for electricity and small MoM increase in Saudi oil exports, Saudi crude oil inventories were up MoM. The JODI data for Saudi oil stocks is 141.231 mmb on October 31, which is up +2.619 mmb MoM from 138.612 mmb on September 30. When we look at the components of the MoM changes for production, oil used for electricity, oil intakes into refineries and net oil exports, we would have expected to see a build in oil stocks of +2.635 mmb in October which is a difference of -0.016 mmb. For the math components. Saudi production in October was 8.972 mmb/d, down -0.003 mmb/d MoM vs 8.975 mmb/d in September i.e. this would have led to a +8.972 mmb/d build in inventories MoM. Saudi direct use of oil for electricity was 0.362 mmb/d in October, down -0.156 mmb/d MoM vs 0.518 mmb/d in September, this would lead to a -0.362 mmb/d MoM draw in oil inventories. Refinery intake of oil was 2.737 mmb/d in October and was down -0.019 mmb/d MoM vs 2.756 mmb/d in September, this would have led to a -2.737 mmb/d MoM draw in oil inventories. Net oil exports were 5.788 mmb/d in October, up +0.156 mmb/d MoM vs 5.632 mmb/d in September i.e. would lead to a -5.788 mmb/d MoM draw in oil inventories. The net impact of the key components would have been a MoM build of +2.635 mmb in oil inventories in October vs the reported MoM build of +2.619 mmb.

Saudi oil
inventory data

Figure 46: Saudi Arabia Oil Inventories (million barrels)



Source: JODI, SAF

Oil: US says friendly fire shot down its F-18, Houthis trying to claim credit

Earlier this morning, we posted [LINK](#) "Added Red Sea risk or Houthis trying to take credit?"

Will Israel bomb
Iran's nuclear
facilities?

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Everyone agrees a US F-18 was hit shot down in Red Sea. US Centcom says it was friendly fire. Houthis said it was their attacks. Hope it's friendly fire or else opens up new risk if Houthis can shoot down F-18s. #OOTT [\[LINK\]](#).” (i) We posted this, not because we believe the Houthis or don't believe the US, rather to highlight there would be a different risk view on the Houthis Red Sea if the Houthis somehow have the ability to shoot down F-18 jets. (ii) The point of agreement is that a US F-18 was shot down in the Red Sea. (iii) US said it was friendly fire. Then WSJ and others reported US Centcom statement (we couldn't find it on Twitter or their news site) [\[LINK\]](#) “Two U.S. Navy pilots ejected from their jet fighter over the Red Sea after being caught in “an apparent case of friendly-fire,” U.S. Central Command said Sunday, as American forces conducted a new round of attacks against the Houthi militant group in Yemen overnight. The military said the two pilots safely ejected from their F/A-18 after it was hit by fire from the guided-missile cruiser USS Gettysburg. The jet fighter had flown off the USS Harry S. Truman aircraft carrier and both ships are part of the same strike group. One of the crew members sustained minor injuries and an investigation is under way, the military said.” (iv) And the Houthis have tried to claim it was them that shot down the F-18 and the aircraft carrier Harry S. Truman was forced to withdraw to the northern Red Sea. Saba reported [\[LINK\]](#) “The Armed Forces succeeded in thwarting an American-British attack on our country, where the aircraft carrier USS Harry Truman and a number of its destroyers Triumphant for the oppression of the Palestinian people and their Mujahideen and in retaliation to the American-British aggression against our country. The operation was carried out with eight cruise missiles and 17 drones and the operation led to: First: Shooting down an F-18 aircraft while the destroyers were trying to confront the Yemeni drones and missiles. Second: Most of the enemy warplanes left Yemeni airspace for international waters in the Red Sea to defend the aircraft carrier while it was being targeted. Third: The failure of the enemy attack on Yemeni territory. Fourth: The withdrawal of the aircraft carrier USS Harry S. Truman after being targeted from its previous location towards the northern Red Sea after being subjected to more than one attack by the missile force, naval forces, and the air force.

Oil: Israel's bombing of Syria at least sets up the chance to go after Iran nuclear

The big story last week and early this week was Israel's bombing and taking all or almost all of Syria's military facilities including its radar, which certainly sets up the potential for Israel to go after Iran's nuclear facilities, both known and secret. And for the last five months, we have reminded that Netanyahu told Congress in July that it was when, not if, Israel goes after Iran nuclear facilities. On Monday, we posted [\[LINK\]](#) “07/24/24: Netanyahu told Congress it's not if but when Israel takes action vs Iran's nuclear program. See 📌 07/24 post. Surely Israel knows the location of both Iran's public and secret nuclear facilities. Big question, what does Iran do if Israel strikes???” #OOTT.” We are of the view that Iran must have some secret nuclear facilities but we also believe Israel will know of any such secret locations. Our post included our 07/24/24 post and the Times of Israel reporting on Netanyahu's address to Congress. Our 07/24/24 post [\[LINK\]](#) was “Netanyahu tells congress. it's not if but when Israel takes action vs Iran nuclear program! Overlooked geopolitical & #Oil wildcard/risk! ‘And one more thing. When Israel acts to prevent Iran from developing nuclear weapons, nuclear weapons that could destroy Israel and threaten every American city, every city that you come from, we're not only protecting ourselves. We're protecting you.’ Netanyahu to congress. See 📌 07/21 tweet. Blinken: Iran now 1 or 2 weeks from breakout capacity to produce nuclear material for a weapon. Thx @TimesofIsrael #OOTT.”

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Oil: Libya oil + condensate production of 1.427 mmb/d is slightly above Aug 1 levels

On Tuesday, the Libya National Oil Corporation posted [LINK](#) “Production meters recorded over the past 24 hours a total of more than 1,426,570 barrels of crude oil and condensates, while recording 208,345 barrels of natural gas, bringing the total production to 1,634,915. #NOC #OIL #LIBYA.” This is above the Aug 1 level of 1.279 mmb/d for oil + condensate before the interruptions started. Note that the NOC updates in the past three months stopped giving a split of oil vs condensate. 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.” The 50,000 b/d may be a little low for condensate but we suspect it is closer to 50,000 b/d than 100,000 b/d. Using 50,000 b/d for condensate, the NOC Dec 17 estimate of 1.427 mmb/d would imply crude oil production of 1.377 mmb/d. Note that including natural gas, total Libya oil, condensate and natural gas production is now 1.635 mmboe/d.

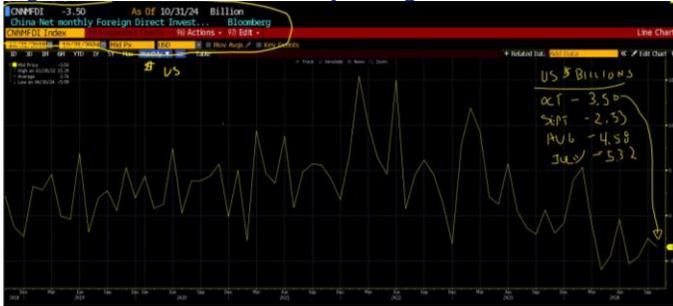
**Libya oil +
condensate
production
1.427 mmb/d**

Oil: October sees 8th consecutive negative net monthly FDI into China

On Tuesday, Bloomberg reported on the China Net Foreign Direct Investment (“FDI”) data for October. And this data is before the Trump election win. So it was more a reflection of capital flows based on China’s Sept stimulus. Oct’s FDI came in negative at -\$3.50b. And we have to believe capital flows are likely to continue negative until it is clear what Trump will do or not do on China. Since last Nov, we have highlighted a major negative indicator for the China economy – China went from years of net monthly foreign direct investment inflows to the recent months of net monthly foreign direct investment outflows. China needs more foreign investment capital, not less foreign investment capital. This week, we saw this negative indicator for China’s recovery – Net monthly foreign direct investment in China was negative for the 8th consecutive month and now for 10 of the last 12 months. On Tuesday, we posted [LINK](#) “Continued negative indicator for China recovery. 8th consecutive month of negative net monthly foreign direct investment flows despite Sept stimulus. And this is Before Trump. US \$ B Oct: -3.50 Sept: -2.53 Aug: -4.58 July: -5.32 June: -0.44 May: -4.50 Apr: -5.99 Mar: -0.9 Feb: 5.3 Jan: 3.9 Dec: -0.8 Nov: -2.0 Thx @business #OTT”. Foreign direct investment has been a huge driver of China over the decades and that is no longer a strength, at least for now. The negative net monthly Foreign Direct Investment into China in Nov was negative -\$3.50b. Our post included the below Bloomberg graph, and we also included a table showing the actual net monthly foreign direct investment by month for the last two years. Below is the Bloomberg graph and the historical table, the notation is in US\$.

**Negative net
monthly FDI
into China**

Figure 47: China net monthly foreign direct investment



Source: Bloomberg

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

China Net monthly Foreign Direct Investment				
Range	01/31/2006	10/31/2024	Period	Monthly
Market	Last Price	Last Price	Currency	USD
View	Price Table			
Date	Last Price	Last Price	Date	Last Price
12/31/24			12/31/23	-0.84
11/30/24			11/30/23	-1.96
10/31/24	-3.50		10/31/23	0.59
09/30/24	-2.53		09/30/23	-2.07
08/31/24	-4.58		08/31/23	-1.35
07/31/24	-5.32		07/31/23	0.51
06/30/24	-0.44		06/30/23	5.71
05/31/24	-4.50		05/31/23	1.26
04/30/24	-5.99		04/30/23	2.05
03/31/24	-0.90		03/31/23	9.25
02/29/24	5.33		02/28/23	11.89
01/31/24	3.89		01/31/23	7.86

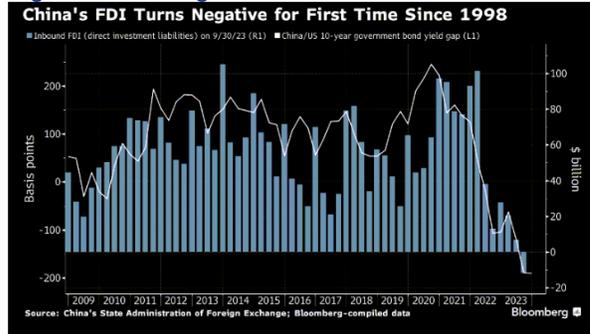
Source: Bloomberg

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

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

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Figure 49: Foreign Direct Investment in China



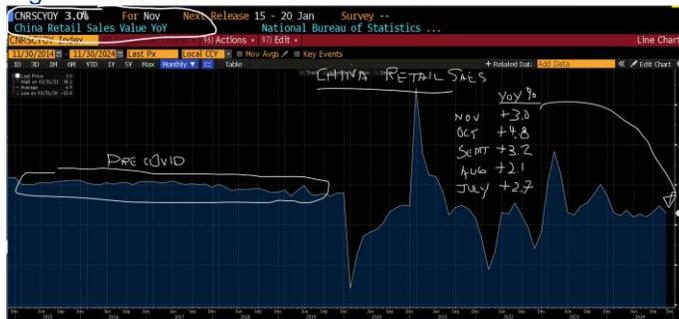
Source: Bloomberg

Oil: China retail sales +3.0% YoY in Nov, lowest YoY increase since Aug

Last Sunday night, Bloomberg reported on the China retail sales data in Nov. It was the market story on Monday as retail sales were less than expected and pointed to a pull back in the still cautious Chinese consumer. We have to wonder if part of this is worrying about the incoming Trump administration. Another key factor is that the YoY growth rates in retail sales is well below where they were pre Covid which saw +8-11% YoY retail sales growth. In Nov, China retail sales were up +3.0% YoY, which is the lowest YoY growth since Aug, and far below expectations of +5.0%. We continue to highlight that the Chinese consumer may remain cautious due to the Trump administration. On Sunday, we posted [LINK](#) "Negative Chinese consumer indicator. Trump factor? Retail sales YoY % Nov +3.0% YoY vs est +5.0% Oct +4.8% Sep +3.2% Aug +2.1% July +2.7% Jun +2.0% May +3.7% Apr +2.3% Mar +3.1% No Jan/Feb data 2023 Dec +7.4% Nov +10.1% Nowhere near pre-Covid steady +8-11%. #OOTT Thx @business". Below is the Bloomberg graph we included with our tweet.

China retail savings

Figure 50: China Retail Sales YoY%



Source: Bloomberg

Oil: China home prices continue to lose value, 18 mths for new & 19 mths for old

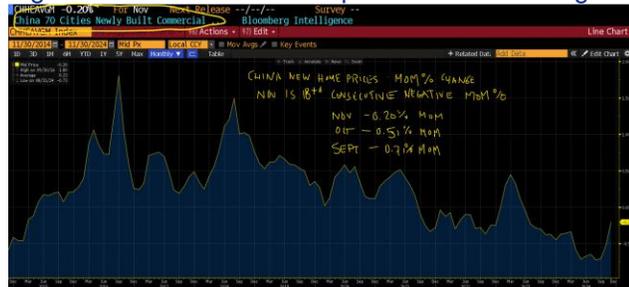
One of the most important priorities for China when announcing their stimulus was to stop home values from declining and increase consumer sentiment. And there is the wildcard of how Chinese consumers sentiment will be impacted by what Trump does or does not do on China and how that will impact Chinese consumer sentiment for home buying as Trump starts to formally unveil policies on Jan 20. But at least for now, the indicators for Nov new

China home prices fall

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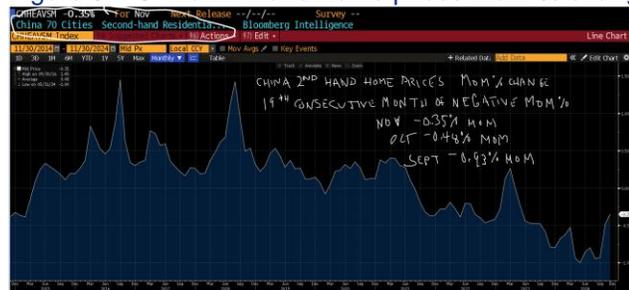
and used home prices was still negative MoM but a lower MoM decline than seen in Oct. Last Sunday night, we posted [LINK](#) “Negative China indicator. Chinese consumer’s most important asset, their home values keep going lower even post Sept stimulus. New home prices: 18th straight MoM % drop. Nov -0.20%, Oct -0.51%. Sept -0.71%. 2nd hand home prices: 19th straight MoM % drop. Nov -0.35%, Oct -0.48%. Sept -0.93%. Smallest MoM % decline but still a decline. Thx @business #OTT”. China home prices continue to lose value – new home prices had a MoM % drop for the 18th straight month, and second-hand home prices fell for the 19th straight month. The MoM% drop was the lowest in several months, nonetheless, prices are still falling. One of the most significant drivers of negative sentiment among Chinese consumers, is that they keep losing value in their homes, which means their biggest asset value keeps decreasing month after month. Just like in North America, the home is the most important asset for most Chinese people, and they have seen the value of their homes decline month after month with no end in sight. In November, Chinese new home and 2nd home prices were down MoM vs October. China new home prices were down -0.20% MoM and that is the 18th consecutive month of MoM declines. China second hand home -0.35% MoM and that is the 19th consecutive MoM decline in prices. It seems as China home prices got a lift post China Sept stimulus, and fell far less the previously. But, as noted above, the qualifier will be how the Trump administration is viewed by Chinese consumers. Below are the Bloomberg graphs with the Nov home prices that were included with our tweet

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



Source: Bloomberg, National Bureau of Statistics

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



Source: Bloomberg, National Bureau of Statistics

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Oil: Vortexa crude oil floating storage est 70.10 mmb at Dec 20, +2.92 mmb WoW

Vortexa floating storage

We are referencing the Vortexa crude oil floating storage data posted on the Bloomberg terminal as of 9am MT yesterday. Note that these estimates get revised over the course of the week and the revisions can go back months. We do not check daily for the revisions, so our comments on the new estimates are compared to the prior week's Vortexa estimates posted on Bloomberg on Dec 14 at 9am MT. (i) Yesterday, we posted [\[LINK\]](#) "Vortexa crude #Oil floating storage. 70.10 mmb on Dec 20, +2.92 mmb WoW vs revised up by +1.65 mmb Dec 13 of 67.18 mmb. 4 of last 5 wks are >70 mmb after not being >70 mmb since Aug 16.

👉 Driven by Asia with build of Iran oil as China reportedly avoiding unsanctioned tankers. Thx @vortexa @business #OOTT." (ii) As of 9am MT Dec 21, Bloomberg posted Vortexa crude oil floating storage estimate for Dec 20 was 70.10 mmb, which was +2.92 mmb WoW vs revised up Dec 13 of 67.18 mmb. Note Dec 13 of 67.18 mmb was revised up +1.65 mmb vs 65.53 mmb originally posted at 9am on Dec 14. (iii) Dec 21 at 70.10 mmb is the 4th of the last 5 weeks over 70 mmb after not being over 70 mmb since Aug 16. This ties to floating oil storage offshore Asia that was reportedly due to Iran barrels being stuck offshore as China has been trying to avoid unloading from sanctioned tankers. Asia was down this week to 23.87 mmb, but last week's Dec 13 was revised up to 30.28 mmb from the originally estimated 28.32 mmb. (iv) Revisions. Six of the prior seven weeks were revised up but were small upward revisions so the average revision for the prior 7 weeks was +1.05 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 Dec 14. Dec 13 revised +1.65 mmb. Dec 6 revised +1.54 mmb. Nov 29 revised -0.69 mmb. Nov 22 revised +2.08 mmb. Nov 15 revised +1.19 mmb. Nov 8 revised +0.92 mmb. Nov 1 revised +0.63 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 13 is 69.43 mmb vs last week's then 7-week moving average of 67.65 mmb. The 7-week moving average of 69.43 mmb is the closest to 70 mmb, a 7-week moving average not reached since Aug 30. (vi) Also remember Vortexa revises these weekly storage estimates on a regular basis. We do not track the revisions through the week. Rather we try to compare the first posted storage estimates on a consistent week over week timing comparison. Normally we download the Vortexa data as of Saturday mornings around 9am MT. (vii) Note the below graph goes back to Jan 1, 2020 to show the run up to Covid and then how Covid started to impact Covid in March/April 2020. (viii) Dec 20 estimate of 70.10 mmb is -58.47 mmb vs the 2023 peak on June 25, 2023 of 128.57 mmb. Recall Saudi Arabia stepped in on July 1, 2023 with its voluntary cuts. (ix) Dec 20 estimate of 70.10 mmb is +0.36 mmb YoY vs Dec 22, 2023 at 69.74 mmb. Below are the last several weeks of estimates posted on Bloomberg as of 9am on Dec 21, Dec 14, and Dec 7.

Figure 53: Vortexa Floating Storage Jan 1, 2000 – Dec 20, 2024, posted Dec 21 at 9am MT



Source: Bloomberg, Vortexa

Figure 54: Vortexa Estimates Posted 9am MT on Dec 21, Dec 14 and Dec 7

Posted Dec 21, 9am MT						Dec 14, 9am MT						Dec 7, 9am MT					
FZWWFST VTXA Indx						FZWWFST VTXA Indx						FZWWFST VTXA Indx					
ID	3D	1M	6M	YTD	1Y	ID	3D	1M	6M	YTD	1Y	ID	3D	1M	6M	YTD	1Y
Fr 12/20/2024						Fr 12/13/2024						Fr 12/06/2024					
70098						65531						66360					
Fr 12/13/2024						Fr 12/06/2024						Fr 11/29/2024					
67175						72082						73260					
Fr 12/06/2024						Fr 11/29/2024						Fr 11/22/2024					
73621						72812						76959					
Fr 11/29/2024						Fr 11/22/2024						Fr 11/15/2024					
72117						77285						55875					
Fr 11/22/2024						Fr 11/15/2024						Fr 11/08/2024					
79366						57634						62090					
Fr 11/15/2024						Fr 11/08/2024						Fr 11/01/2024					
58818						63859						61980					
Fr 11/08/2024						Fr 11/01/2024						Fr 10/25/2024					
64784						64378						60620					
Fr 11/01/2024						Fr 10/25/2024						Fr 10/18/2024					
65012						61743						63865					
Fr 10/25/2024						Fr 10/18/2024						Fr 10/11/2024					
63417						66133						58003					
Fr 10/18/2024						Fr 10/11/2024						Fr 10/04/2024					
65790						59738						43333					
Fr 10/11/2024						Fr 10/04/2024						Fr 09/27/2024					
59907						45040						61223					
Fr 10/04/2024						Fr 09/27/2024						Fr 09/20/2024					
43976						63132						61158					

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 Dec 13 was revised +1.65 mmb. The major revision was Asia revised +1.96 mmb. (ii) Total floating storage at Dec 20 of 70.10 mmb was +2.92 mmb WoW vs revised up Dec 13 of 67.18 mmb. The major WoW changes were Asia -6.41 mmb WoW, West Africa +4.08 mmb WoW and Other +3.09 mmb WoW. (iii) See below chart. We have been highlighting Asia floating storage up in Nov, which has been attributed to more Iran floating oil storage in Asia. The new Vortexa floating storage for Asia at 23.87 mmb was -6.41 mmb WoW but that was vs a revised up by +1.96 mmb Dec 13 of 30.28 mmb. Dec 13 is the first week below 30 mmb after four weeks above 30 mmb incl 36.74 mmb as of Dec 6 and 36.81 mmb as of Nov 29. Nov 29 was revised down this week vs 39.53 mmb posted a week ago. (iv) Dec 20 estimate of 70.10 mmb is -58.47 mmb vs the 2023 high on June 23, 2023 of 128.57 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 -49.38 mmb and Other - 14.19 mmb. (iv) Below is the table we created of the WoW changes by region posted on Bloomberg at of 9am MT yesterday. Our table also includes the “Original Posted” regional data for Dec 13 that was posted on Bloomberg at 9am MT on Dec 14.

Vortexa floating storage by region

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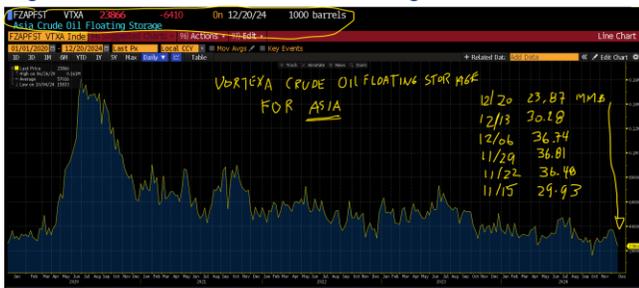
Figure 55: Vortexa crude oil floating by region

Region	Vortexa crude oil floating storage by region			Original Posted		Recent Peak
	Dec 20/24	Dec 13/24	WoW	Dec 13/24	Jun 23/23	Dec 20 vs Jun 23/23
Asia	23.87	30.28	-6.41	28.32	73.25	-49.38
North Sea	1.36	0.67	0.69	0.68	4.71	-3.35
Europe	3.32	4.40	-1.08	4.54	6.05	-2.73
Middle East	11.34	9.27	2.07	9.06	6.59	4.75
West Africa	13.46	9.38	4.08	8.77	7.62	5.84
US Gulf Coast	1.61	1.13	0.48	0.83	1.02	0.59
Other	15.14	12.05	3.09	13.33	29.33	-14.19
Global Total	70.10	67.18	2.92	65.53	128.57	-58.47

Vortexa crude oil floating storage posted on Bloomberg 9am MT on Dec 21
Source: Vortexa, Bloomberg

Source: Bloomberg, Vortexa

Figure 56: Vortexa crude oil floating for Asia Jan 1, 2020 to Dec 20, 2024



Source: Bloomberg, Vortexa

Oil: Europe has been increasing imports of US oil since Russia invaded Ukraine

Early Friday morning, we posted [LINK](#) "Trump's Truth Social post. "I told the European Union that they must make up their tremendous deficit with the United States by the large scale purchase of our oil and gas. Otherwise, it is TARIFFS all the way!!!" #OOTT #LNG #Oil." We included Trump's Truth Social post. And then we did a follow up post to include Bloomberg's reminder graph that Europe has been increasing its US oil imports since Russia invaded Europe in Feb 2022.

Europe imports of US oil

Figure 57: Europe crude oil imports from the US



Source: Bloomberg

Oil: Global oil & product stocks deficit widens: -17.300 mmb from -16.800 mmb

On Monday, BloombergNEF posted its "Oil Price Indicators" weekly, which provides good charts depicting near-term global oil demand and supply indicators. (i) Note BloombergNEF

Bloomberg Weekly Oil Indicators

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uses different periods to determine the surplus/deficit, sometimes using a four-year average for 2017-2019 + 2022-2023, and other times using a five-year average 2017-2019 + 2022-2023. In both cases they do not include 2020 and 2021 in the averages. (ii) The global stockpile for crude oil and products deficit widened to -17.300 mmb for the week ending December 6, from a deficit of -16.800 mmb for the week ended November 29. (iii) Total crude inventories (incl. floating) saw a build of +0.3% WoW to 606.900 mmb, while the stockpiles deficit widened, from a deficit of -16.800 mmb to a deficit of -17.300 mmb. (iv) Land crude oil inventories increased +0.5% WoW to 534.900 mmb, narrowing their deficit from -39.100 mmb to -36.500 mmb against the five-year average (2017-2019 + 2022-23). (v) The gas oil, and middle distillate stocks increased +1.1% WoW to 230.500 mmb, with the surplus against the four-year average widening to +6.800 mmb from +2.100 mmb. Jet fuel consumption by international departures in the week starting December 17, is set to increase by +0.083 mmb/d WoW, while consumption by domestic passenger departures is forecast to increase by +0.042 mmb/d WoW. Below is a snapshot of aggregate global stockpiles.

Figure 58: Aggregate Global Oil and Product Stockpiles



Source: BloombergNEF

Oil: Bloomberg Oil Demand Monitor, Asia to Drive 2025 Growth; Banks More Upbeat

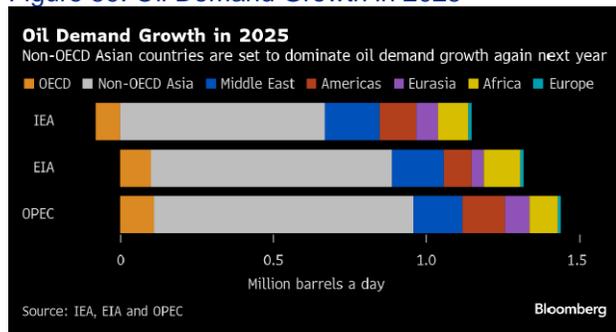
The Bloomberg Oil Demand Monitor is a good recap of key oil demand indicators around the world. This week's report discusses Asia driving oil demand growth in 2025, as well as Analyst expectations of an "almost balanced" market. Bloomberg noted that the 2025 oil demand growth forecasts by the major energy authorities, such as the IEA, and OPEC, are primarily driven by Asian countries, accounting for nearly 60% of the increase according to OPEC. OPEC's 2025 demand growth forecast currently sits at 1.45 mmb/d, while the IEA sits at the lower end, at 1.08 mmb/d. In addition to this, the demand monitor noted that some banks are seeing a more optimistic oil market in 2025, noting slowed crude inventory increases, and tight inventories going into the year. Bloomberg reported "Almost all of the growth seen by OPEC will take place outside the industrialized nations of the OECD — a view shared by the other groups — with China, India and other Asian countries to be responsible for almost 60% of the increase... Some banking analysts are beginning to sound more upbeat about the outlook for oil next year. Crude inventories have only seen modest increases as 2024 comes to a close, compared with the "large builds" that were predicted earlier this year, Macquarie analysts said in a note to clients. "Inventories remain tight and the curve remains backwardated, implying a positive scarcity premium in the front end," Barclays analyst Amarpreet Singh said in another note. Meanwhile, UBS strategists

Bloomberg oil
demand monitor

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said the market will be “almost balanced” in 2025, with global demand to grow by about 1.2 million barrels a day next year, the same as 2024”. Our Supplemental Documents package includes the Bloomberg Oil Demand Monitor.

Figure 59: Oil Demand Growth in 2025



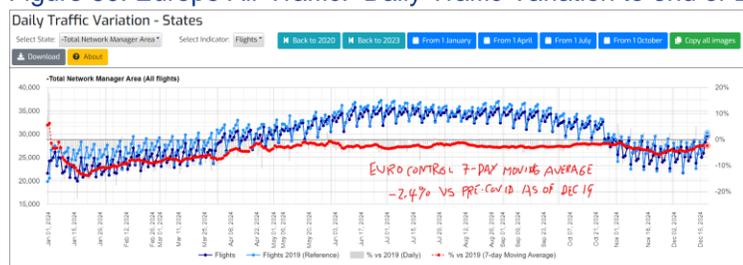
Source: Bloomberg

Oil: Europe airports daily traffic 7-day moving average is -3.6% below pre-Covid

Yesterday, we posted [\[LINK\]](#) “Daily Europe air traffic still stuck below pre-Covid. 7-day moving average as of: Dec 19: -2.4% below pre-Covid. Dec 12: -3.6%. Dec 5: -4.0%. 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%. Thx @eurocontrol #OOTT.” Daily Europe air traffic relative to pre-Covid was up this week but continue to be stuck below pre-Covid. 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 -2.4% below pre-Covid as of Dec 19, which followed -3.6% as of Dec 12, which followed -4.0% as of Dec 5, -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, and -1.9% as of Oct 17. 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

Figure 60: Europe Air Traffic: Daily Traffic Variation to end of Dec 19



Oil: U.S. Domestic travel over U.S. Christmas Holiday forecasted to be up +2.8% YoY

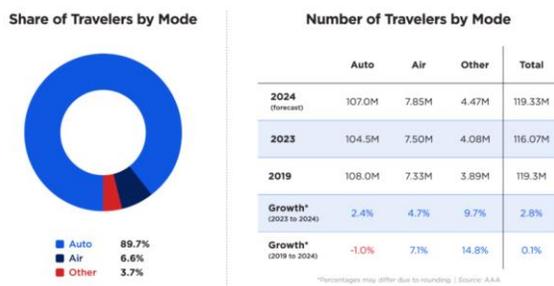
Last week, the American Automobile Association (AAA) released its forecast for US travel over the Christmas holiday [\[LINK\]](#). AAA projects the number of travelers will be +2.8% YoY to a forecasted 119.33 million travellers which surpasses the recent 2019 record. The AAA

Christmas Holiday travel up YoY

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wrote “This year’s domestic travel projection narrowly surpasses the previous record set in 2019 by 64,000 travelers. AAA expects an additional 3 million travelers this holiday season compared to last year... AA expects air travel to set a new record this holiday season with 7.85 million passengers. That number surpasses the previous record of 7.5 million air travelers last year... Nearly 90% of holiday travelers will be driving to their destinations, making it the most popular way to travel. 107 million people are expected to travel by car, and while that number is 2.5 million higher than last year, it’s shy of 2019’s record of 108 million... The number of Americans traveling by bus, train, and cruise this holiday season is up nearly 10% compared to last year. AAA expects 4.47 million people will travel by other modes”.

Figure 61: 2024 Christmas Holiday Travel Forecast



Source: AAA

Energy Transition: ACEA, EU Nov BEV sales -9.5% YoY share still down in 2024

EU Nov BEV sales

As a reminder, EU Oct new car registrations are EU so do not include UK. EU BEV sales were down -9.5% YoY in Nov, which followed +2.4% YoY in Oct, +9.8% YoY in Sept and the brutal -43.9% YoY in Aug. On Thurs, we posted [\[LINK\]](#) “EU BEV sales continue down YoY in Nov, HEV up big YoY. Reminder: HEV/PHEVs are really just more fuel efficient ICE. See 📌 09/04/24 post. BEVs: Nov -9.5% YoY, YTD -5.4% YoY to 13.4% share vs 14.2%. PHEV Nov -8.8% YoY, YTD -8.0% YoY to 7.0% share vs 7.7%. HEV is big winner. Nov +18.55 YoY YTD +19.7% YoY to 30.7% share vs 25.7%. Petrol Nov -7.8% YoY, YTD -4.9% YoY to 33.7% share vs 35.6%. Diesel Nov -15.3% YoY, YTD -11.2% YoY to 12.1% share vs 13.7%. Thx @ACEA_auto #OOTT. The two key 2024 themes continue to play out: BEV sales are down YoY and HEV sales are the big winner taking share from all the other fuels. We have previously noted that we expected BEV sales to be in Nov and Dec as auto manufacturers heavily discount to get BEV sales up so they can be closer to any govt mandated BEV sales targets. BEV Nov sales of 130,757 were -9.5% YoY but up MoM vs Oct sales of 124,907. We still expect to continued heavy discounting of BEVs in Dec to help support sales. The other big theme is HEVs continue to be up strong and taking share from all other fuel sources. HEV Nov sales were flat MoM but were +18.5% YoY bring YTD Nov 30 HEV sales +25.7% YoY. One surprise is that PHEV sales continue to be down YoY given the huge growth in regions like China. The other general economic theme is that EU total car sales of 869,816 were down -1.9% YoY and are only +0.4% for YTD Nov 30. Below is our table of the ACEO EU auto sales for Nov by fuel sources. Our Supplemental Documents package includes the ACEA Nov new car registrations.

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Figure 62: EU Nov new car registrations by power source

EU Nov 2024 New Car Registrations by Power Source										
	Volume		% Change	Share		YTD Nov 24	YTD Nov 23	% Change	Share	
	Nov-24	Nov-23		Nov-24	Nov-23				YTD Nov 24	YTD Nov 23
BEV	130,757	144,482	-9.5%	15.0%	16.3%	1,303,686	1,377,488	-5.4%	13.4%	14.2%
PHEV	65,826	72,176	-8.8%	7.6%	8.1%	683,244	742,706	-8.0%	7.0%	7.7%
HEV	288,776	243,706	18.5%	33.2%	27.5%	2,981,518	2,491,004	19.7%	30.7%	25.7%
Others	26,162	29,090	-10.1%	3.0%	3.3%	299,415	296,063	1.1%	3.1%	3.1%
Petrol	266,115	288,597	-7.8%	30.6%	32.5%	3,277,838	3,447,645	-4.9%	33.7%	35.6%
Diesel	92,180	108,867	-15.3%	10.6%	12.3%	1,180,348	1,328,947	-11.2%	12.1%	13.7%
Total	869,816	886,918	-1.9%	100.0%	100.0%	9,726,049	9,683,853	0.4%	100.0%	100.0%

Others incl fuel-cell electric vehicles, natural gas vehicles, LPG, E85/ethanol, and other fuels
Sources ACEA

Prepared by SAF Group <https://safgroup.ca/insights/energy-tidbits/>
Source: ACEA

11/13/24: ACEA, worsening EU EV outlook reinforces need for urgent action

As noted above, on Thursday, the ACEA reported EU BEV sales in Nov were down -9.5% YOY and its YTD share Nov was down to 13.4% vs 14.2% YTD Nov 2023. On Nov 13, so the ACEA obviously saws what was happening to BEV sales in the first 10 days or so of Nov, the ACEA wrote “New evidence of worsening outlook for electric vehicle market reinforces need for urgent action”. We didn’t see the ACEA Nov 13 call for urgent action on BEVs in EU until Wed. On Wed, we tweeted [\[LINK\]](#) “Can EU do something to fix stagnating #BEV sales? How long will it take to turnaround? ”New evidence of worsening outlook for electric vehicle market reinforces need for urgent action” “All indicators point to a stagnating EU electric vehicle market, at a time when acceleration is needed.” ACEA_auto #OOTT.” The warnings are new ones from the ACEA. They are clear, the BEV market is stagnating in the EU. It’s worth a read as the ACEA highlights stability is not enough, the BEV market needs more. And the costs of compliance in hitting the BEV sales targets is steep for car manufacturers. There are number of items that need to get the BEV market accelerating instead of stagnating including more EV market stimulus. Our Supplemental Documents package includes the ACEA urgent action release.

Energy Transition: Germany BEV -21.8% YoY in Nov, -26.1% YoY for YTD Nov 30

No one should be surprised Germany BEV sales continue to suffer given all the negative comments from the German car manufacturers over the past five months. Germany BEV sales continue to be significantly down YoY at -21.8% YoY for Nov and -26.1% YoY for YTD Nov 2024. And they are the only fuel source that is down YoY. On Thursday, we posted [\[LINK\]](#) “Germany Nov BEVs losing share to PHEV, HEV, Petrol & Diesel. Reminder: HEV/PHEVs are really just more fuel efficient ICE. See 📌 09/04/24 post. BEV Nov -21.8% YoY, YTD -26.1% YoY to 13.4% share vs 18.0%. PHEV Nov +13.7% YoY, YTD +9.5% YoY to 6.7% share vs 6.1%. HEV Nov +22.3% YoY, YTD +12.5% YoY to 26.4% share vs 23.4%. Petrol Nov -5.4% YoY, YTD +2.1% YoY to 35.6% share vs 34.7%. Diesel Nov -7.5% YoY, YTD +0.7% YoY to 17.4% share vs 17.3%. Thx @ACEA_auto #OOTT.” It’s hard to ignore that BEV sales and share are down big in 2024 and all other power sources have gained market share in 2024. Below is our table of Germany new car registrations by power sources for Nov and YTD Nov 30.

**Germany Nov
BEV sales -21.8%
YoY**

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Figure 63: Germany Nov new car registrations by power source

Germany Nov New Car Registrations by Power Source										
	Volume		% Change	Share		YTD Nov 24	YTD Nov 23	% Change	Share	
	Nov-24	Nov-23		Nov-24	Nov-23				YTD Nov 24	YTD Nov 23
BEV	35,167	44,942	-21.8%	14.4%	18.3%	347,048	469,565	-26.1%	13.4%	18.0%
PHEV	20,604	18,124	13.7%	8.4%	7.4%	172,802	157,830	9.5%	6.7%	6.1%
HEV	73,950	60,463	22.3%	30.2%	24.6%	684,923	608,893	12.5%	26.4%	23.4%
Others	961	968	-0.7%	0.4%	0.4%	12,992	13,484	-3.6%	0.5%	0.5%
Petrol	77,352	81,734	-5.4%	31.6%	33.3%	922,615	903,766	2.1%	35.6%	34.7%
Diesel	36,510	39,470	-7.5%	14.9%	16.1%	452,230	449,178	0.7%	17.4%	17.3%
Total	244,544	245,701	-0.5%	100.0%	100.0%	2,592,610	2,602,716	-0.4%	100.0%	100.0%

Others incl fuel-cell electric vehicles, natural gas vehicles, LPG, E85/ethanol, and other fuels
Sources ACEA
Prepared by SAF Group <https://safgroup.ca/insights/energy-tidbits/>
Source: ACEA

Energy Transition: UK Nov BEV sales +58.4% with big discount & ICE/HEV held back

UK Nov BEV sales +58.4% YoY

The big outlier in the ACEA Nov new registrations for BEV sales in the UK of 36,581 BEVs, which was +58.4% YoY. But we have been highlighting for months that we expected to see strong BEV sales in Nov and Dec as car manufacturers offer big discounts to try to get BEV to their 22% target of total sales. And, at the same time, some of the car manufacturers have held been holding back ICE and HEV sales to make it easier for EVs to get closer to the 22% target. On Thursday, we posted [\[LINK\]](#) "UK Nov BEV sales are deceiving. UK BEV Nov sales: A big month, +58.4% YoY to bring YTD +17.9% YoY. @ACEA_auto. Big BEV discounting because BEVs at 17.9% is still well short of UK regulated BEVs to be 22% of 2024 total car sales. PLUS, See 10/16/24 tweet: @vertumotorsCEO, some car manufacturers rationing ICE & HEV to meet ZEV mandate. [\[LINK\]](#). HEVs 35.5% share YTD Nov. See 📌 09/04/24 post, HEV PHEV are really just more fuel-efficient ICE. #OOTT." We call the BEV numbers deceiving because there has been well reported big discounting and there has been ICE and HEV demand in the UK but some car manufacturers have been holding back ICE and HEV deliveries to ensure BEV sales try to get as close as possible to the UK targeted minimum 22% of total car sales in 2024. So if the BEV demand hasn't and still isn't high enough, then the car manufacturers have to restrict and hold back ICE and HEV sales. So weak demand for BEVs automatically translates into weaker ICE and HEV sales than demand. Below is our table of UK Nov new car registrations by power source for Nov and YTD Nov 30.

Figure 64: UK Nov new car registrations by power source

UK Nov New Car Registrations by Power Source										
	Volume		% Change	Share		YTD Nov 24	YTD Nov 23	% Change	Share	
	Nov-24	Nov-23		Nov-24	Nov-23				YTD Nov 24	YTD Nov 23
BEV	38,581	24,359	58.4%	25.1%	15.6%	338,314	286,846	17.9%	18.7%	16.3%
PHEV	15,687	15,871	-1.2%	10.2%	10.1%	154,462	129,149	19.6%	8.5%	7.3%
HEV	53,495	49,757	7.5%	34.8%	31.8%	643,681	559,233	15.1%	35.5%	31.7%
Others	0	0	n/a	0.0%	0.0%	0	0	n/a	0.0%	0.0%
Petrol	41,925	61,875	-32.2%	27.3%	39.5%	624,033	720,124	-13.3%	34.4%	40.9%
Diesel	3,922	4,663	-15.9%	2.6%	3.0%	51,502	66,610	-22.7%	2.8%	3.8%
Total	153,610	156,525	-1.9%	100.0%	100.0%	1,811,992	1,761,962	2.8%	100.0%	100.0%

Others incl fuel-cell electric vehicles, natural gas vehicles, LPG, E85/ethanol, and other fuels
Sources ACEA
Prepared by SAF Group <https://safgroup.ca/insights/energy-tidbits/>
Source: ACEA

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

Vertu was the first significant auto group to warn that car manufacturers were already restricting ICE and HEV deliveries to try not to make the BEV % of total car sales get even lower. Here is what we wrote in our Sept 9, 2024 Energy Tidbits memo. "The

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

Energy Transition: HEVs & PHEVs are really just more fuel efficient ICE vehicles

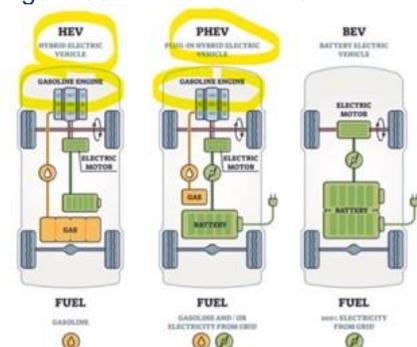
The ACEA Nov new car registrations continue to show that the dominant trend in car sales has been the emergence of HEVs over the past year as the growth areas for cars in Europe. [Note that China is different as PHEVs dominate. See our 11/04/24 tweet [\[LINK\]](#) PHEVs are 60% of BYD's NEV New Energy Vehicles]. But what most forget is that HEV sales are a win or at least a much lesser loss of gasoline/diesel consumption vs BEVs. 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 BEVs for an electrified car group as BYD does in its NEV category. 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. Note how much kms PHEVs drive on ICE mode vs battery mode is like a dirty little secret and we have only been able to find one PHEV player, Volvo, make a clear statement on this split. 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

HEVs/PHEVs are just fuel efficient ICE vehicles

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noted earlier, Volvo backed off its fully electric plans and its press release 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.

Figure 65: HV vs PHEV vs BEV



Source: Engineering Infrastructure

Energy Transition: IEA pushes out peak coal demand until sometime after 2027

On Thursday, we posted [\[LINK\]](#) “Is this the 1st of IEA pushing out peak demand timing for #Oil, #NatGas, #Coal? IEA Coal 2023: Peak coal demand in 2023 with 2024 down YoY. IEA Coal 2024: Revised up 2023. Demand could peak in 2027. Revised up 2026 +6.0% vs Coal 2023. Fossil fuels needed for longer. #OOTT.” (i) The IEA had just posted its annual medium term outlook for coal and we have been expecting the IEA will be pushing back their peak demand forecasts for coal, oil and natural gas. We compared the “Coal 2024: Analysis and forecast to 2027” vs “Coal 2023: Analysis and forecast to 2026”. We always try to compare the IEA’s new forecast vs their prior forecast and, in this case, it shows the IEA cranking up its coal consumption estimates in looking back at 2023 and in looking forward to 2026/2027. (ii) Please remember Coal 2023 was posted in Dec 2023 so 2023 was essentially over. (iii) Coal 2023 said coal consumption was peaking in 2023. Coal 2023 led off demand section “Global coal demand is expected to peak in 2023 and decrease thereafter.” And that 2023 consumption was only up marginally vs 2022. IEA wrote “In 2023 global coal demand is expected to have increased only marginally by 1.4%, albeit reaching a new all-time high of about 8 536 Mt.” (iv) And the IEA cranked up its lookback at 2023 coal consumption +1.8% to 8,687 MT (was 8,536 MT). To put that in perspective, that would be like the IEA looking back at 2023 oil demand and increasing that by 1.8 million b/d. (v) Coal 2023 only went out to 2026. Comparing 2026 forecasts, Coal 2024 cranked up coal consumption +6.0% to 8,847 MT vs 8,344 MT in Coal 2023. To put in perspective, that would be like the IEA increasing their oil consumption forecast for 2026 (two years away) by over 6 million b/d. (vi) Coal 2023 had a clear statement that coal consumption was expected to peak in 2023. Coal

**IEA pushes out
peak coal demand**

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2024 does not make a clear statement on peak coal consumption. Coal 2024 estimates 2027 coal consumption +0.3% to 8,874 MT vs 8,847 MT in 2026. Instead of calling for a peak in coal consumption, IEA is saying demand “could plateau thru 2027”. There is a difference in the IEA saying coal demand “could plateau” vs “global coal demand is expected to peak”. Below are the coal consumption forecasts from Coal 2024 and Coal 2023. Our Supplemental Documents package includes excerpts from Coal 2024.

Figure 66: IEA coal consumption forecast Coal 2023 vs Coal 2024



Source: IEA Coal 2023 and Coal 2024

Energy Transition: Trump’s Navarro say Biden EV \$7,500 credit is “gone like the wind”

We have been highlighting Trump’s views on EVs and how he plans to remove the Biden \$7,500 tax credit for BEVs as one of his Day 1 moves. That was reinforced on Tuesday morning by Peter Navarro, Trump’s incoming White House Senior Trade Counselor. Earlier in the memo, we noted our Tuesday post [\[LINK\]](#) on their view that Drill Baby Drill would take oil back towards \$50 included “Also note Biden’s EV mandate “that is gone like the wind”. Navarro was clear that Trump will be getting rid of Biden’s \$7,500 EV tax credit on Day 1. Here is the transcript we made of Navarro on EVs. “And then on the demand/pull side, what we have is, first of all is those green mandates, that EV mandate, that is gone. That is gone like the wind. That’s going to help mute prices, the price level.”

Biden’s EV credit is “gone like the wind”

Trump stated Day 1 executive order to get rid of Biden EV mandate

Trump’s plan to get rid of Biden’s EV mandate has been clearly stated for a year. Here is what we wrote in our Nov 10, 2024 Energy Tidbits memo. “Trump stated day 1 executive order to get rid of Biden EV mandate. Even prior to Trump’s election, we noted our expectation for analysts and agencies to revise peak oil demand forecasts to higher peak oil levels and peak oil at a later date. (i) On Wednesday, we tweeted [\[LINK\]](#) “Peak Oil Demand! Ending Biden’s EVs mandate is a clearly stated Trump Day 1 executive order priority. Would fit @IEA’s “stated energy policies” criteria ie. should give them the excuse to push out their peak oil demand by 2030. 05/11/24: “On Day 1, I will immediately terminate Joe Biden’s insane electric vehicle mandate. And there will be no ban on gas cars and gas trucks in the Garden State. There will no ban anywhere in the USA on gas.” Trump. #OOTT Thx @cspan.” Then on Friday, we tweeted Trump’s victory speech comments. [\[LINK\]](#) “Higher & later Peak #Oil Demand forecasts. “I will govern by a simple motto. Promises made, promises

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kept. We're going to keep our promises." Trump victory speech. Ending Biden's EV mandate is a clearly stated Trump Day 1 executive order priority. #OOTT." (ii) Our tweets included the transcript we made of Trump's May 11, 2024 highlighting his clearly stated plan for a Day 1 executive order to get rid of Biden's EV mandate. SAF Group created transcript of comments by Donald Trump at a campaign speech in Wildwood, New Jersey on May 11, 2024. Video courtesy of c-span [LINK](#). At 28:06 min mark. Trump "But unfortunately, the Democrats in New Jersey have embraced Joe Biden's radical pro-China plan plan to eliminate gas-powered cars and trucks. Can you believe it? And force everyone into ultra-expensive electric vehicles that don't go far. I always say, they have a couple of problems – they're too expensive, they're going to be made in China, and they don't go far. Other than that, I think they're wonderful. On Day 1, I will immediately terminate Joe Biden's insane electric vehicle mandate. And there will be no ban on gas cars and gas trucks in the Garden State. There will no ban anywhere in the United States of America on gas. You can buy electric if you want, you can buy gas, you can buy whatever you want, that's the way it should be." (iii) The reality of analysts and agencies is that they are always opportunistically looking for a reason why they have to revise their forecasts and Trump's EV views will give them that opportunity. (iv) This will also work for the IEA as Trump's clearly stated intention should qualify for the criteria for their stated energy policies forecast. We have been expecting the IEA to revise their peak oil demand forecast and they can now have an excuse to do so."

Energy Transition: Trump to hit EVs on price and charging availability

The long stated two biggest reasons holding back buyers of EVs in the US have been price (they are expensive) and range anxiety (not enough charging stations). It sounds like Trump plans to make both of these negatives more negative when he takes over on Jan 20. We have been highlighting Trump's plan to eliminate the \$7,500 tax credit for EVs, which would make EVs cost \$7,500 more. But we haven't been highlighting the reports that Trump also plans to hit allocating capital to adding EV charging. On Monday, we posted [LINK](#) "Big hit to short/mid term US BEV sales. Biggest fears for BEV buyers gets worse: Even more expensive taking away \$7,500 credit. Even more charging station anxiety cutting remaining Biden \$7.5b for charging station buildout. More ICE will be offered for longer with relaxed mileage. Gasoline consumption won't decline as fast as aspirations. Thx @JarrettRenshaw @c_kirkham #OOTT." Our post included the link to the Reuters report that said "The transition team calls for clawing back whatever funds remain from Biden's \$7.5 billion plan to build charging stations and shifting the money to battery-minerals processing and the "national defense supply chain and critical infrastructure." Our Supplemental Documents package includes Reuters report.

**Trump to hit EVs
tax credit &
charging stations**

Energy Transition: UK Clean Power 2030 should mean very Expensive Power 2030

Last Friday, the new UK Labour Govt released its "Clean Power 2030 Action Plan: A new era of clean electricity". [LINK](#) There is a lot of good info in the report on UK's clean energy to date and targets for the next five years. There is no question the targets to 2030 are huge and, even to clean energy enthusiasts, have to look nowhere near achievable. We suspect they would be delighted if they got ¼ of the way of the way to their targets. On Tuesday, we posted [LINK](#) "Very expensive UK power prices ahead! Someone has to pay for UK Clean Power 2030 need to DOUBLE total power capacity by 2030 incl offshore wind +215%,

**UK Clean Power
2030**

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onshore wind +97%, solar +177%, batteries +456%.. UK may call it "variable" but it's "intermittent" and is to the most part just additive to "firm", "dispatchable" incl #NatGas capacity. Don't forget UK electricity consumption, apart from post Covid recovery, was declining. #OTT. [\[LINK\]](#)." By way of background the UK statistics noted UK electricity consumption has been declining other than the post Covid recovery. Part of that has been the warm winters. But, even still, the UK Clean Power 2030 plan targets the need to increase UK electricity generation "capacity" by 96% over the next five years, essentially a doubling of electricity generation capacity so the UK can meet its clean power goals. They say they need to add massive add to clean energy capacity: Offshore wind +215%, Onshore wind +97%, solar +177% and batteries +456%. This is over five year! We had to chuckle as they have moved to use the term "Variable" to mean intermittent power and they use "Dispatchable" to unabated gas. We only spent a few hours on the report but we could not see any table or graph in the 138 pages that had the starting point of what is the increasing power "consumption" they forecast over the next five years that requires doubling the total UK electricity generation capacity. In the pre-Net Zero days, the starting point would be here is the forecast increase/decrease in electricity consumption and then they would figure out what type and how much of each fuel was needed to be added. That doesn't seem to be the process. We don't know what that % increase of electricity consumption for the next five years but, based on the history, we have to believe the % increase is very small single digits each year, closer to 1% than 5%. It just reminds that moving to renewable energy is really just additive to the existing generation and hopefully at least taking care of any growth in electricity consumption on an overall basis. And this is not what citizens were sold when everyone jumped on Net Zero. Rather they were sold on how energy would be cheaper and renewable energy would displace fossil fuels. It's really just a reminder UK energy costs have to go way higher. Below is the key summary table with our added numbers. Our Supplemental Documents package include excerpts from the UK Clean Energy 2030 report.

Figure 67: UK targeted electricity generation capacity additions to 2030

UK
Clean Power 2030 Action Plan

Table 1: Installed capacity in 2030 in the NESO 'Further Flex and Renewables' and 'New Dispatch' scenarios, and the DESNZ 'Clean Power Capacity Range', compared to current installed capacity (GW)

Technology	Current installed capacity ²⁰	NESO 'Further Flex and Renewables' Scenario	NESO 'New Dispatch' Scenario	DESNZ 'Clean Power Capacity Range' ²¹
Variable				
Offshore wind	14.8	51	43	43 – 50
Onshore wind	14.2	27	27	27 – 29
Solar	16.6	47	47	45 – 47
Firm				
Nuclear	5.9	4	4	3 – 4
Dispatchable				
Low Carbon Dispatchable Power ²²	4.3	4	7	2 ²³ – 7
Unabated gas	35.6	35	35	35 ²⁴
Flexible				
LDES	2.9	8	5	4 – 6
Batteries	4.5	27	23	23 – 27
Interconnectors	9.8	12	12	12 – 14
Consumer-led flexibility ²⁵	2.5	12	10	10 – 12
TOTAL	111.1		217.5	

TARGETED ADDITIONAL CAPACITY TO 2030
 GW %
 + 31.7 +215
 + 13.8 +97
 + 29.4 +177
 - 2.4 -41
 + 0.2 +5
 - 0.6 -2
 + 2.1 +72
 + 20.5 +456
 + 3.2 +33
 + 8.5 +340
 + 106.4 GW +96%

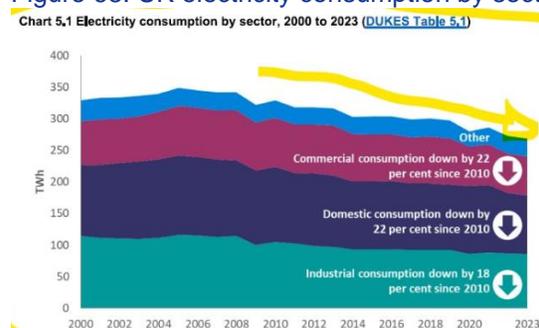
Source: UK Clean Energy 2030

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UK electricity consumption has declined every year excl post Covid recovery

We had a followup post on the UK Clean Power 2030. We posted [LINK](#) “Here’s why UK adding intermittent wind/solar “capacity” is to the most part additive if still want to provide 24/7 power. UK govt data: total UK electricity consumption has declined every year other than post Covid recovery. YET 📌 post. UK Clean Power 2030 says need to double current UK electricity capacity by adding massive wind, solar, battery in 5 years. UK electricity costs will be very expensive. #OOTT [LINK](#).” Our post included the below graph from the UK govt with the comments that UK electricity consumption have been declining other than a post-Covid recovery period. Our Supplemental Documents package includes the UK govt electricity consumption excerpt for up to the end of 2023.

Figure 68: UK electricity consumption by sector



Energy Transition: NERC, natural gas is key to massive US electricity demand growth

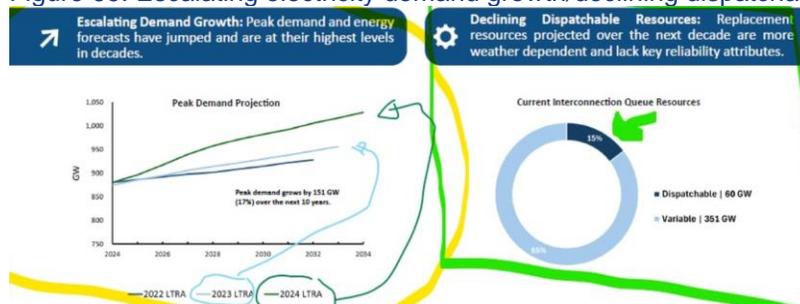
There was a great reminder on Wednesday from NERC (North America Electric Reliability Corporation) on the critical need for natural gas for power generation to meet the massive growth in electricity demand. (i) On Wednesday, we posted [LINK](#) “Only #NatGas can come to the rescue for massive NA electricity growth to 2034. @NERC_Official LTRA. - huge YoY growth in forecast electricity demand. - need is for “dispatchable generators with assured fuel supplies, such as #NatGas, to be reliable all the time” - resource mix is becoming increasingly variable (wind/solar) - “#NatGas fired generators are a vital BPS resources. #OOTT.” (i) NERC is the industry group of all regional electricity organizations and posted its 2024 Long Term Reliability Assessment yesterday. This is the electricity outlook for the next 10 years. (ii) When we read reports like this, we shake our heads at intelligent people who for whatever agenda buried their hand in the sand about the reality of interruptible wind and solar. (iii) NERC’s next 10 yr electricity demand growth forecast is up hugely vs the 2023 forecast with new data centers are the driving force as they can be built relatively quickly. (iv) NERC’s says “The LTRA, previewed in the 2024 LTRA video, indicates that the summer peak demand forecast is expected to rise by more than 122 GW for the 10-year period (15.7% higher than the current level). Since the 2023 LTRA, the 10-year summer peak demand forecast has grown by more than 50%. Similarly, the winter peak demand forecast is expected to rise by nearly 14% for the 10-year period.” (v) And the point that is finally sinking home to people – electricity capacity adds have been driven by interruptible wind and solar and there is huge risk to because of this weather dependency. So NERC sees the need is

NERC highlights need for natural gas power

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for “dispatchable generators with assured fuel supplies, such as natural gas, to be reliable all the time”. The need is for natural gas. And look at the below graph on how the grid for regular customers now relies on 85% from interruptible power for any dispatchable needs. (vi) NERC wrote ““Meanwhile, announced generator retirements, over the 10-year period total 115 GW and are largely being replaced by variable generation. The resulting mix of resources will be able to serve energy needs at most times, but will need to have adequate amounts of dispatchable generators with assured fuel supplies, such as natural gas, to be reliable all the time.” (vii) Note NERC did not highlight new SMR nuclear as this is a forecast for 10 years and SMR cannot have any significant impact in this period. (viii) But the picture remains that in addition to have big increases in natural gas generation, NERC also highlights concerns on coal/nuclear/natural gas retirements. The reality is that utilities have no choice but to extend coal, extend nuclear. And we have been seeing a number do so. That has to continue. (ix) One item that isn’t a big focus but one that we have said for years will be a key theme for energy for the 2020s is that energy conservation/efficiency will be a major push the more there is interruptible renewable energy. Below are two of the charts from the NERC infographic. Our Supplemental Documents package includes excerpts from the NERC outlook and the NERC press release..

Figure 69: Escalating electricity demand growth/declining dispatchable resources



Source: NEC

Energy Transition: “Green transition is under great pressure” Denmark solar leader

One of the Thursday renewable headlines was how Danish onshore wind company, Better Energy, was going into restructuring. But what we found most interesting was the Better Energy press release comments on the green transition challenges. Better Energy is the major onshore Denmark wind player with about half of the onshore wind and had some blunt comments on the green transition. We posted [\[LINK\]](#) ““the green transition is under great pressure” says @BetterEnergy (~half of Denmark onshore wind) as it goes into restructuring. Also “The main challenge is no longer the production of more renewable energy, but increasingly weak demand” “reduced investor appetite”, and much more. Energy Transition will take way longer, cost way more and be a rocky/bumpy road. #NatGas & keeping #Coal power generation will be increasingly in demand to fill the energy transition delay/gap in the next decade. #OOTT.” There were more negative comments on the green transition. Better Energy says there is “increasingly weak demand” for more renewable energy. They didn’t say if that was a cost issue or an intermittent issue, just that there is weak demand for renewable energy. And they highlight the problem with attracting capital saying “For capital investors, the external factors create uncertainty about the valuation of renewable

“Green transition is under great pressure”

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energy projects, which dampens the desire to invest and results in significantly higher return requirements.” There are more items in the short Better Energy release on the challenges for the green transition. Our Supplemental Documents package includes the Better Energy release.

Energy Transition: Vale carries out pilot for cargo ship with rotor sails

No one doubts that it looks like a cool way to use wind to power ships with Vale’s pilot to use rotor sails. But we have to wonder if the math makes sense or if math on break-even economics is a consideration when we saw Vale’s Monday announcement [\[LINK\]](#) “Vale carries out its 1st test with wind energy on the largest ore carrier in the world. • Valemax Sohar Max has just completed a voyage from China to the Port of Tubarão, Brazil • 5 rotor sails were installed, 35 m high and 5 m in diameter each • Expectation is for efficiency gains of 6% and reduction of 3,000 tons of CO₂equ./year.” Vale didn’t detail what an efficiency gain of 6% includes. We assume an efficiency gain is some sort of net assessment ie. there is no comment on cargo ship speed. And Vale doesn’t make any comment on the economics, but we have trouble believing a 6% efficiency gain would come anywhere near justifying a cost benefit analysis. So we don’t know the efficiency math or what is included. But we have to wonder what the efficiency gain and emissions reduction compares to slower steaming? And if Vale did an analysis to how much slower did they have to steam to break even to the new rotor sails ie. just enough slow steaming to get the 6% efficiency gain and reduction of 3,000 tons of Co₂/yr. Our Supplemental Documents package includes the Vale announcement.

Vale’s rotor sails for cargo ships

Figure 70: Escalating electricity demand growth/declining dispatchable resources



Source: Vale

Capital Markets: Canada pointing to a spring election

On Friday, we posted [\[LINK\]](#) “Looks like a federal Canada election in the spring. @theJagmeetSingh seems to finally remove any vagueness and moves to a clear position to bring down the govt and “put forward a clear motion of non-confidence” “no matter who is leading the Liberal party” #OOTT.” NDP leader Singh has been the holdout from voting for a non-confidence motion on the Trudeau Liberal govt. We really hope Singh wasn’t being too cute on some subtle nuances to what was viewed as a clear view. But some Ontario conservatives reminded us that there was nuance by Singh saying he will vote to bring the govt down no matter who is leading the Liberal Party and that “We will put forward a clear motion of non-confidence in the next sitting of the House of Commons. Some worry that Singh is not committing the NDP to vote down the government in motions set out by the other

Canada spring election likely

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parties. If he is being that cute, he will take a lot of heat. But it is pointing to an election possibly in March.

Finance Minister Freeland points to Trudeau for political gimmick spending

Call it opening the wounds or call it the straw the fatal blow, Deputy Prime Minister and Finance Minister Chrystia Freeland's resignation letter on Monday looks to be the end of any chance for Trudeau to retain support of the Liberals. It is worth a read. And it points to what Trudeau wanted to do in this last year before any 2025 election – Trudeau wanted to spend like crazy and Freeland wanted *"keeping our fiscal powder dry today, so we have the reserves we may need for a coming tariff war. That means eschewing costly political gimmicks, which we can ill afford and which make Canadians doubt that we recognize the gravity of the moment"*.

Freeland is certainly making sure that as she goes out the door, Canada is aware that the person driving the massive political oriented spending was Trudeau. It would be interesting to see what she says about political gimmick spending and how much of that was on the green transition. Our Supplemental Documents package includes the Freeland resignation letter.

We were expecting Trudeau to fight to lead until at least mid June G7

It looks like Trudeau won't be able to hang on as PM until the key global event – Canada hosting the G7 leaders meeting in mid June in Kananaskis (Alberta). This is an event that Trudeau wanted to host for his global statesmen standard. We had a friendly debate with a couple of our conservative friends over coffee on how Trudeau is viewed negatively at home and abroad. We thought Trudeau's global reputation is probably much better given the wave of center/left western governments for most of the last decade and Canada being a big contributor to global causes.

Capital Markets: IFIC, mutual funds equity & balanced funds net sales in Nov

We have to believe there is some correlation of inflows into mutual funds equity and balanced funds that has some linkage to the US elections as there were positive inflows/sales in to balanced funds, equity funds, bond funds and specialty funds. A number of our investor friends put more into US equities post the Trump win. But even pre Trump's win, we have been seeing the rate of net redemptions slow and even some months with net sales. IFIC does not provide any explanations but one of the key changes in the last few months is falling interest rates. On Friday, IFIC (Investment Funds Institute of Canada) reported mutual funds and ETF sales for Nov [\[LINK\]](#). IFIC reported net sales (inflows) of \$0.493b in balanced funds, \$0.678b in equity funds, \$1.984b in bond funds, and \$0.733b in specialty funds. This brings the YTD Nov figure for balanced funds net redemptions to -\$22.191b, less than last year's Oct YTD figure of -\$51.469b in YTD 2023. Equity funds saw net sales (inflows) of \$0.678b in Nov, after net redemptions of -\$0.029b in Oct. YTD Nov 30, equity fund net sales are up +\$1.245b vs net redemptions of \$21.793b for 2023 YD Nov 30. Our Supplemental Documents package includes the IFIC release.

**IFIC Cdn mutual
fund data**

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Figure 71: Cdn Mutual Fund Net Sales/Net Redemptions (\$ Millions)

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

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

Source: IFIC

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

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

Figure 72: Cdn Mutual Fund Net Sales/Net Redemptions (\$ Millions)

Mutual Fund Net Sales / Net Redemptions (\$ millions)

Asset class	Nov 2024	Oct 2024	Nov 2023	YTD 2024	YTD 2023
Long-term funds					
Balanced	493	(2,274)	(6,512)	(22,684)	(51,469)
Equity	(678)	(1,015)	(2,583)	1,245	(21,793)
Bond	1,984	3,125	(491)	23,809	5,609
Specialty	733	644	389	6,926	3,362
Total long-term funds	3,889	3,443	(9,197)	9,789	(64,290)
Total money market funds	685	62	1,124	2,848	13,777
Total	4,574	3,505	(8,073)	12,637	(50,513)

Source: IFIC

Capital Markets: StatsCan, foreign investment in Cdn securities was \$21.5bn in Oct

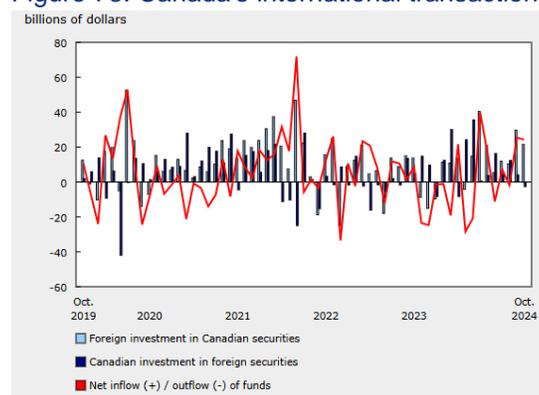
On Tuesday, Statistics Canada reported their international transactions in securities for October 2024 [LINK](#). StatsCan reported +\$21.5bn of foreign investment in Canadian securities in October, and a -\$2.6bn reduction of Canadian holdings in foreign securities. The primary driver of foreign acquisitions in Canadian securities are federal government debt

StatsCan Intl. Securities Transactions

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instruments, private corporate bonds denominated in foreign currencies, as well as Canadian corporate equity. Notably, October saw the largest divestment in foreign shares since March 2022, totalling -\$15.6bn of foreign shares, which was offset by acquisitions of foreign debt securities. StatsCan reported: “*Foreign investors increased their exposure to Canadian securities by \$21.5 billion in October, a second consecutive month marked by significant investment activity. Meanwhile, Canadian investors reduced their holdings of foreign securities by \$2.6 billion, the first divestment since January*”. Our Supplemental Documents package includes the StatsCan report.

Figure 73: Canada's international transactions in securities



Source: Statistics Canada

Demographics: Canada’s “total population” +176,699 in Q3 to 41,465,298 at Oct 1, 2024

On Tuesday, Statistics Canada reported [LINK](#) Canada’s population grew by 176,699 in Q3 to 41,465,298 at Oct 1, 2024. This was +0.4% QoQ increase, and was primarily driven by international migration, accounting for 92% of all growth, with only 8% of growth coming from natural increases (births less deaths). This brings Canada’s total population growth for the first nine months of 2024 to +951,517, which has is lower than last year’s growth of +1,030,378 for the same period. The report also noted that temporary immigration has slowed for the fourth consecutive quarter only seeing an increase of +47,187, which is the lowest since 2015 Q3. Our Supplemental Documents package includes the Statistics Canada numbers.

**Canada total
population
41,465,298**

Reminder forecasts tend to exclude non-permanent residents

In our Dec 24, 2023, Tidbits we said the following “It is important to remember that most forecasts for Canada’s population growth do not include non-permanent residents. Rather the forecasts normally only include growth in immigrants. We find this a little misleading as adding people is adding people to the country and it seems like non-permanent residents are here for much longer than many expect. It isn’t unusual to speak to people in the service industry who have been in Canada for more than a decade as non-permanent resident.”

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Demographics: Globe and Mail releases their most livable Canadian cities

Last week, the Globe and Mail released their top 100 most livable Canadian cities [\[LINK\]](#). This list breaks out the top Canadian cities according to data such as proximity to amenities, access to healthcare, housing affordability, safety, community vibrancy, and amongst other things. The top ten cities this year, ranked from the top were North Vancouver, West Vancouver, Victoria, Winnipeg, Regina, Saskatoon, Calgary, Pitt Meadows, Penticton and Oakville. The Globe and Mail noted “*Our top-ranked city this year, North Vancouver, received a near-bottom score for Housing. But the ranking offers a holistic view of the strengths of each community’s overall livability*”. North Vancouver stood out in the community ranking; driven by large a volunteering population, a high number of community centers per capita, as well as a strong sense of belonging by community members. The item that jumps out at the top 2 is that they are probably the most expensive cities to live for housing. When the weighting of housing affordability is increased in calculating the most livable city, the only city that made the top 5 overall that is still in the top 100, is Winnipeg at #96. Other notable Canadian cities rank as following: Toronto #82, Saskatoon #6, Calgary #7, Vancouver #12, Ottawa #16, and Edmonton at #27.

Cdn Most Livable Cities

Demographics: Putin says need more young women and for them to have more babies

Putin had his annual marathon Q&A year end call on Thurs and, no surprise, Putin brought up his fear for Russia’s declining population. We have been highlighting his population concerns for year – Russia needs more young women and for these young women to have more babies. On Thursday, Putin was asked about law to facilitate increased babies. Putin never gives short answers. Part of his response was “*This is an extremely important matter. In fact, this is one of the key issues for Russia, and not only for our country. You were right to say that demography has become a matter of grave concern not only for Russia, but also for many countries around the world.*” “*There was a time in the history of the Soviet Union when the fertility rate was equal to two. And there was a time in Russia’s recent past when we reached a rate of 1.7. Unfortunately, it fell to 1.41. Is this a lot or a little? Of course, it is very little.*” “*The number of women of reproductive age has gone down 30 percent. We need more girls, young women.*” Our Supplemental Documents package includes excerpts from the Kremlin transcript on Putin’s population concerns.

Putin says need more young women for babies

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

For years, Putin has been blunt that Russia’s shrinking population was his greatest concern. At least that was so prior to their invasion of Ukraine. Here is what we wrote before Russia invaded Ukraine in our Jan 2, 2022 Energy Tidbits memo. “*On Tuesday, we tweeted [\[LINK\]](#) “ICYMI. Putin is asked “what is your greatest concern?”, he replies “demographics is one of our main problems for our humanitarian and economic considerations” ie. Russia’s shrinking population”. on. A big factor why he needs stronger for longer #Oil #NatGas #Metals prices. #OOTT. Putin’s big press conference comments this week on Russia’s population reminded us of an item we forgot to include in our Dec 5, 2021 Energy Tidbits – Putin’s greatest concern is the shrinking Russia population. This week, Putin noted “There are issues that cannot but cause concern, including life expectancy, which has slightly decreased from 71.5 to 70.1 years.” The item we forgot to include was Putin’s comments at the “Russia Calling! Investment Forum” on Nov 30. [\[LINK\]](#). Putin was asked “What keeps you awake at night?” In the sense, “What is your greatest concern?”. Putin responds “We*

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have domestic issues typical of Russia, primarily demographic problems. We had two natural declines in our demographic development: during World War II or the Great Patriotic War, as we call it, in 1943–1944, and in the early and middle 1990s after the collapse of the Soviet Union. There was an equal drop in the birth rate. It was the lowest in 1999 – I believe a little over 1,200,000. In 2006, we already had almost two million births – more than 1,900,000. This problem has acquired a systemic and economic character due to the shortage of workforce in the labour market. We have a little over 80 million there and our losses amount to 1.1–1.2 percent a year. In this context, demographics is one of our main problems both for humanitarian and economic considerations, and because we need to strengthen our statehood as well. I will not enumerate all the measures and instruments we are using and intend to continue using in the future in order to tackle this problem. In general, we managed to get things moving in the recent past. Overall, we understand what we can do and know how to do it.”

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: 1999 Clos Mogador, Priorat

In August, I started the wine of the week when I realized I had to get to opening up some wines bought 20 to 30 years ago that included some that, unfortunately, were getting past their prime. One of the negatives of the change in life from Covid was a huge absence of entertaining at home, which means there has been a big shortfall in wine drinking at our home. So am now making sure what, when I bought them 15-25 years ago, were some good wines and make sure bottles get opened especially as many are 20 to 40 years old. Yesterday, I posted the wine of the week, which was 1999 Clos Mogador, Priorat. The recommended drinking period was 10 years ago and it was still drinking very well. Down to one of the 1999 but still have two of the 2001. It was a tattered label as it was one of the bottles that got caught in the 2013 Alberta flood.

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Figure 74: 1999 Clos Mogador, Priorat

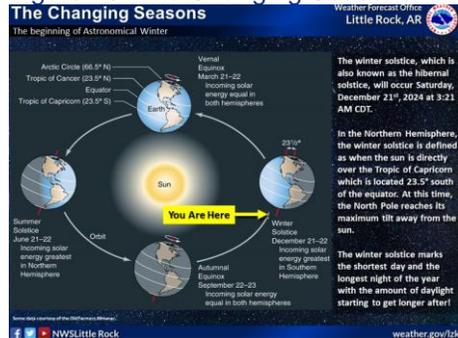


Source: SAF Group

Winter solstice was yesterday so that means days will be getting longer now

The days are short in Canada with the daylight in Calgary at less than 8 hours. Yesterday was the winter solstice, which is the shortest day and longest night of the year with sunrise at 8:37am and sunset at 4:32pm so less than 8 hours of daylight. Compare that to San Jose del Cabo (Mexico) that had sunrise at 6:55am and sunset at 5:39pm so almost 11 hours of daylight. The good news is that we are now moving into a period where we will get more daylight every day until the summer solstice on June 21/22. Below is the National Weather Service (Little Rock, Arkansas) graphic on the changing seasons. [LINK](#)

Figure 75: The Changing Seasons



Source: National Weather Service

G7 in Kananaskis expected to bring protests to Banff

G7 leaders meeting tend to bring out the protestors primarily because the locations are easily accessible to millions. Canada hosts the G7 in mid-June. They haven't announced dates but local media said it on June 15-17. We were a little surprised to hear the global media centre will be held in Banff as that isn't a much shorter drive than if the media centre was held in Calgary. The local mountain paper, Rocky Mountain Outlook, noted the Banff RCMP are already preparing for protests during the G7. Banff is not a big town and we have to wonder how it will work given the recent G7 leaders meetings have tried to provide protest areas away from the key media areas. Banff is just not that big of a town. Canmore is located right in between Kananaskis and Banff so we are hoping any protestors skip Canmore because the global media will either be in Kananaskis or Banff.

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