

Energy Tidbits

December 29, 2024

Produced by: Dan Tsubouchi

Vortexa Asia & Total Floating Storage Both Off Late Nov/Early Dec Highs Point to Iran Floating Storage Off Asia is Clearing Up

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. Vortexa crude oil floating storage for Asia and total World have both down from late Nov/early Dec highs, which seems to suggest Iran floating storage off Asia has cleared up. [\[click here\]](#)
2. As of our 7am MT news cut off, Russia natural gas imports to Europe via Ukraine are still expected to stop after Dec 31. [\[click here\]](#)
3. There should be less of a debate on oil demand growth rates in 2025 given the relatively tight range of demand forecasts. [\[click here\]](#)
4. Deliberate or not, we think Trump is right to try to get Europe and Asia to prioritize buying US LNG given the upcoming rush of US LNG supply, especially from the US. [\[click here\]](#)
5. Japan backing off emissions reduction goal as have to balance decarbonization with economic growth. [\[click here\]](#)
6. It was easy to write Energy Tidbits memos every weekend in 2024 given it was a year of so much happening in energy and markets. [\[click here\]](#)
7. Happy New Year. Wishing everyone all the best in 2025!
8. 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.
9. 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: -93 bcf draw in US gas storage; now +20 bcf YoY

For the week ending Dec 20, 2024, the EIA reported a -93 bcf draw [\[LINK\]](#). Total storage is now 3.529 tcf, representing a surplus of +14 bcf YoY compared to a surplus of +20 bcf last week. It wasn't so much that it was warm for the Dec 20 week, rather it is that the comps are to Dec 2023, which was the hottest Dec in the last 129 years. And as noted below, heating degree days were 18% below normal ie. warmer than normal. For most of this year, storage figures exceeded the 5 year range, but this week returned to below this figure. The week of Dec 20, 2024, saw storage come in -429 bcf below the previous 5-yr maximum of 3.958 tcf. Total storage is now +166 bcf above the 5-year average, above last week's +132 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.

-93 bcf draw in US gas storage

Figure 1: US Natural Gas Storage

Region	Stocks billion cubic feet (Bcf)				Historical Comparisons			
	12/20/24	12/13/24	net change	implied flow	Year ago (12/20/23)		5-year average (2019-23)	
					Bcf	% change	Bcf	% change
East	792	822	-30	-30	813	-2.6	801	-1.1
Midwest	960	1,007	-47	-47	995	-3.5	959	0.1
Mountain	267	274	-7	-7	233	14.6	195	36.9
Pacific	293	296	-3	-3	281	4.3	250	17.2
South Central	1,217	1,222	-5	-5	1,192	2.1	1,157	5.2
Salt	349	338	11	11	330	5.8	327	6.7
Nonsalt	868	884	-16	-16	862	0.7	830	4.6
Total	3,529	3,622	-93	-93	3,515	0.4	3,363	4.9

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
Nov/01	3,932	69	157	215
Nov/08	3,972	40	156	226
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
Dec/20	3,529	-93	14	166

Source: EIA

Natural Gas: HH -\$0.21 on Friday to \$3.51 with a relatively weak storage draw

HH was down -\$0.21 to close at \$3.51 on Friday following what was termed a disappointing storage draw of 93 bcf. But HH at \$3.51 is still a lot higher than most expected. Pre the last couple warm Decembers, natural gas storage withdraws for the 3rd week of Dec have ben typically >150 bcf. The heating degree days for the storage week were known and storage draw was expected to be weak, but HH prices kept pushing up all week. until Friday. On Monday, Bloomberg reported the AGA heating degree days for the week ended Dec 21 were 155, which is 18% below normal. Rather, as we have been highlighting, HH's recent strength has been helped by global events – the still expected stop of Russia pipeline natural gas to Europe via Ukraine. It has driven up Europe TTF gas prices, which has helped pull up LNG and HH prices. This has been a reminder that the global natural gas and LNG market is

Good week for HH despite weak storage

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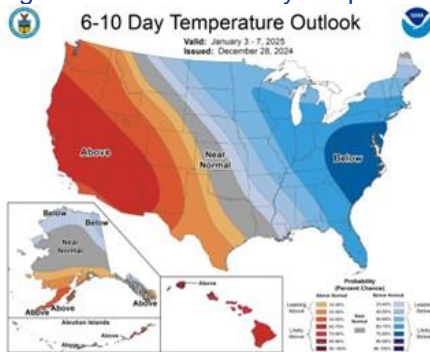
becoming an increasingly linked market. In recognition of this, on Monday, we posted [LINK](#) “HH #NatGas only -\$0.09 to \$3.66 today. Despite actual week ending Dec 21 HDDs 155 vs normal 189 and forecast week ending Dec 28 HDDs 147 vs normal 198. HDDs below normal = Less Heating Demand. Negative US temp impact BUT HH being supported by EU gas supply risk. #OOTT.”

Natural Gas: NOAA’s 6-10 & 8-14 day temp outlook calls for cold in east ½ of Lower 48

Natural gas has been winning over the past two weeks with the positive global LNG and natural gas prices as the market believed Putin that Russia natural gas to Europe via Ukraine was not going to continue on Jan 1. But, looking ahead, it looks like some cold weather is coming for the more populous eastern half of the Lower 48 in early Jan. Yesterday, we posted [LINK](#) “Looks like cold temperatures across the more populous eastern half of the Lower 48 to start Jan. Updated @NOAA 6-10 & 8-14 day temperature outlook covers Jan 3-11. #OOTT #NatGas.” Our post included NOAA’s Sat updated 6-10 and 8-14 day temperature outlook which are calling for below normal temperatures across the more populous East half of the Lower 48. Below are NOAA’s temperature forecast maps for Jan 3-7 and Jan 5-11 that were attached to our posts.

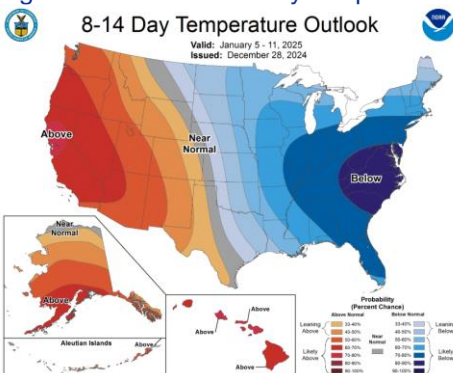
Colder in E ½ of US ahead

Figure 3: NOAA 6-10 day temperature outlook for Jan 3-7



Source: NOAA

Figure 4: NOAA 8-14 day temperature outlook for Jan 5-11



Source: NOAA

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**Weather Channel
Jan/Feb/Mar
temperature
forecast**

Natural Gas: Weather Channel forecasts warmer than normal Jan/Feb/Mar

As we have always said weather forecasts are far from 100% accurate but we try to follow a small number of known forecasters. So even though short term forecasts tend to have higher probability of accuracy, weather forecasts can change quickly especially in the winter if there is a surprise Arctic blast. On Tuesday, we posted [\[LINK\]](#) "January-March Temperature Forecast Features Milder South And East, Colder Northwest Contrast" @weatherchannel. As noted in below post, HH #NatGas has been hanging in there despite HDDs below normal and continued forecasts for warmer than normal temps in J/F/M. #NatGas #OOTT." Our post included the below Weather Channel temperature forecast maps for Jan, Feb and Mar.

Figure 5: Temperature Outlook for Jan



Source: The Weather Channel

Figure 6: Temperature Outlook for Feb



Source: The Weather Channel

Figure 7: Temperature Outlook for Mar



Source: The Weather Channel

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

On Thursday, the Department of Energy (DOE) posted its Natural Gas Imports and Exports Monthly [\[LINK\]](#), which includes its estimate for October natural gas exports via pipeline to Mexico. These are the same data points that will come out on Jan 31 in the more referenced EIA Natural Gas Monthly (expected Dec 31). Natural gas exports to Mexico were down -0.4 bcf/d to 6.5 bcf/d in October from 6.9 bcf/d in September and were flat YoY from 6.5 bcf/d in October 2023. There was no revision to September's figures. The DOE doesn't provide a split for pipeline vs LNG or CNG exports to Mexico, but we believe essentially 100% of the exports are via pipeline, without any CNG/LNG in the mix. Please note that we will note if we ever believe there are any notable CNG/LNG exports to Mexico. Below is a summary of natural gas via pipeline exports to Mexico from the US. Our Supplemental Documents package includes excerpts from the DOE US Natural Gas Imports and Exports Monthly including the pages attached to our Trump US LNG blogs referenced later in the memo.

**US to Mexico
October natural
gas exports**

Figure 8: US Natural Gas Pipeline Exports to Mexico

(bcf/d)	2019	2020	2021	2022	2023	2024
January	5.3	5.4	5.6	5.7	5.5	6.0
February	5.1	5.3	5.4	5.5	5.5	5.8
March	5.1	5.6	5.9	5.5	5.8	5.9
April	5.0	4.6	6.1	5.9	5.6	6.3
May	5.6	4.7	6.2	6.0	6.2	6.8
June	5.8	5.4	6.6	6.2	6.8	6.8
July	6.2	5.8	6.4	6.1	6.8	6.8
August	5.9	6.1	6.3	5.9	6.9	7.1
September	5.8	6.2	6.0	5.6	6.7	6.9
October	5.7	6.2	6.0	5.5	6.5	6.5
November	5.4	5.6	5.5	5.4	6.0	
December	5.2	5.3	5.4	5.1	5.6	
Average	5.5	5.5	5.9	5.7	6.2	

Source: DOE, SAF

Natural Gas: US LNG exports flat MoM at 12.1 bcf/d in October

The DOE's monthly natural gas imports and exports monthly also included the US LNG export data for October, which is the same data as in the more commonly referenced US LNG exports from the EIA's Natural Gas Monthly that will come out on Dec 31. The EIA is a group within the DOE so the data for LNG exports is either identical or just a rounding issue. US LNG exports were flat MoM in October at 12.1 bcf/d but down -0.3 bcf/d YoY from 12.4 bcf/d in October 2023. The top five country destinations for US LNG in Sept were France 1.4 bcf/d, Japan 1.0 bcf/d, Netherlands 0.9 bcf/d, India 0.9 bcf/d, and Turkey 0.8 bcf/d. The DOE did not comment on the MoM or YoY changes.

**US October LNG
exports**

Figure 9: US Monthly LNG Exports

(bcf/d)	2019	2020	2021	2022	2023	2024
January	4.1	8.1	9.8	11.4	10.9	12.8
February	3.7	8.1	7.4	11.3	11.7	12.4
March	4.2	7.9	10.4	11.7	11.8	11.9
April	4.2	7.0	10.2	11.0	12.5	10.1
May	4.7	5.9	10.2	11.3	11.8	11.9
June	4.7	3.6	9.0	10.0	10.9	11.9
July	5.1	3.1	9.7	9.7	11.3	10.4
August	4.5	3.6	9.6	9.7	11.4	11.7
September	5.3	5.0	9.5	9.8	11.6	12.1
October	5.7	7.2	9.7	10.0	12.4	12.1
November	6.4	9.4	10.2	10.1	12.9	
December	7.1	9.8	11.1	11.0	13.6	
Average	5.0	6.6	9.7	10.6	11.9	

Source: EIA, DOE

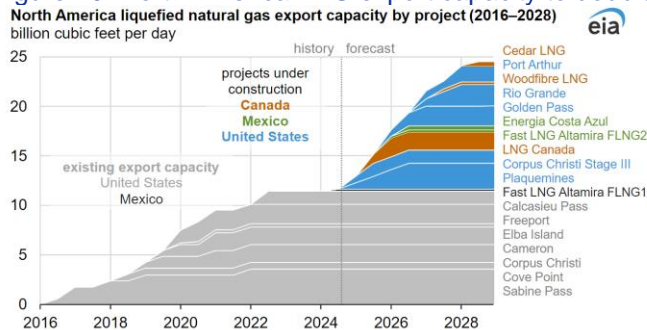
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Natural Gas: Is Trump pressuring EU/Asia to buy US LNG given 2025-28 LNG growth?

One of the many Trump pressures on other countries has been his pressure on Europe and Asia to buy more US oil and LNG exports. We certainly don't know if this is incoming Energy Secretary Wright's work, but it certainly could be. Europe and Asia are already buying >85% of US LNG exports. So they really can't buy any more now. And most see his trying to pressure to buy US LNG as a tactic. We tend to think it is a smart move, which is why we wonder if it's Wright's driving. There is a big rush of LNG supply coming in 2025 to 2028 and we think it is a smart move if Trump can do anything to pressure Europe and Asia countries to prioritize buying US LNG. North America LNG export capacity alone is to double by 2028. Whether it is deliberate or not, he is also setting the stage for Europe and Asia to remember this pressure as European and Asian buyers look forward to the coming wave of LNG supply, On Thursday, we posted [\[LINK\]](#) "Method to his madness? Is Trump thinking ahead to the increasing US #LNG exports in 2025/26. He wants EU & Asia to buy more US LNG and they are already buying >85% of it. Oct: Europe 51.8%, Asia 33.9%. YTD Oct 31: Europe 49.8%, Asia 38.1%. #OOTT #NatGas thx @ENERGY." And [\[LINK\]](#) "Deliberate or not. Trump is right IF he is looking to 2028 and starting to pressure Europe & Asia to somehow start now & prioritize buying US LNG in 2025-2028. 📌 09/03/04: @EIAgov "North America's LNG export capacity is on track to more than double by 2028". #OOTT #NatGas." Our posts included the DOE's disclosure/tables on showing Asia and Europe bought >85% of US LNG in 2024, and the EIA's blog on North American LNG export capacity doubling by 2028. Our Supplemental Documents package includes the full EIA blog.

Is Trump looking ahead to 2025-28?

Figure 10: North America LNG export capacity to double by 2028



Data source: U.S. Energy Information Administration, Liquefaction Capacity Files, and trade press
Note: Export capacity shown is project's baseload capacity. Online dates of LNG export projects under construction are estimates based on trade press.
LNG=liquefied natural gas; FLNG=floating liquefied natural gas

Source: EIA

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

Whether Mexico new President Sheinbaum likes it or not, any increasing Mexico natural gas consumption will continue to mean increasing natural gas and/or LNG imports. This week, Pemex posted its natural gas production data for November [\[LINK\]](#). The story for Mexico natural gas production is unchanged for the last several years – it is stuck right around 5 bcf/d. Pemex reported November 2024 natural gas production of 4.432 bcf/d, which is down -9.3% YoY from 4.888 bcf/d in November 2023 and down -1.6% MoM from 4.503 bcf/d in October 2024. The big picture story for Mexico natural gas for the past six years has been

**November
NatGas
production**

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that Mexico natural gas production has been stuck at or below 5 bcf/d, and that means any increased domestic natural gas consumption has been met by US natural gas imports. Below is our ongoing table of Pemex reported monthly natural gas production.

Figure 11: Mexico Natural Gas Production

Natural Gas Production bcf/d	2017	2018	2019	2020	2021	2022	2023	2024	24/23
Jan	5.326	4.910	4.648	5.005	4.848	4.713	4.955	4.780	-3.5%
Feb	5.299	4.853	4.869	4.942	4.854	4.646	4.979	4.777	-4.1%
Mar	5.383	4.646	4.857	4.946	4.839	4.766	5.035	4.768	-5.3%
Apr	5.334	4.869	4.816	4.827	4.671	4.740	5.095	4.500	-11.7%
May	5.299	4.827	4.841	4.460	4.730	4.702	5.034	4.488	-10.8%
June	5.253	4.840	4.843	4.754	4.727	4.744	5.035	4.606	-8.5%
July	5.216	4.856	4.892	4.902	4.725	4.815	4.936	4.566	-7.5%
Aug	5.035	4.898	4.939	4.920	4.656	4.796	4.947	4.534	-8.3%
Sept	4.302	4.913	5.017	4.926	4.746	4.798	4.969	4.515	-9.1%
Oct	4.759	4.895	4.971	4.928	4.718	4.795	4.950	4.503	-9.0%
Nov	4.803	4.776	5.015	4.769	4.751	4.845	4.888	4.432	-9.3%
Dec	4.811	4.881	5.024	4.846	4.697	4.845	4.786		

Source: Pemex

Natural Gas: Will increasing violence delay TotalEnergies Mozambique LNG restart?

We have not seen any recent statements from TotalEnergies CEO Pouyanne on the expected restart of its Mozambique LNG in early 2025 since the Mozambique election results were confirmed on Dec 23. It's Xmas so that is understandable but we assume he will have to come out with some sort of indication early in the new year. We have not seen any of the increasing domestic violence/protests in the north by TotalEnergies LNG base station. But it's hard to see the increasing national protests and violence and deaths not cause TotalEnergies to pause when they restart. Maybe it will be safe in the north but we would think the board has to think hard on restarting the flagship international project for Mozambique in this increasing national violence even if the violence is in the southern part of the country. How could they be confident that the increasing violence doesn't further spread in the country? On Friday, the Club of Mozambique reported [LINK](#) "At least 134 people have died since Monday in post-election protests in Mozambique, raising the total death toll to 261 since October 21, with 573 people shot, according to a new tally released this Friday by the electoral platform Decide. According to the latest data from this Mozambican Non-Governmental Organization (NGO) monitoring electoral processes, with figures updated through Thursday evening, 36 people died in Maputo city and 20 in the province, in the south of the country, in just four days, in addition to 34 in Nampula in the north and 33 in Sofala in the center." One other news tidbit was that >1,500 prisoners escaped on Wed from the maximum security Central Prison of Maputo that police called pre-meditated."

Increasing
violence in
Mozambique

Natural Gas: JMA still forecasts colder than normal temps in Japan for January

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 thru Jan 20. On Thursday, the Japan Meteorological Agency updated its temperature forecast for the next 30 days, Dec 28 - Jan 27, 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 50% probability of a below normal temperature occurrence everywhere except the Tokyo area, which is forecasted to have a 40% 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

JMA temperature
forecast for next
30 days

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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 28 – Jan 27.

Figure 12: JMA Temperature Outlook for Dec 28 - Jan 27



Source: Japan Meteorological Agency

Natural Gas: JMA forecast normal temps in Feb and warmer than normal in Mar

On Tuesday, the Japan Meteorological Agency also updated its seasonal temperature forecast for Feb and Mar. JMA does not provide any commentary. But their updated Dec 24 forecast calls for the colder than normal temperatures in Dec and Jan to move warmer in Feb and moreso in Mar. The JMA’s Dec 24 forecast is for normal temperatures in Feb and warmer than normal temperatures in Mar. Below are the JMA Dec 24 temperature outlook maps for Feb and Mar.

JMA temperature updated Feb and Mar forecast

Figure 13: JMA Temperature Outlook for Feb



Source: Japan Meteorological Agency

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Figure 14: JMA Temperature Outlook for March



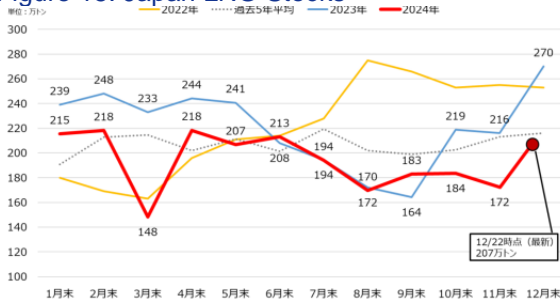
Source: Japan Meteorological Agency

Natural Gas: Japan LNG stocks down WoW and YoY; down 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 22 were 99.9 bcf, down -7.2% WoW from December 15 figures of 107.1 bcf, and down -23.3% from 129.7 bcf from a year ago. Stocks are down 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 down WoW

Figure 15: Japan LNG Stocks



Source: METI

Natural Gas: Putin says impossible to get quick deal to flow RUS gas via Ukraine

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. Rather Putin has been reiterating his comments from last week that it is impossible for any contracts to get any contracts done in a short time to allow Russia natural gas to flow into Europe via Ukraine. And Zelensky has not made any change to his stance that Russian natural gas will not flow into Ukraine even with Europe wanting Ukraine to allow the Russian natural gas. On Thursday, we posted [\[LINK\]](#) "Impossible for Russian #NatGas after Dec 31 to Europe via Ukraine: says Putin 🇷🇺. Also as military pundits have been saying, Russia currently has some but not many hypersonic Oreshnik missiles. #OOTT." And then when the actual Kremlin transcript was available, we posted [\[LINK\]](#) "Kremlin transcript of Putin's impossible to get a contract done to move RUS #NatGas to Europe via UKR. "At this point in time, I can tell you that there is no transit contract, and it is impossible to sign a new one

Putin says not Russia's problem

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within three or four days. Meanwhile, prices will continue to grow" @ECMWF sees normal to slightly colder than normal temps ahead. #OOTT." Putin went thru Russia's position on how they have always and continue to be prepared to supply natural gas via Ukraine but that it is Ukraine who has moved to prevent any Russia natural gas via Ukraine to Europe. We understand why Putin wants the natural gas to flow – he needs the cash flow and doesn't have other countries kicking in the money to fund the war. And, at least so far, the requests/pressures from European countries to allow the gas to reach them has not resulted in any change in Zelensky's position. We have always been in the view (and wrongly proved so far) that Zelensky was just negotiating with his supporter countries in trying to get a lot more from them in an enhanced package before Biden leaves and before the next German election. Our Supplemental Documents package includes excerpts from the Kremlin transcript.

Let's hope Russia doesn't now go after Ukraine domestic NatGas distribution

One of the advantages of Xmas holidays is that it always seems people who don't go into the office have more time to talk so we inevitably have more people wanting to talk on the phone. We had a couple of former energy executives ask a question that we hadn't considered. If Russia won't be able to transit its natural gas thru Ukraine to Europe, why won't they, in retaliation, go after Ukraine's domestic natural gas distribution system because they could do so without impacting its natural gas transmission system for Russian natural gas. It is certainly something not being reported as a possible retaliation but who knows.

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

Last week's (Dec 22, 2024) Energy Tidbits memo noted how it was Putin's comments last week that convinced markets Russia's natural gas transit to Europe via Ukraine will end on Dec 31. And natural gas prices have been strengthening in Europe even in the face of warmer temperatures in much of Europe this week. Bu, even with the pending end of Russia natural gas exports to Europe via Ukraine, Russia's Gazprom continues to ship natural gas via Ukraine up until Jan 1. Yesterday, TASS reported [\[LINK\]](#) *"Gazprom supplies gas to Europe in transit via Ukraine to the Sudzha gas pumping station in the Kursk region in the amount of 42.4 mln cubic meters per day. The application for pumping through Sokhranovka was rejected by the Ukrainian side, a Gazprom representative told journalists. "Gazprom supplies Russian gas for transit through the territory of Ukraine in the amount confirmed by the Ukrainian side through the Sudzha gas pumping station - 42.4 mln cubic meters as of December 28. The application for the Sokhranovka GMS was rejected," the company representative said. The day before, the figure reached 41.5 mln cubic meters."* This is ~1.5 bcf/d. Below is a 2018 map from Oxford Institute for Energy Studies showing Sudzha.

Russia still shipping gas

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Figure 16: The Ukrainian pipeline system



Source: OIES

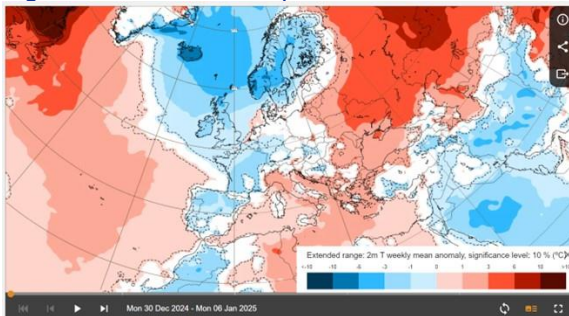
Source: Oxford Institute for Energy Studies

Natural Gas: ECMWF forecasts warm temps in western Europe turning colder

It's been warm in western Europe with high single digits Celsius in the major cities. And even still, Europe natural gas prices have been up given the market acceptance that Russian natural gas to Europe via Ukraine won't be happening after Dec 31. But it looks like the warmer temps in western Europe will be changing to normal to colder than normal temperatures. Yesterday we posted [LINK](#) "Looks like warm temps in western Europe are turning to colder than normal temperatures over next two weeks. 📌 Today's @ECMWF updated temperature outlook for Dec 30-Jan 6, and Jan 6 -13. Not what Europe wants given still no deal for RUS #NatGas via Ukraine after Dec 31. #OOTT." Our post included the below ECMWF Saturday updated temperature outlook for Dec 30-Jan 6, and Jan 6-13.

ECMWF sees colder temps ahead

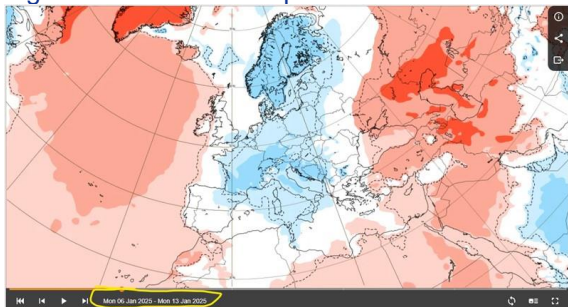
Figure 17: ECMWF temperature outlook for Dec 30-Jan 6



Source: ECMWF

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Figure 18: ECMWF temperature outlook for Jan 6-13



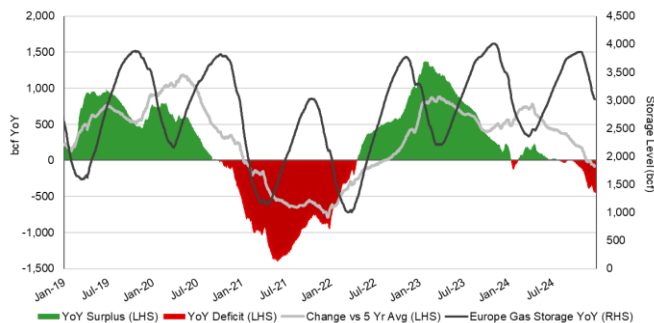
Source: ECMWF

Natural Gas: Europe storage down -2.0% WoW to 74.5% full, down -12.5% YoY

There have been gas storage draws in Europe with the recent colder temperatures and the low wind generation last week. And as a reminder, the YoY comparison is to a hot Dec 2023 in Europe, 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 26, Europe storage was down -2.0% WoW to 74.5% vs 76.5% on Dec 19. Recall that winter 2023/24 was one of the hottest winters in Europe. Storage is now down -12.5% from last year's levels of 89.0% on December 26, 2023, and down against the 5-year average of 78.1%. Below is our graph of European Gas Storage Level.

Europe gas storage

Figure 19: European Gas Storage Level



Source: Bloomberg, SAF

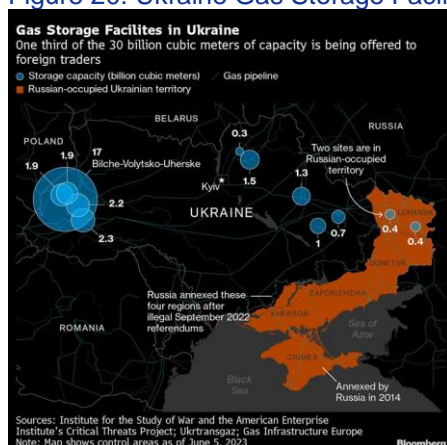
Ukraine storage is currently ~7% of total Europe gas storage volume

We have been breaking out Ukraine gas storage levels since the Mar/Apr Russian bombing of the Ukraine natural gas storage, which only impacted some above ground natural gas infrastructure. But it also reminded of the risk to Europe gas storage from Russia attacks. We broke out the Ukraine storage data from the above Europe data we monitor weekly from the GIE AGSI website [\[LINK\]](#), and, on December 26, 2024, natural gas in Ukraine storage was at 17.5% of its total capacity, down compared to 18.9% of its total capacity on December 19. Last year, Ukraine storage started the winter on Nov 1, 2023, at 39.38%. Right now, Ukraine makes up

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~7% of Europe's natural gas in storage and, at the beginning of winter 2023/24, it was ~10% of Europe's natural gas in storage. Below is a map of Ukraine's major gas storage facilities.

Figure 20: Ukraine Gas Storage Facilities as of June 2023



Source: Bloomberg

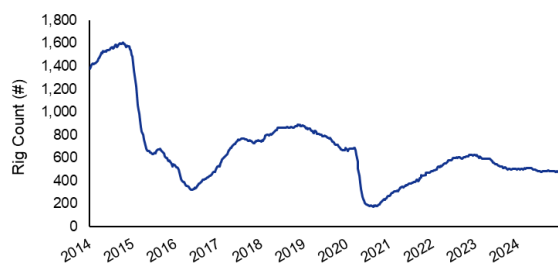
Oil: U.S. oil rigs not decreasing as normally happens after Thanksgiving or Christmas

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 flat WoW at 483 oil rigs as of Dec 27, 2024. The flat rig count this week and last was a surprise, as we expected US rigs would decline after Thanksgiving and continue this decline until just past Xmas as this is the normal seasonal pattern in the US oil and gas sector every year. That is except this year. Since the big US Thanksgiving to Xmas drop was avoided, we don't expect a big dip in the near future especially as producers put their 2025 budgets in motion. U.S. oil rigs are now down -17 oil rigs YoY. The smaller YoY difference is because, in 2023, US oil rigs went below 520 rigs on Aug 25, 2023 and then were lower in the 490-510 rigs for several months. But then dropped down to 477 on July 19, 2024, which was the lowest oil rig count since Dec 2021. U.S. Oil rigs are currently down -17 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; Eagle Ford -1 rig and Williston +1 rig. (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 -35 rigs YoY to 585 rigs including US oil rigs -17 oil rigs YoY to 483 oil rigs. And for the key basins, the Permian is -5 rigs YoY, Haynesville is -13 rigs YoY, DJ Niobrara is -7 rigs YoY, Marcellus -4 rigs YoY, Williston up +5 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 is -2 rigs YoY, and Cana Woodford -2 rig YoY. (v) US gas rigs were down flat this week at 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 at 4 rigs, and up +2 rigs YoY.

US oil rigs flat
 WoW

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Figure 21: Baker Hughes Total US Oil Rigs



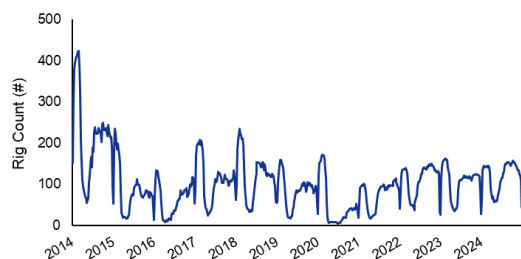
Source: Baker Hughes

Oil: Total Cdn oil rigs down -66 WoW on Friday, with gas rigs down -5 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 -71 rigs WoW to 95 rigs on Dec 27, which is in line with the normal big drop in rigs for Xmas. We expect rig counts to partially bounce back for the Jan 3 rig count. Total rigs were down -71 rigs WoW this week to 95 rigs and are up +9 rigs YoY. Oil rigs are down -66 rigs WoW to 44, and up +17 rigs YoY. Gas rigs are down -5 rig WoW to 51 rigs and are down -8 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 -66
 WoW**

Figure 22: Baker Hughes Total Cdn Oil Rigs



Source: Baker Hughes

Oil: US weekly oil production down -0.019 mmb/d WoW to 13.585 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. This week's estimate came in down -0.019 mmb/d WoW to 13.585 mmb/d for the week ending Dec 20. This is up +0.285 mmb/d YoY from 13.300 mmb/d for the week ended December 22, 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

**US weekly oil
 production**

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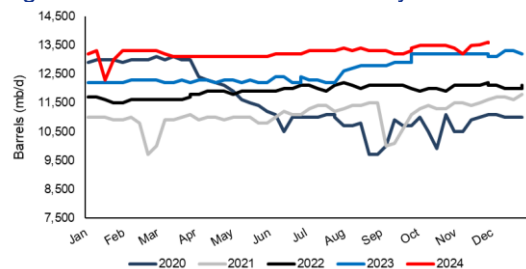
Q1/24 at 12.940 mmb/d. 2025 estimates were revised downwards to 13.520 mmb/d, with all quarters exceeding 13.400 mmb/d and reaching a peak of 13.580 mmb/d in Q4/25. The EIA is no longer releasing a DPR, so we no longer have MoM expectations. This week, the EIA's production estimates were down -0.019 mmb/d WoW to 13.585 mmb/d for the week ended Dec 20. Alaska production figures were flat (-0.001 mmb/d) WoW at 0.431 mmb/d, compared to 0.432 mmb/d last week. Below is a table of the EIA's weekly oil production estimates.

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

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

Source: EIA

Figure 24: EIA's Estimated Weekly US Oil Production



Source: EIA

Oil: Exxon reminds won't have explosive growth in US oil production

Last night, we posted [\[LINK\]](#) "We're not going to have the explosive growth that we've seen," Richard Dealy, who oversees Exxon Mobil's Permian operations, said." From @benmorenne's 🗨️ "U.S. Shale Is Growing Old. That's a Problem for Donald Trump's Oil Plans. Disciplined crude giants have replaced the unruly band of frackers who led the shale boom." #OOTT [\[LINK\]](#)." That was the only direct Exxon quote in the WSJ report, which casts doubt on how much US oil production will grow during Trump's 2nd term. WSJ wrote "President-elect Donald Trump wants U.S. oil producers to rekindle their once-frenzied drilling, but the country's shale patch has changed since his first administration. Wildcatters are mostly gone, replaced by more disciplined oil giants. Wall Street has helped instill that

Exxon on US oil growth

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discipline, pushing oil companies to focus more on producing cash for investors. Meanwhile, production in most U.S. crude regions is set to decline as fields mature and sweet spots dwindle. What this means: The oil patch is unlikely to see the kind of breakneck growth it saw in Trump's first term, when daily crude production shot up from about nine million barrels to roughly 13 million. "We're not going to have the explosive growth that we've seen," Richard Dealy, who oversees Exxon Mobil's Permian operations, said." Our Supplemental Documents package includes the WSJ report.

11/12/24: Exxon CEO doesn't see Trump unleashing a lot of US oil production

No one should be surprised by the Exxon comment in the WSJ as that is what Exxon CEO Woods said following the US election. Here is what we wrote in our Nov 17, 2024 Energy Tidbits memo. *"Exxon CEO doesn't see Trump unleashing a lot of US oil production. We were surprised by oil followers believing Trump's drill baby drill would get US oil companies to crank up drilling and production and lower oil prices. It never made sense and still doesn't. We recognize that is how Trump messaged it but it still doesn't make sense why oil companies would crank up drilling knowing it will lower oil prices and cash flows and impact their ability to maintain their returns approach. It's like people believed oil companies would return to the growth at any cost model. Exxon CEO Darren Woods didn't say it exactly that way but said he just didn't see how there was any opportunity to unleash more US oil production. On Tuesday, we tweeted [\[LINK\]](#) "Drill baby drill won't have big negative impact most think. Exxon CEO "I don't think U.S. production is constrained, so I don't know that there's an opportunity to unleash a lot of production in the near term, because most operators in the U.S. are already [optimizing] their production today." reports @timmcdonnell @semafor. Rather key near-term Trump impact on #Oil is return to 1st term priority to hit Iran & Venezuela economically by cutting out their oil exports. Discussion in my 📌 Nov 3, 2024 Energy Tidbits memo. #OOTT. [\[LINK\]](#)." Semafor reported "But Woods agreed with recent comments from Patrick Pouyanné, CEO of TotalEnergies, that the Trump administration shouldn't move to scrap the Biden administration's regulation to curb methane emissions from oil and gas operations. And he said that while ongoing capital spending is needed to maintain US oil production at its current record-high levels, the further increase in production sought by Trump probably isn't in the cards, for now. I don't think today that production in the US is constrained," he said. "So I don't know that there's an opportunity to unleash a lot of production in the near term, because most operators in the US are [already] optimizing their production today."*

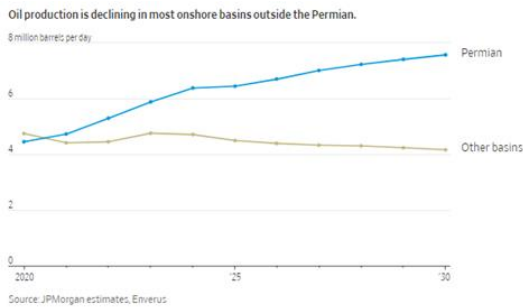
Oil: WSJ, JP Morgan reminds other non-Permian US oil basins are in decline

The above noted WSJ report *"U.S. Shale Is Growing Old. That's a Problem for Donald Trump's Oil Plans."* [\[LINK\]](#) included the below graph and wrote *"Other basins that powered the shale revolution have either seen declining output or are set to roll over, according to analysts at JPMorgan Chase. This includes the Eagle Ford Shale in Texas, the Williston Basin in North Dakota and the DJ Basin in Colorado. JPMorgan estimates that U.S. crude oil production will grow by 3.6% between now and the end of the decade to reach about 13.5 million barrels a day. That compares to a roughly 13.4% increase in output since 2022."*

**Non-Permian oil
basins in decline**

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Figure 25: Strategic Petroleum Reserve Stocks and SPR WoW Change



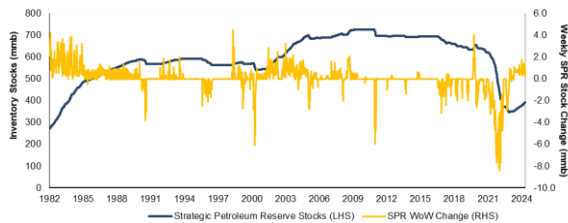
Source: EIA

Oil: US SPR less commercial reserve deficit narrows, now -23.469 mmb

The US Strategic Petroleum Reserves (SPR) continues to be much lower than total US commercial crude oil reserves. The SPR went back below commercial for the first time since 1983 in the Sep 16, 2022, week. This week, we saw a build on the SPR side and a draw on the commercial side. The EIA’s weekly oil data for Dec 20, [LINK](#) saw the SPR reserves increase +0.260 mmb WoW to 393.310 mmb, while commercial crude oil reserves decreased -4.237 mmb to 416.779 mmb. There is now a -23.469 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.

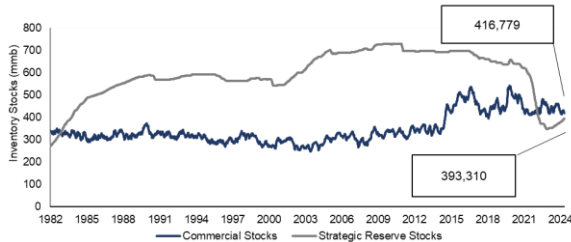
US SPR reserves

Figure 26: Strategic Petroleum Reserve Stocks and SPR WoW Change



Source: EIA

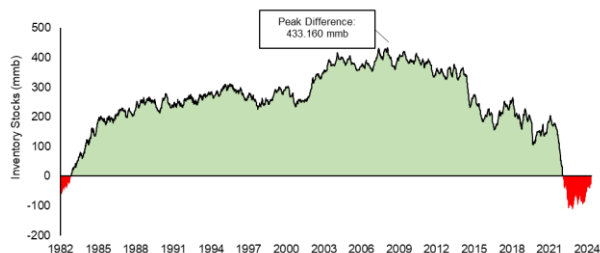
Figure 27: US Oil Inventories: Commercial & SPR



Source: EIA

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Figure 28: US Oil Inventories: SPR Less Commercial



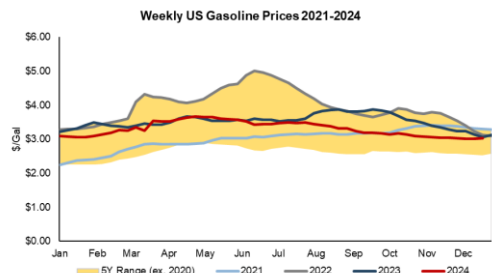
Source: EIA

Oil: AAA reports US national average gasoline price -\$0.02 WoW to \$3.03 on Dec 28

Yesterday, we posted [LINK](#) "AAA National average gasoline prices -\$0.03 WoW to \$3.03 on Dec 28, -\$0.04 MoM & -\$0.09 YoY. California average prices +\$0.03 WoW to \$4.35, -\$0.08 MoM & -\$0.30 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 two of the prior three weeks. Yesterday, AAA reported that US national average prices were \$3.03 on Dec 28, which was -\$0.02 WoW, -\$0.04 MoM, and -\$0.09 YoY. Yesterday, AAA also reported California average gasoline prices were \$4.35 on Dec 28, which was +\$0.03 WoW, -\$0.08 MoM and -\$0.30 YoY. Below is our graph of Bloomberg's National Average weekly gasoline prices.

US gasoline prices

Figure 29: AAA National Average Gasoline Prices



Source: AAA

Oil: Crack spreads -\$0.39 WoW to \$16.05 on Dec 27, WTI +1.14 WoW to \$70.60

On Friday, we posted [LINK](#) "321 crack spreads -\$0.39 WoW to \$16.05 on Dec 27. WTI +1.14 WoW to \$70.60. Incl WTI was +\$0.98 today not from crack spreads but with EIA Dec 20 oil inventory -4.2 mmb WoW, Israel/Houthi escalation. Thx @business #OOTT." Crack spreads were -\$0.39 WoW to \$16.05 on Dec 27 and WTI was +\$1.14 WoW to \$70.60. WTI was +\$0.98 on Friday alone driven by EIA oil inventory draw of -4.2 mmb and more Israel/Houthi attacks. It also fits what we have seen in H2/24 that WTI has been driven more by global factors and not crack spreads. Crack spreads at \$16.05 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 \$16.05 on Dec 27 followed \$16.44 on Dec 20, \$16.53 on Dec 13, \$15.95 on Dec 6, \$15.72 on Nov 29, \$17.09

Crack spreads closed at \$16.05

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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, and \$15.82 on Sept 27.

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

It hasn't been normal times for oil markets in H2/24 with a wide range of global factors. So for the most part, H2/24 is a good example 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 \$0.39 WoW whereas WTI was +\$1.14 WoW. But in normal times, broad market factors aside, we have focused on crack spreads for since the 90s as they are an unchanged fundamental of refineries – wide/high crack spreads provide incentives for refineries to buy more crude because there are big profit margins to be made. We track US crack spreads but there is also an influence on global refining capacity on US crack spreads as the increasing global refining capacity has also tended to have downward pressure on US crack spreads especially with demand being less than most expect. So if crack spreads are wide/high, it is normally a positive for the very near term look ahead to WTI. Conversely, if crack spreads are narrow/low, it doesn't give refineries any real incentive to take more crude, which is normally softness for the very near term look ahead to WTI. People often just say "cracks", which refers to the 321 crack spread. This is the spread or margin that refiners make from buying crude at a certain price and then selling the finished petroleum products at their respective prices. The 321 crack spread is meant to represent what a typical US refinery produces. It assumes that for every three barrels of crude oil, the refinery will produce two barrels of gasoline and one barrel of distillates. So the crack spread is based on that formula and worked back to a crack spread per barrel. Below is the current 321 crack spread vs WTI that we put in our tweet where we marked the gaps where the crack spread normally drags up oil prices. 321 Crack spread closed at \$16.05 on Friday Dec 27.

Figure 30: Cushing Oil 321 Crack Spread & WTI Dec 27, 2014 to Dec 27, 2024



Source: Bloomberg

Oil: Cdn heavy oil differentials narrows -\$0.20 WoW to \$13.05 on Dec 27

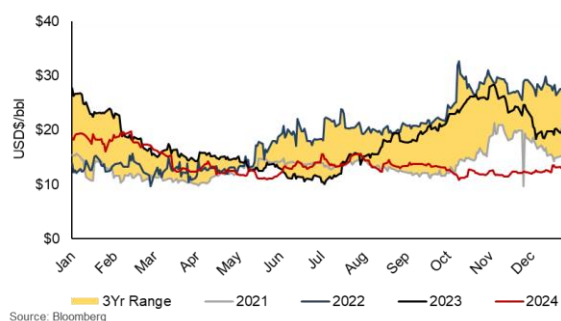
WCS less WTI differentials continue to trade in a narrow range relative to prior years and narrowed this week -\$0.20 WoW to close at \$13.05 on Dec 27. As noted in the following item, we have been saying that the real test for WCS less WTI differentials was in Sept/Oct/Nov as to how much the startup 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,

WCS differential narrows

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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 a 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 27 at \$13.05 which was a narrowing of -\$0.20 WoW vs \$12.25 on Dec 20.

Figure 31: WCS less WTI differentials



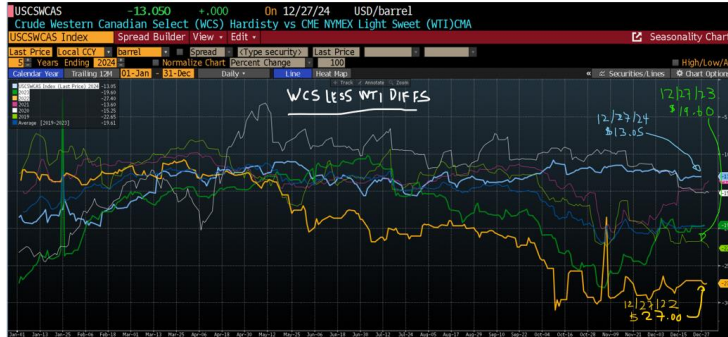
Source: Bloomberg

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. \$6.50 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 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: 12/27/24: \$13.05. 12/27/23: \$19.60. 12/27/22: \$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.

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Figure 32: WCS less WTI differentials to Dec 27, 2024 close



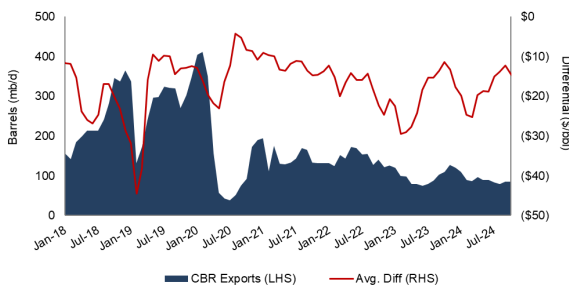
Source: Bloomberg

Oil: CER reports Cdn crude by rail exports at 85,279 b/d in October, down -22.6% YoY

As a reminder, the CER reports crude by rail exports to the US and these are normally higher than the EIA reported crude by rail imports from Canada. Normally this is because the EIA excludes Cdn crude by rail that is exported down to the Gulf Coast for immediate loading onto tankers for export i.e. the EIA doesn't include crude by rail from Canada that doesn't stay in the US. This is the normal situation but that isn't always the case. On December 19, the CER released their Canadian crude exports by rail figures for October [\[LINK\]](#). October crude exports by rail were 85,279 b/d, which is essentially flat at -0.7% MoM from 85,867 b/d b/d in September and down -22.6% YoY from 110,132 b/d in October 2023. The CER doesn't provide any explanation for the MoM changes. We have to believe, however, that the start up of the 590,000 b/d TMX in Q2/24 has to have had an impact. Below is our graph of Cdn crude by rail exports compared to the WCS-WTI differential.

**Cdn crude by rail
down YoY in
October**

Figure 33: Cdn Crude by Rail Exports vs WCS Differential



Source: Bloomberg, CER

Source: Canadian Energy Regulator, Bloomberg

Oil: Refinery Inputs up +0.205 mmb/d WoW to 16.816 mmb/d

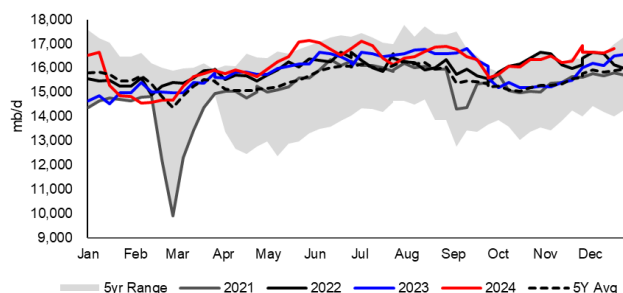
There are always unplanned refinery items that impact crude oil inputs into refineries. And there is always different timing for refinery turnarounds; generally late October marks the point when refineries have come out of fall turnarounds and are ramping up crude oil inputs as they change from summer 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

**Refinery inputs
+0.205 mmb/d
WoW**

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Wednesday, the EIA released its estimated crude oil input to refinery data for the week ended December 20 [\[LINK\]](#). The EIA reported crude inputs to refineries were up +0.205 mmb/d this week to 16.816 mmb/d and are up +0.259 mmb/d YoY. Refinery utilization was up +0.7% WoW to 92.5% and was down -0.8% YoY.

Figure 34: US Refinery Crude Oil Inputs



Source: EIA, SAF

Oil: US net oil imports up +0.995 mmb/d WoW as oil exports down -1.173 mmb/d

The EIA reported US “NET” imports were up +0.995 mmb/d to 2.749 mmb/d for the week of December 20. US imports were down -0.178 mmb/d to 6.471 mmb/d, while exports were down bigger at -1.173 mmb/d to 3.722 mmb/d. Top 10 was down -0.303 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 down -0.420 mmb/d to 3.919 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 up +0.287 mmb/d to 0.368 mmb/d. (iii) Mexico was down -0.129 mmb/d to 0.397 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 Olmecca (Dos Bocas) refinery slowing ramping up in 2024 and Pemex’s other refineries increasing crude oil processing. (iv) Colombia was up +0.140 mmb/d to 0.276 mmb/d. (v) Iraq was up slightly at +0.020 mmb/d to 0.229 mmb/d. (vi) Ecuador was down -0.069 mmb/d to 0 mmb/d. (vii) Nigeria was up +0.181 mmb/d to 0.237 mmb/d. (viii) Venezuela was down -0.401 mmb/d to 0.120 mmb/d.

**US net imports
+0.995 mmb/d
WoW**

Figure 35: US Weekly Preliminary Imports by Major Country

	Oct 25/24	Nov 1/24	Nov 8/24	Nov 15/24	Nov 22/24	Nov 29/24	Dec 6/24	Dec 13/24	Dec 20/24	WoW
Canada	3,660	3,879	3,953	3,862	4,081	4,044	3,829	4,339	3,919	-420
Saudi Arabia	13	443	140	220	248	392	175	81	368	287
Venezuela	250	212	359	211	267	173	187	521	120	-401
Mexico	621	247	384	768	151	279	440	526	397	-129
Colombia	150	72	142	414	142	283	125	136	276	140
Iraq	216	183	121	237	277	397	213	209	229	20
Ecuador	67	37	247	355	118	103	103	69	0	-69
Nigeria	145	86	77	86	146	110	168	56	237	181
Brazil	88	202	280	498	227	348	251	178	248	70
Libya	89	238	0	86	0	204	0	32	50	18
Top 10	5,299	5,599	5,703	6,737	5,657	6,333	5,491	6,147	5,844	-303
Others	676	641	806	947	426	957	493	502	627	125
Total US	5,975	6,240	6,509	7,684	6,083	7,290	5,984	6,649	6,471	-178

Source: EIA, SAF

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Oil: Mexico oil production according to Pemex down -1.9% MoM to 1.566 mmb/d

Please note that we are reporting on Pemex “oil” production excluding “condensate” production. This week, Pemex posted its oil production data for November [LINK](#). Pemex reported November oil production was 1.566 mmb/d, which was up slightly +0.5% YoY and down -1.9% MoM from 1.596 mmb/d in September. Mexico oil production has been stuck below 1.7 mmb/d for the last three years. Pemex has been unable to grow Mexico oil production, which means that any increase in Pemex Mexico refineries crude oil input will result in less Mexico oil for export including to the US Gulf Coast. And it also means that if Mexico has refinery issues in a month, there will be more Mexico oil for export in a month. Below is our table tracking Pemex oil production.

**November oil
production**

Figure 36: Pemex (Incl Partners) Mexico Oil (excluding Condensate) Production

Oil Production (thousand b/d)	2017	2018	2019	2020	2021	2022	2023	2024	24/23
Jan	2,020	1,909	1,623	1,724	1,651	1,649	1,628	1,703	4.6%
Feb	2,016	1,876	1,701	1,729	1,669	1,619	1,619	1,696	4.8%
Mar	2,018	1,846	1,691	1,745	1,697	1,620	1,636	1,690	3.3%
Apr	2,012	1,868	1,675	1,703	1,693	1,586	1,656	1,625	-1.9%
May	2,020	1,850	1,663	1,633	1,688	1,588	1,661	1,664	0.2%
June	2,008	1,828	1,671	1,605	1,698	1,570	1,610	1,658	3.0%
July	1,986	1,823	1,671	1,595	1,701	1,583	1,550	1,636	5.5%
Aug	1,930	1,798	1,683	1,632	1,657	1,604	1,552	1,660	7.0%
Sept	1,730	1,808	1,705	1,643	1,709	1,594	1,581	1,637	3.5%
Oct	1,902	1,747	1,655	1,627	1,692	1,592	1,560	1,596	2.3%
Nov	1,867	1,697	1,696	1,633	1,691	1,582	1,558	1,566	0.5%
Dec	1,873	1,710	1,706	1,650	1,694	1,561	1,545		

Source: Pemex, SAF

Oil: Mexico exports up +14.4% MoM to 0.951 mmb/d of oil in November

The big theme for Pemex (Mexico) oil exports is unchanged – oil production is stuck below 1.7 mmb/d so any improvement in crude run rates at the existing Pemex oil refineries and the startup, albeit delayed, of the new 340,000 Olmeca (Dos Bocas) refinery means there will be less oil for export. Due to Olmeca volumes slowly ramping, we have seen declining Mexico oil exports in H2/24. However November exports were up MoM due to the Olmeca/Dos Bocas refinery being down and some of the other refineries taking reduced crude. On Tuesday, Pemex posted its oil exports for November [LINK](#). Pemex does not provide any commentary on the data, but the reported November oil exports were 0.951 mmb/d, which is up +14.4% MoM and +7.7% YoY vs 883 mmb/d in November 2023. Below is our table of the Pemex oil export data.

**Pemex
November oil
exports**

Figure 37: Pemex Mexico Oil Exports

Oil Exports (thousand b/d)	2017	2018	2019	2020	2021	2022	2023	2024	24/23
Jan	1,085	1,107	1,071	1,260	979	832	980	951	-3.0%
Feb	1,217	1,451	1,475	1,093	1,006	925	949	940	-0.9%
Mar	1,001	1,176	1,150	1,144	925	905	971	687	-29.2%
Apr	1,017	1,266	1,023	1,179	923	1,024	989	681	-31.1%
May	958	1,222	1,205	1,062	1,031	965	1,087	911	-16.2%
June	1,157	1,110	995	1,114	1,106	1,029	1,203	754	-37.3%
July	1,255	1,156	1,079	1,051	1,173	1,062	1,052	779	-26.0%
Aug	1,114	1,181	1,082	1,190	1,099	915	1,076	731	-32.1%
Sept	1,159	1,206	995	1,023	983	1,022	1,119	656	-41.4%
Oct	1,342	1,027	963	908	935	971	1,053	831	-21.1%
Nov	1,388	1,135	1,114	1,171	1,025	893	883	951	7.7%
Dec	1,401	1,198	1,115	1,243	1,037	900	1,027		

Source: Pemex

Oil: Russia has some but not many hypersonic Oreshnik ballistic missiles

Last week's (Dec 22, 2024) Energy Tidbits memo noted how Russia was downplaying the

**Not many Oreshnik
missiles**

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potential for using Oreshnik given it had used precision guided strikes in retaliation for the second use by Ukraine of US ATACMS missiles. It makes sense given Putin's comments that Russia has some but not many hypersonic Oreshnik ballistic missiles. On Thursday, we posted [LINK](#) "Impossible for Russian #NatGas after Dec 31 to Europe via Ukraine: says Putin 📌. Also as military pundits have been saying, Russia currently has some but not many hypersonic Oreshnik missiles. #OOTT." TASS reported "About the "Oreshnik" system. " Russia "does not yet have many of these Hazel systems, but they are there, and Russia is in no hurry to use them, "because these weapons are powerful, they are designed to solve certain problems." If the need arises, "we use it, but we are not in a hurry." "Strikes on the territory of Russia will never go unanswered: "We always respond in a mirror manner. They use certain weapons against us - we use the same one."

Oil: Russian push to recapture Kursk before Trump takes over on Jan 20

Trump takes over in three weeks and the expectation is that Russia will push hard to recapture as much of its Kursk region ahead of Jan 20. Kursk was the Russian region that Ukraine was able to surge into in the summer and take over. And it is viewed as Ukraine's key leverage chip for any expected negotiations post Trump. It is the one Russian territory captured by Ukraine so it is the only land chip Zelensky has to offer up in any deal.

xxxx

Oil: Will Israel try to strike decisive blow to Houthis pre Trump?

The good news for Israel is that the Houthi missile that got thru their air defense did not hit and lead to deaths. But even still, we think this is significant as for whatever reason, missiles are getting thru and that has to be a big concern for Netanyahu. It is also why we have to believe Netanyahu has the Houthi likely the next up for Israel attacks. Israel has a huge firepower advantage with its fighter jets that can effectively bomb at will. The Houthis have surprisingly held in after years of first Saudi Arabia bombings and then the US/UK bombings. And have been able to get missiles thru Israel air defense. That is also a reason why Netanyahu wants to take them out. The last thing Netanyahu wants is a Houthi missile getting thru and causing Israeli deaths. This is why we have to wonder if Israel taking the lead on attacking the Houthis will be the difference maker as Israel has a different more aggressive approach to hitting the Houthis. They take more of the approach that they did vs Hamas and Hezbollah, they hit hard, they try to pound the enemy into submission.

Israel vs
Houthis

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

Here is what we wrote in last week's (Dec 22, 2024) Energy Tidbits memo on how Israel's taking out of Syria's military installations sets up the potential for Israel to attack Iran. "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

Will Israel bomb
Iran's nuclear
facilities?

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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 #OTT."

Oil: Libya oil production 1.405 mmb/d plus condensate of 0.053 mmb/d

On Wednesday, the Libya National Oil Corporation Facebook post [\[LINK\]](#) said "The National Oil Corporation is pleased to announce to the Libyan citizens that our daily production of crude oil has exceeded the target rate for this year 2024, which amounted to 1,405,609 barrels, and 52,633 barrels of condensates, which is an achievement that would not have been achieved in light of the delay in liquidating the budget allocated for the year 2024." This is well above the Aug 1 level of 1.279 mmb/d for oil + condensate before the interruptions started. Note that we have been recommending using 50,000 b/d as an approximate Condensate share of total oil + condensate production as the NOC has not, prior to Wed, been providing the split of oil vs condensate. They did on Wed and it was 52,633 b/d so basically right in line with our assumption of 50,000 b/d.

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

Oil: China big city consumers are not spending

We have been highlighting how the Chinese consumer has been holding back on spending and it appears that is being driven more so by Chinese big city consumers. China retail sales have been disappointing and far below the pre-Covid retail sales YoY growth rates. But it looks like within the disappointing retail sales growth, the laggards are Chinese big city consumers. Earlier this morning, we posted [\[LINK\]](#) "China big city consumers are not spending. Within weak national retail sales (see 📌 11/15 post), China's big city consumers are underperforming. "Consumption in China's county-level cities and rural areas is growing faster than that in the bigger first- and second-tier municipalities" @yicaichina." Yicai reported "Consumption in China's county-level cities and rural areas is growing faster than that in the bigger first- and second-tier municipalities thanks to an expanding middle class with more spending power, according to the latest data. Only six out of China's 31 provincial-level regions logged more than 5 percent growth in the retail sales of consumer goods in the first three quarters from a year earlier, according to the National Bureau of Statistics. These were Xizang Autonomous Region, Henan province, Hunan province, Shandong province, Jiangxi province and Hubei province, and most of them are in the less-developed central and western parts of the country with lower urbanization rates. This far outstripped the national average of 3.3 percent growth in the first nine months to CNY35.3 trillion (USD4.9 trillion), according to NBS' figures." Our Supplemental Documents package includes the Yicai report.

**China big city
consumers**

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

Here is what we wrote in last week's (Dec 22, 2024) Energy Tidbits memo on the disappointing China retail sales data in Nov. "China retail sales +3.0% YoY in Nov, lowest YoY increase since Aug. Last Sunday night, Bloomberg reported on the China

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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%. #OTT Thx @business". Below is the Bloomberg graph we included with our tweet."

Figure 38: China Retail Sales YoY%



Source: Bloomberg

Oil: China keeps importing Iran oil rebranded as Malaysia oil

On Monday, we posted [LINK](#) "Iran #Oil keeps getting rebranded as Malaysia oil. China customs official data is zero oil imports from Iran since June 2022. BUT China oil imports from Malaysia -130,000 bd MoM to 1.65 mmbd in Nov vs OPEC Secondary Sources Malaysia production of 0.351 mmbd. Expected larger MoM decline based on @Kpler 12/13/24 post. #OTT." Bloomberg had just posted the China customs data of crude oil imports by country for Nov. We checked Iran and there was no changes to China customs not showing any oil imports from Iran since June 2022. But then we looked as usual at Malaysia and the China customs data shows China crude oil imports from Malaysia were 1.65 mmb/d in Nov, which followed the record set in Oct of 1.78 mmb/d, 1.50 mmb/d in Sept, which followed 1.77 mmb/d in Aug, and 1.47 mmb/d in July. Our tweet also included the OPEC Monthly Oil Market Report Dec 2024, which included Secondary Sources estimate that Malaysia only produced 0.351 mmb/d in Nov whereas China is importing oil from Malaysia that is equal to 4.7x times Malaysia total country production. Below is the Bloomberg graph of China oil imports from Malaysia that was attached to our tweet.

**China imports
of "Malaysian"
oil**

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Figure 39: China crude oil imports from Malaysia



Source: Bloomberg

We had expected a large MoM decline in China oil imports from Malaysia/Iran

We had actually expected to see a larger MoM decline in China oil imports from Malaysia/Iran based on the Kpler Dec 14 estimates. Here is what we wrote in our Dec 15, 2024 Energy Tidbits memo. “Kpler China Nov oil + condensate imports from Iran -0.524 MoM to 1.31 mmb/d. Yesterday we posted [LINK](#) “Here’s more support for why floating oil storage off Asia was jumped up in Oct/Nov. China imports of Iran crude oil + condensate hit 4-month low of 1.31 mmb/d, -0.524 mmb/d MoM. Thx @Kpler #OOTT.” Note Kpler is referring to crude oil plus condensate barrels. It followed the same theme as Vortexa on reduced China oil imports from Iran due to wanting un-sanctioned tankers. Yesterday, Kpler posted [LINK](#) “US efforts to restrict Iranian oil flows are beginning to yield notable impacts. China’s imports of Iranian crude #oil and condensate dropped sharply in November, hitting a four-month low of 1.31 million barrels per day. The significant 524 kbd month-on-month decline reflects the impact of geopolitical tensions, domestic energy shortages, and increased shipping challenges arising from stricter U.S. sanctions. Our analysis of the 147 tankers involved in Iranian crude shipments this year shows the disruption caused by the latest rounds of U.S. sanctions. This has resulted in a buildup of floating storage, primarily near Malaysia and Singapore.” Below is the Kpler chart from this post. Our Supplemental Documents package includes the Kpler post.”

Oil: Will a tighter range of 2025 oil demand YoY growth help OPEC manage oil markets

The debate on oil demand won’t be going away in 2025 but there should be much less of a debate in 2025 than we have seen in 2024 because the range of oil YoY demand growth forecasts is much tighter for 2025 and, there is essentially no debate if you throw out the high (OPEC) and the low (IEA). We have to believe this will help OPEC manage oil markets in 2025. On Wednesday, we posted [LINK](#) “Less of a debate on #Oil demand YoY growth forecasts for 2025. All (incl EIA, IEA, OPEC, Russia, Saudi Aramco): +1.08 to 1.45 mmb/d. Excl OPEC: +1.08 to 1.29 mmb/d. Excl OPEC & IEA: 1.20 to 1.29 mmb/d. #OOTT”. Russia Energy Minister Novak had just disclosed Russia’s oil demand YoY growth estimates of +1.20 mmb/d YoY in 2024 and +1.0 to +1.5 mmb/d YoY in 2025. We used the midpoint of +1.25 mmb/d YoY for 2025. We updated our table of comparing the YoY growth rates for oil demand including EIA, IEA, OPEC, Saudi Aramco and now Russia. Our tweet notes that the range in YoY demand growth forecasts is much tighter in 2025. No surprise, OPEC is the highest and IEA is the lowest. Everyone considers OPEC too bullish and everyone also considers the IEA too bearish. For 2025 oil demand YoY growth, the forecasts from lowest to

**Tight range of
oil demand YoY
growth for 2025**

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highest are: IEA Dec OMR +1.08 mmb/d YoY. Saudi Aramco Q3 presentation +1.20 mmb/d YoY. Russia Dec +1.25 mmb/d YoY and OPEC +1.45 mmb/d YoY. Our Supplemental Documents package includes the TASS reporting of Novak forecast for oil demand growth rates.

Figure 40: Comparison of YoY oil demand growth forecasts

Comparison of YoY Oil Demand Growth Forecasts		
million b/d	YoY Oil Demand Growth Forecast	
	2024 YoY	2025 YoY
EIA Dec STEO	0.89	1.29
EIA Nov STEO	0.99	1.22
EIA Oct STEO	0.92	1.29
EIA Sept STEO	0.94	1.52
EIA Aug STEO	1.14	1.61
IEA Dec OMR	1.08	1.08
IEA Nov OMR	0.92	0.99
IEA Oct OMR	0.86	1.00
IEA Sept OMR	0.90	0.95
IEA Aug OMR	0.97	0.95
OPEC Dec MOMR	1.61	1.45
OPEC Nov MOMR	1.82	1.54
OPEC Oct MOMR	1.93	1.64
OPEC Sept MOMR	2.03	1.74
OPEC Aug MOMR	2.11	1.78
Russia (Novak Dec 25)	1.20	1.25
Saudi Aramco Q3	1.10	1.20
Saudi Aramco Q2	1.60	1.40

YoY 2025
ALL 1.08 - 1.45
EXCL OPEC 1.08 - 1.29
EXCL OPEC + IEA 1.20 - 1.29

Note: IEA Dec OMR revised up 2023 demand to 101.964 mmb/d vs Nov OMR 101.897 mmb/d
 Note: Russia, Novak est 2025 is 1.0 to 1.5 mmb/d
 Source: OPEC, Saudi Aramco, IEA, EIA, Bloomberg
 Prepared by SAF Group <https://safgroup.ca/insights/energy-tidbits/>

Source: EIA, IEA, OPEC, Saudi Aramco, Russia via TASS

Oil: Vortexa crude oil floating storage est 53.75 mmb at Dec 27, -14.39 mmb WoW

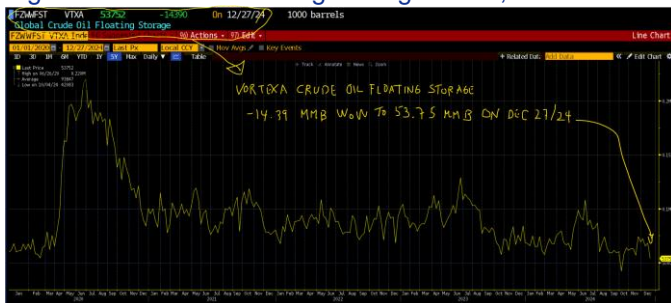
We are referencing the Vortexa crude oil floating storage data posted on the Bloomberg terminal as of 9am MT yesterday. Note that these estimates get revised over the course of the week and the revisions can go back months. We do not check daily for the revisions, so our comments on the new estimates are compared to the prior week's Vortexa estimates posted on Bloomberg on Dec 21 at 9am MT. (i) Yesterday, we posted [\[LINK\]](#) "Is Iran floating storage off Asia clearing up? Vortexa crude #Oil floating storage. 53.75 mmb on Dec 27, -14.39 mmb WoW. Declined off recent 11/22-12/06 high driven by Asia declines. Asia buildup was China not taking Iran sanctioned tankers. Thx @vortexa @business #OOTT." (ii) As of 9am MT Dec 28, Bloomberg posted Vortexa crude oil floating storage estimate for Dec 27 was 53.75 mmb, which was -14.39 mmb WoW vs revised down Dec 20 of 68.14 mmb. Note Dec 20 of 68.14 mmb was revised -1.96 mmb vs 70.10 originally posted at 9am on Dec 21. (iii) We ask if the decline over the recent late Nov/early Dec highs are due to the build up of Iran floating storage off Asia. We have been highlighting how Iran barrels had been stuck offshore as China was trying to avoid unloading from sanctioned tankers. But Asia is now down about 12 mmb from the recent early Dec highs. (iv) Revisions. All of the prior seven weeks were revised down with an average revision for the prior 7 weeks of -2.51 mmb. Here are the revisions for the past seven weeks compared to the estimates originally posted on Bloomberg at 9am MT on Dec 21. Dec 20 revised -1.96 mmb. Dec 13 revised -1.81 mmb. Dec 6 revised -1.53 mmb. Nov 29 revised -2.98 mmb. Nov 22 revised -5.23 mmb. Nov 15 revised -2.10 mmb. Nov 8 revised -1.96 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 65.62 mmb vs last week's then 7-week moving average of 69.43 mmb. The big decline is primarily driven by all prior weeks being revised down. And pulled back from almost hitting 70 mmb, a 7-wk average last 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

Vortexa floating storage

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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 27 estimate of 53.75 mmb is -74.82 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 27 estimate of 53.75 mmb is -14.86 mmb YoY vs Dec 29, 2023 at 68.61. Below are the last several weeks of estimates posted on Bloomberg as of 9am on Dec 28, Dec 21, and Dec 14.

Figure 41: Vortexa Floating Storage Jan 1, 2000 – Dec 27, 2024, posted Dec 28 at 9am MT



Source: Bloomberg, Vortexa

Figure 42: Vortexa Estimates Posted 9am MT on Dec 28, Dec 21 and Dec 14

Posted Dec 28, 9am MT						Dec 21, 9am MT						Dec 14, 9am MT					
ID	3D	1M	6M	YTD	1Y	ID	3D	1M	6M	YTD	1Y	ID	3D	1M	6M	YTD	1Y
Fr	12/27/2024			53752		Fr	12/20/2024			70098		Fr	12/13/2024			65531	
Fr	12/20/2024			68142		Fr	12/13/2024			67175		Fr	12/06/2024			72082	
Fr	12/13/2024			65369		Fr	12/06/2024			73621		Fr	11/29/2024			72812	
Fr	12/06/2024			72089		Fr	11/29/2024			72117		Fr	11/22/2024			77285	
Fr	11/29/2024			69140		Fr	11/22/2024			79366		Fr	11/15/2024			57634	
Fr	11/22/2024			74135		Fr	11/15/2024			58818		Fr	11/08/2024			63859	
Fr	11/15/2024			56723		Fr	11/08/2024			64784		Fr	11/01/2024			64378	
Fr	11/08/2024			62820		Fr	11/01/2024			65012		Fr	10/25/2024			61743	
Fr	11/01/2024			62952		Fr	10/25/2024			63417		Fr	10/18/2024			66133	
Fr	10/25/2024			61340		Fr	10/18/2024			65790		Fr	10/11/2024			59738	
Fr	10/18/2024			63741		Fr	10/11/2024			59907		Fr	10/04/2024			45040	
Fr	10/11/2024			57834		Fr	10/04/2024			43976		Fr	09/27/2024			63132	

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 20 was revised –1.96 mmb. The major revisions were Other -3.35 mmb and Asia +2.24 mmb. (ii) Total floating storage at Dec 27 of 53.75 mmb was -14.39 mmb vs revised down Dec 20 of 68.14 mmb. The major WoW changes were West Africa -8.49 mmb Wow, Middle East -2.98 mmb WoW and Asia -1.58 mmb WoW. (iii) See our below comment on Asia floating storage has declined in the last few weeks, which suggests Iran floating storage barrels offshore Asia have cleared up. (iv) Dec 27 estimate of 53.75 mmb is -74.82 mmb vs the 2023 high on June 23, 2023 of 128.57 mmb. Recall Saudi Arabia started its voluntary 1

Vortexa floating storage by region

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mmb/d production cuts on July 1, 2023. The major changes by region vs the last year June 23, 2023 peak are Asia -48.72 mmb and Other -18.70 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 20 that was posted on Bloomberg at 9am MT on Dec 21.

Figure 43: Vortexa crude oil floating by region

Region	Vortexa crude oil floating storage by region			Original Posted		Recent Peak	
	Dec 27/24	Dec 20/24	WoW	Dec 20/24	Jun 23/23	Dec 27 vs Jun 23/23	
Asia	24.53	26.11	-1.58	23.87	73.25	-48.72	
North Sea	0.65	1.37	-0.72	1.36	4.71	-4.06	
Europe	4.58	3.24	1.34	3.32	6.05	-1.47	
Middle East	9.88	12.86	-2.98	11.34	6.59	3.29	
West Africa	3.48	11.97	-8.49	13.46	7.62	-4.14	
US Gulf Coast	0.00	0.80	-0.80	1.61	1.02	-1.02	
Other	10.63	11.79	-1.16	15.14	29.33	-18.70	
Global Total	53.75	68.14	-14.39	70.10	128.57	-74.82	

Vortexa crude oil floating storage posted on Bloomberg 9am MT on Dec 28
Source: Vortexa, Bloomberg

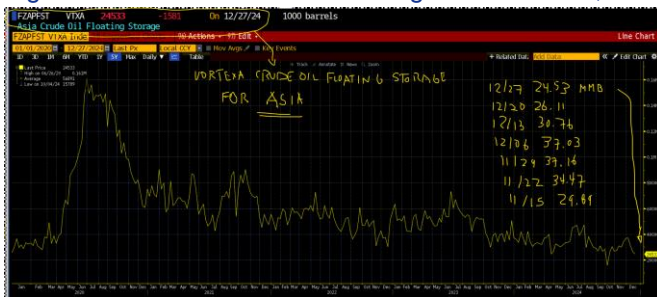
Source: Bloomberg, Vortexa

Oil: Vortexa data, is Iran floating storage oil in Asia being cleared up?

For the past month, we have been highlighting how Vortexa crude oil floating storage offshore Asia jumped up in Nov, which was attributed to more Iran floating oil storage in Asia as China was being more careful on receiving sanctioned tankers. The last few weeks Vortexa floating storage for Asia is pointing to that the Iran barrels have been cleared up in one way or another and being unloaded. Asia floating storage is down big in the last three weeks, which points to Iran floating barrels being cleared up.. The new Vortexa floating storage posted yesterday morning for Asia is 24.53 mmb for Dec 27, which followed 26.11 mmb for dec 20, 30.76 mmb for Dec 13, 37.03 mmb for Dec 6, 37.16 mmb for Nov 29, 34.47 mmb for Nov 22, and 29.81 mmb for Nov 15. Below is the Bloomberg chart for Vortexa crude oil floating storage for Asia from Jan 1, 2020 thru Dec 27, 2024 as posted as of 9am MT on Dec 28.

Vortexa Asia floating storage declining in Dec

Figure 44: Vortexa crude oil floating for Asia Jan 1, 2020 to Dec 27, 2024



Source: Bloomberg, Vortexa

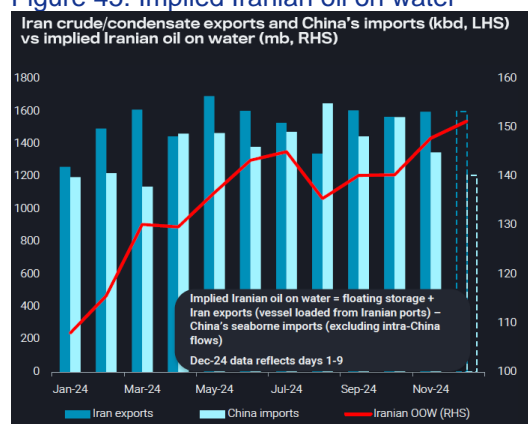
12/09/24: Asia floating storage up, China wants non-sanctioned tankers for Iran

Here is what we wrote in our Dec 15, 2024 Energy Tidbits memo on when Iran floating oil storage started to ramp up in Nov. “Asia floating storage is up as China wants non-sanctioned tankers for Iran oil. For the past few weeks, we have highlighted how Asia crude oil floating storage had jumped up. It looks like we found

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out why – it’s China. On Monday, we posted [\[LINK\]](#) “Here’s why crude oil floating storage off Asia is up. “In recent weeks, Iranian crude & condensate have been rapidly building up on tankers, as Chinese buyers increasingly require cargos to be delivered on non-sanctioned vessels due to heightened US sanctions” @vortexa Emma Li #OOTT.” Vortexa posted “Asia Market Spotlight: Iranian oil on water builds up amid heightened sanctions on tankers”. Vortexa wrote “In recent weeks, Iranian crude and condensate have been rapidly building up on tankers, as Chinese buyers increasingly require cargos to be delivered on non-sanctioned vessels due to heightened US sanctions.” Our post included the below Vortexa graph.”

Figure 45: Implied Iranian oil on water



Source: Vortexa

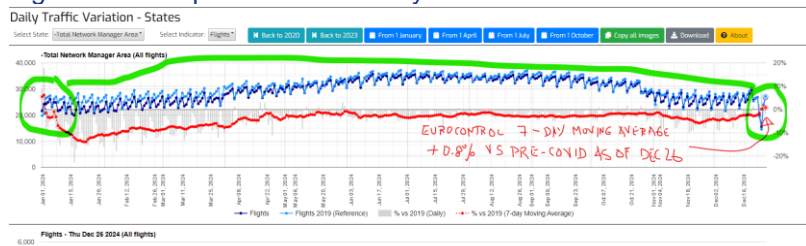
Oil: Europe airports daily traffic 7-day moving average is +0.8% above pre-Covid

Yesterday, we posted [\[LINK\]](#) “Busy Xmas travel season has more Europeans flying than pre-Covid. Daily Europe air traffic +0.8% vs pre-Covid highest since Jan 1/24 peak of +6.2% vs pre-Covid. Will it stay >2019 in normal post Xmas decline? 7-day moving average as of: Dec 26: +0.8% above pre-Covid. Dec 19: -2.4%. 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%. Thx @eurocontrol #OOTT.” This was the first week above pre-Covid since the end of 2024, when European daily traffic went above pre-Covid for last Xmas/New Year travel. Other than last Xmas/New Year, European daily traffic at airports was stuck a little bit below pre-Covid. So this looks like another Xmas/New Year travel push and the question becomes how will European air traffic compares vs pre-Covid after the rush is over. Last year, European air traffic fell off right after New Year and got close to pre-Covid at -0.8% below pre Covid as of May 30 but that was the closest until this week. The 7-day moving average was +0.8% above pre-Covid as of Dec 26, which followed -2.4% below pre-Covid as of Dec 19, -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, and -1.6% as of Oct 24. Normally we try to pull the data early Saturday mornings for a consistent weekly comparison. Eurocontrol updates this data daily and it is found at [\[LINK\]](#).

Europe airports daily traffic

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Figure 46: Europe Air Traffic: Daily Traffic Variation to end of Dec 26



Source: Eurocontrol

Oil & Natural Gas: Trump wants Greenland, would be a big strategic deal

Early Monday morning, we posted [\[LINK\]](#) “Method to Trump madness! Greenland has huge strategic value for US is why Trump wants to buy Greenland again. US would control both ends of Northwest Passage and controlling major international shipping lanes has military and commercial value. See [08/18/2019 SAF Group Energy Tidbits memo](#). But expect Denmark/Greenlanders to reject. #OOTT.” Last Sunday, Trump announced the appointment of his ambassador to Denmark and wrote ““For purposes of National Security and Freedom throughout the World, the United States of America feels that the ownership and control of Greenland is an absolute necessity.” No surprise on Monday, Greenland Prime Minister Mute Egede rejected Trump’s statement and wrote “Greenland is ours. We are not for sale and will never be for sale. We must not lose our long struggle for freedom.” Trump raised interest in his first term and was rejected. Our post included what we wrote in our Aug 18, 2019 Energy Tidbits memo on Trump’s first buy Greenland desire. It isn’t an oil and gas upside, rather we see it as a hugely strategic position for the US as it would give the US control over both ends of the Northwest Passage. An, as seen elsewhere, controlling major shipping lanes is a strategic asset for both commercial and military reasons.

Greenland would be of strategic value to US

Trump buying Greenland would be of strategic value

Here is what we wrote in our Aug 18, 2019 Energy Tidbits memo. “Trump buying Greenland would be of strategic value. We recognize Trump was ridiculed for his asking his advisors about buying Greenland. We have no idea if Trump was truly serious about wanting to try to buy Greenland. Surely he would have expected Greenlanders to vote no especially as they are viewed as anti resource development. The primary reason being attributed for his interest is Greenland’s mineral and oil potential. We would say no to oil and gas. its not that Greenland doesn’t have oil and gas potential, its that it hasn’t worked to date (albeit with only limited exploration wells) and the US doesn’t need it. We were surprised that Trump defenders didn’t try to stop the ribbing by noting Greenland as big strategic value to the US in a world of global warming. Not so much that Greenland would be accessible, rather Greenland’s strategic location in a world of global warming and increasing ability for ships/tankers to move thru the Northwest Passage. If Greenland was the US, the US would effectively share the effective control at both ends of the Northwest Passage with Russia on one end and Canada on the other end. Not a bad positioning. As we have seen in 2019, effective control of major waterways has been a major issue in the Strait of Hormuz, Bab el Mandeb, Strait of Gibraltar, and Strait of Malacca. “

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Figure 47: Northwest Passage



Source: Geology.com

Greenland wouldn't provide any strategic oil value to the US

Here is another item from our Aug 18, 2019 Energy Tidbits memo on Trump's desire to buy Greenland. *"Greenland wouldn't provide any strategic oil value to the US. From an oil perspective, we don't see the rationale to support why Trump would want Greenland for its oil potential. The US already has the best in world oil growth story, but the US oil story is light oil and not heavy/medium sour oil growth. The one area that US will continue to need is heavy medium sour oil for its refineries in PADD II Midwest, and PADD III Gulf Coast, and Greenland wouldn't do anything to help that need. Rather if Trump really wanted to capture strategic oil, he would want to capture what the US doesn't have – heavy medium sour and the two biggest suppliers are Alberta and then Mexico."*

Energy Transition: Germany wind generation crashes again in peak winter season

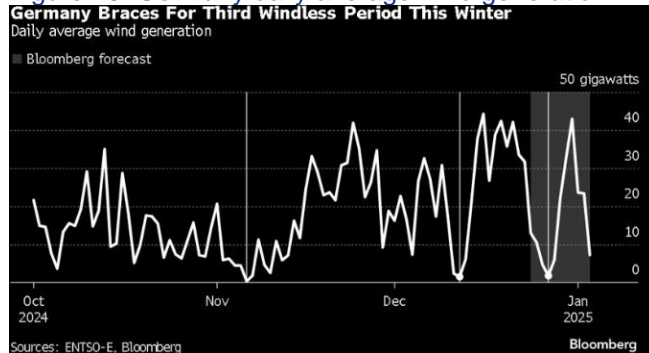
One of the positives for Europe TTF gas prices (and therefore LNG) in Nov and Dec has been the multiple periods of very low wind generation in what is normally the beginning of the peak seasonal wind generation. This isn't the first time in the peak wind season we have noted the very low wind generation. Rather, Bloomberg highlighted this was the third windless period this winter in Germany. On Tuesday, we posted [\[LINK\]](#) *"Wind 101: Can crash even in the peak winter seasonal generation period. Germany wind generation forecast to 1.8 GW on Dec 27, only 10% of average this winter. "Dunkelflaute" is when minimal wind and sunshine. #NatGas storage will be pulled to save the day so NatGas price up and that drags up #LNG and even HH prices especially as RUS pipeline #NatGas supply via UKR is about to be cut off on Dec 31. Need warm temps for end of Dec/start of Jan. Thx @EamonFarhat #OOTT #LNG."* Winter is normally the peak wind generation season for Germany but has been hit by regular windless periods of effectively zero wind generation. On Tuesday, Bloomberg wrote *"Germany's wind generation is forecast to plunge this week but the price effect will likely be damped by lower-than-usual demand during the holiday period. On Dec 27, power generation is set to slump to 1.8 gigawatts, only 10% of the*

Germany wind generation

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average this winter so far. Temperatures are forecast above the 30-year normal and have been revised up on Dec 27, compared to previous expectations.”

Figure 48: Germany daily average wind generation

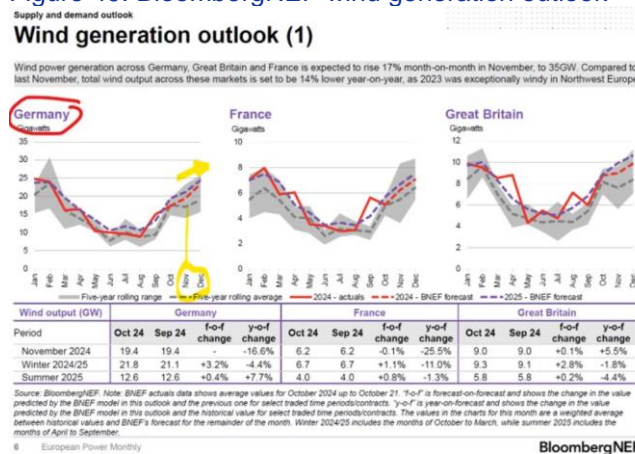


Sources: ENTSO-E, Bloomberg
Source: Bloomberg, ENTSO E.

Europe wind generation seasonally peaks in the winter

Our Nov 3, 2024 Energy Tidbits memo highlighted how wind and solar have opposite seasonal peaks and trough. On Oct 31, 2024, we tweeted [LINK](#) “Wind & Solar 101. EU wind has big gains from summer trough to winter peak vs solar has big losses from summer peak to winter trough. Offsetting seasonality means adding solar + wind capacity doesn't add 1 +1 in terms of actual generation in EU. But a modest net up in winter ie. less demand for #NatGas generation especially if hot winters like 22/23 & 23/24. Thx @BloombergNEF. #OTT.” Our tweet included the below BloombergNEF wind generation outlook that shows the seasonality of wind generation and that wind generation peaks in the winter at >2x summer trough. Yet, as noted above, wind generation this week was at the low for the year.

Figure 49: BloombergNEF wind generation outlook



Source: BloombergNEF

UK ZEV
consultation

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Energy Transition: UK consultation to shape UK transition to zero emissions vehicles

On Tuesday, the UK gov't announced its "Industry encouraged to shape UK transition to zero emission vehicles" [\[LINK\]](#). The opening sentence was "Seeking views on how to restore the 2030 phase out date for new purely petrol and diesel cars and make the transition to zero emission vehicles a success." (i) As in most gov't releases, it was craftily drafted as the Labour gov't didn't want to message giving up the 2030 phase out date easily but both sides saw through that. Green groups, like the Green Alliance UK [\[LINK\]](#) wrote "we welcome the government's intention to reinstate the 2030 phase out date for the sale of petrol and diesel powered vehicles..... it is vital that ministers maintain the 2030 goal..." Whereas the industry association SMMT (Society of Motor Manufacturers and Traders Limited) wrote [\[LINK\]](#) "The automotive industry welcomes government's review of both the end of sale date for cars powered solely by petrol or diesel, and possible changes to the flexibilities around the Zero Emission Vehicle Mandate." (ii) On HEVs, not PHEVs, the Labour Gov't was clearly setting the stage for HEVs being able to be sold thru at least 2035. And they realize that HEVs are what UK customers want, not BEVs or PHEVs. The UK said "It will give the sector the opportunity to consider how the current arrangements and flexibilities are working, which hybrid cars can be sold alongside zero emission models between 2030 and 2035". On Tuesday, we posted [\[LINK\]](#) "HEV should be the huge winner post UK's ZEV consultation. UK consultation 📌 points to be able to buy HEV/PHEV until 2035, but no change to can't buy "purely petrol and diesel cars" after 2030. 📌 YTD Nov share, HEV 35.5% & Petrol, 34.4% dominate UK new car sales. #OOTT." (iii) The interesting part of the HEV that will also impact PHEV is what emissions limits come out of the consultation process as, at least as suggested, sales of certain HEV and PHEV would not be allowed in this extended 2030-2035 period. The Telegraph wrote [\[LINK\]](#) "Some of Britain's best-selling hybrid cars will be banned from sale after 2030 under a net zero crackdown proposed by ministers" "The proposal is meant to prevent a situation where some petrol and diesel cars would be banned while some existing hybrids that are more polluting remain on sale. It would limit emissions to 115 grams of carbon dioxide per kilometre, potentially ruling out sales of many "mild" hybrids – those that have electric motors but cannot use them to travel significant distances – as well as a smaller number of plug-in ones. Models that would face bans under this rule include the mild hybrid versions of the Ford Puma, Range Rover Evoque, Nissan Qashqai and VW Golf, among several others, analysis by the Telegraph suggests. The true impact could be even larger because emissions ratings for most plug-in hybrids today do not reflect their real-world performance and are set to be updated. In many cases the true emissions of plug-ins are 243pc higher, according to the Government. If emissions figures are revised up higher in the coming years, many more models will come off the market." Our Supplemental Documents package includes the UK release and Telegraph report.

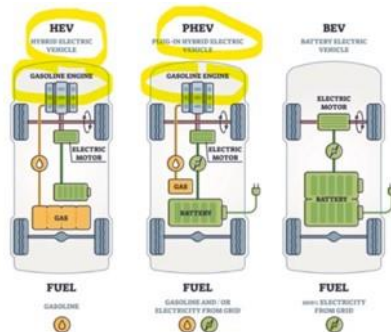
HEVs & PHEVs are really just more fuel efficient ICE vehicles

There was a good reinforcement of why we highlight that HEVs and PHEVs are really just more fuel-efficient ICE vehicles from the Telegraph's above reporting of the UK ZEV emissions levels that point to some mild hybrids being treated like petrol and diesel because of their emissions levels. One of the things that most forget or overlook 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

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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 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 50: HV vs PHEV vs BEV



Source: Engineering Infrastructure

HEV and Petrol dominate UK car sales in 2024

Our post on the UK ZEV consultation reminded that HEVs and Petrol dominate UK car sales. Here is what we wrote in last week’s (Dec 22, 2024) Energy Tidbits memo

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on the Nov and YTD Nov 30 UK car sales data. “UK Nov BEV sales +58.4% with big discount and ICE/HEV held back. 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 51: UK Nov new car registrations by power source

UK Nov New Car Registrations by Power Source										
	Volume			Share					Share	
	Nov-24	Nov-23	% Change	Nov-24	Nov-23	YTD Nov 24	YTD Nov 23	% Change	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 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

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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: UK ZEV release conveniently omits public charging is 10x private

We recognize that all governments don't want to remind citizens of negatives to their policy stance. That is reality. But, the annoying thing is that they make a point of emphasizing a positive when there is a known offsetting and bigger negative on a point. And that was the case with the UK ZEV consultation release. UK highlighted how using an EV with a private home charger can save people up to £750/yr compared to driving petrol or diesel cars. But the release did not mention what about for those who don't have at home private chargers which costs about 10x more than at home charging. On Tuesday, we posted [\[LINK\]](#) "What other relevant acts are missing? UK ZEV consultation process highlights "... using an electric vehicle could save people up to £750 a year in running costs if they're charged at home compared to using petrol and diesel cars". What about those who use public charging? See 📌 12/01/24 post. @vertumotorsCEO notes those who public charge EV pay about 10x vs those who charge at home. #OOTT #EV." Our post included the prior comments from Vertu CEO Forrester that public charging costs 10x times the cost of those who have private at home charging.

UK forgot about public charging costs

12/01/24: Vertu CEO UK public EV charging is 10x more vs at home charging

Here is what we wrote in our Dec 1, 2024 Energy Tidbits memo. "Earlier this morning, we tweeted [\[LINK\]](#) "BEV/PHEV cost disadvantage for those without own driveway for home charging in UK. 7 pence/kw at home vs those who public charge & pay 60-80 pence/kw. A lot of people in UK, moreso in Asia, don't live in homes with drives. Thx @vertumotorsCEO [\[LINK\]](#) #OOTT." We have noted Vertu Motors CEO Robert Forrester's comments before as he is a pretty straight shooter. Vertu is one of the major UK owner of car dealerships. Forrester was on BBC Radio 4 on Tuesday. He was asked about why BEV sales are less than aspired and the key reason to no surprise is that they are expensive. But he also reminded of another big problem in penetrating EVs sales into those who don't have their own driveway for charging – the cost of public BEV and PHEV charging is 10x more expensive. His home has a private drive with his home charger and the cost is only 7 pence/kw. But then he reminded of the challenge for those who have to rely public charging, the

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cost is more like 60 to 80 pence/kw. That is 10x higher.”

Energy ransition: BNEF triples its forecast cost to produce Green Hydrogen

We have been highlighting for years that we expect agencies and forecast groups to increase (hit) the costs of key energy transition items like Green Hydrogen. On Monday, we saw a massive change in message and a massive increase in costs to produce Green Hydrogen from BloombergNEF, who did an about-face from its history of forecasting declining costs to produce Green Hydrogen to one where they are tripling the future cost to produce Green Hydrogen. That is a WOW, moving from forecasting lower costs to a tripling of costs. On Monday, we posted [\[LINK\]](#) *“Huge Green Hydrogen cost reality check! @BloombergNEF had in the past forecast steep declines in the price of green hydrogen....But in its forecast published Monday, the firm more than tripled its 2050 cost estimate, citing higher future costs for the electrolyzers themselves”. If world wants hydrogen, it will have to be from #NatGas. Thx @DavidBakerSF Payal Kaur #OOTT”* This was from its Monday report *“Green Hydrogen Prices Will Remain High for Decades, BNEF Warns.”* Our Supplemental Documents package includes the Bloomberg report.

BNEF triples its forecast cost for Green Hydrogen

Energy Transition: BNEF, Green Hydrogen costs 4X cost of hydrogen from natural gas

We have also been highlighting the costs to produce Green Hydrogen as also multiples more than producing hydrogen from natural gas. BlombergNEF’s revised view on the cost to produce Green Hydrogen now estimates Green Hydrogen costs 4X the cost to produce hydrogen from natural gas. The other problem is that, even though hydrogen from natural gas is way cheaper than green hydrogen, hydrogen from natural gas hasn’t been able to attract long term customer buyers in size to give hydrogen developers the confidence to build sizeable hydrogen supply projects. On Monday, we posted [\[LINK\]](#) *“Here’s why Green Hydrogen projects are getting cancelled. Green hydrogen costs 4x more than hydrogen from #NatGas. Thx @MathisWilliam. That’s bad enough. But @Equinor doesn’t see blue hydrogen as being economic ie. no significant customer base. See 📌 10/24/24 post. #OOTT.”* Bloomberg wrote *“As a result, hydrogen produced using clean energy costs four times as much as that made from natural gas, according to BNEF. Hardly surprising, then, that the majority of projects don’t have a single customer stepping up to purchase the fuel. And without willing buyers, there can be no output.”* Our Supplemental Documents package includes the Bloomberg report.

Green Hydrogen is very expensive

Energy Transition: Japan “need to balance decarbonization with economic growth”

We believe one of the big energy themes for 2025 will be the continuing building of countries kicking the can down the road for their Energy Transition/Net Zero aspirations. We have hammered this theme for years – the Energy Transition will take way longer, cost way more and be a bumpy/rocky road. And this is forcing countries to be realistic on what can be accomplished. And that means kicking the can down the road for what they can do in the next five years. So no one should be surprised to see Japan back off its emissions targets. Bloomberg wrote Japan’s Environment Minister Keichiro Asao said *““The most important thing is to reach net zero by 2050,” said Keiichiro Asao, the nation’s environment minister, at a press conference on Tuesday. “While there are various opinions on the emissions reduction target, we need to balance decarbonization with economic growth and also consider the impact on future generations and society.”* Japan is reminding they have to

Japan backs off emissions targets

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balance emissions reductions vs economic growth. On Tuesday, we posted [\[LINK\]](#) "Headline "Japan Aims for 60% Emissions Cut By 2035 in Target Seen Lax". Reality "While there are various opinions on the emissions reduction target, we need to balance decarbonization with economic growth..." Japan Environment Minister. #NatGas will be needed for longer. Thx @shoko_oda #OOTT [\[LINK\]](#)." Bloomberg had reported on comments by Japan Environment Minister Keiichiro Asao at the press conference to announce Japan's revised emissions targets, which as noted in Bloomberg headline, were reduced emissions targets. Bloomberg wrote "Japan is pushing through a new target to cut greenhouse gas emissions by 60% by 2035, even as the plan faces criticism as lacking in ambition. Making the reductions from 2013 levels will put the nation, among the world's top carbon polluters, on track to hit net zero by 2050, according to officials from a joint panel of the trade and environment ministries, which announced the strategy on Tuesday. The plan will now go through a public comment period before final approval from Japan's cabinet. Prime Minister Shigeru Ishiba's government follows countries including the UK and US in setting out upgraded emissions-cutting commitments ahead of a February deadline for nations to submit new climate targets under the Paris Agreement.

Japan previously had vowed to reduce emissions by 46% by 2030 from 2013 levels." Our Supplemental Documents package includes Bloomberg's report.

11/09/21: Japan says must have a "pragmatic time frame" for decarbonization

We say no one should be surprised by Japan saying they need to balance decarbonization efforts vs economic growth because this fits what they have said over the years on emissions. Here is what we wrote in our Dec 12, 2021 Energy Tidbits memo. "Japan says must have a "pragmatic time frame" for decarbonization. No one should be surprised to see how Japan says their #MacronMoment. They don't say it isn't working, they don't say energy costs are way higher than expected. But they do clearly make the point. They say it important to have a pragmatic time frame for decarbonization. That sounds like Japan-speak for the energy transition aspirations plan isn't working and needs to be changed. On November 9, Japan and the IEA issued a press release and we tweeted [\[LINK\]](#) "Today's Japan "go slow" getting rid of #Oil #NatGas fits Japan's Nov 9 on acceleration of decarbonization that must have "the importance of measures with pragmatic time frame". Japan is having a "Macron Moment". See Nov 9 tweet [\[LINK\]](#) #OOTT." On Nov 9, we tweeted [\[LINK\]](#) on Japan's release [\[LINK\]](#) on its conference with IEA Executive Director Faith Birol. Japan wrote "The two sides also exchanged views on acceleration of decarbonization efforts following COP26, and shared the importance on measures with pragmatic time frame based on individual circumstances that each countries face including its renewable energy potentials". A pragmatic time frame or a go slow process, whatever you want to call it, it means the same thing – Japan doesn't want to get rid of fossil fuels too quickly. Our Supplemental Documents package includes the Japan/IEA Nov 9 press release."

Energy Transition: New York's new Climate Change Superfund Act

On Thursday, we posted [\[LINK\]](#) "Who pays how much when details to be worked out BUT NY Gov signs into law Climate Change Superfund Act. See 📌 @business Drew Hutchinson. Law orders the state's top polluters to pay an est \$75b over 25 yr to help NY's infra better

**New York Climate
Change Superfund
Act**

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withstand climate events. "Fossil fuel companies found to be responsible for more than 1 billion tons of greenhouse gas emissions from 2000 to 2018 are on the hook, according to the law.... State regulators must determine over the next year how to identify responsible parties and their share of expenses, register those parties under the program, and issue cost recovery demands." #OOTT [\[LINK\]](#). (i) NY Gov Hochul signed into law the Climate Change Superfund Act and her release [\[LINK\]](#) wrote "Governor Kathy Hochul today signed landmark legislation to bolster New York's efforts to protect and restore the environment by requiring large fossil fuel companies to pay for critical projects that protect New Yorkers." (ii) Gov Hochul's release only spoke conceptually and didn't say how, when and who would be putting into the fund. (iii) Our post linked to the Bloomberg report "Companies Could Pay Billions Under NY Climate Superfund Law." [\[LINK\]](#), which reminded that the new law does not have the details on who, when and what will they pay. Bloomberg wrote "Environment & Energy "he law orders the state's top polluters to pay an estimated \$75 billion over 25 years to help New York's infrastructure better withstand flooding and other climate-related events. Bill sponsors say that amount is a small fraction of the hundreds of billions the state will need for climate remediation through 2050." "Fossil fuel companies found to be responsible for more than 1 billion tons of greenhouse gas emissions from 2000 to 2018 are on the hook, according to the law. Payments will be managed by a state fund and dispersed equitably. State regulators must determine over the next year how to identify responsible parties and their share of expenses, register those parties under the program, and issue cost recovery demands." Our Supplemental Documents package includes the Gov Hochul release and the Bloomberg report.

Capital Markets: Reminder new Senate and House take power on Jan 3

The final push of the Biden Administration pushing thru as much as they can is soon to end even though Trump doesn't assume office until Jan 20. We remind that the Twentieth Amendment of the Constitution provides the terms of the President shall end at noon on the 20th day of January and the terms of Senators and Representatives at noon on the 3rd day of January. So as of Jan 3, Biden will be facing a Republican House and Senate.

**New congress is
Jan 3**

Capital Markets: Finland submarine power cable cut as well as internet cables

Terrible time to have another submarine cable cut but this time it is even worse as it wasn't just four telecom cables (three between Finland and Estonia, and one between Finland and Germany) but also a major power transmission line between Finland and Estonia. The Finland/Germany telecom cable was the C-Lion1 that was also cut in Nov. And power lines take way longer to repair than a communication line. Fingrid says it will take several months to repair. Fingrid is the operator of the EstLink 2 electricity transmission connect between Finland and Estonia and wrote [\[LINK\]](#) "However, this situation may worsen if the weather conditions become colder for an extended period. However, during cold and windless periods, a failure of the EstLink 2 connection may make it more likely that the power situation will become tight. Preparations for the repair work on the connection have begun. The repair work is estimated to take several months. We aim to provide a more precise schedule for the repair work on the EstLink 2 connection next week." Winter will add time to repair the telecom cables but the recent telecom cable cuts in Nov were estimated to take less than 15 days to repair. As of our 7am MT news cut off, we have not seen any formal charges on the oil tanker that was boarded by Finland on Thursday in p[ossible connection to these cable cuts. It was reported as the Cook Islands registered "Eagle S", which, according to Marine

**Finland submarine
power cable cut**

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Traffic, was owned by a UAE based vessel mgmt company, Caravella. On Thursday, The Eagle S was also reportedly part of the shadow fleet moving Russian crude oil.

Figure 52: Finland submarine telecom cables



Source: Telegraphy

Link to a great interactive submarine cable map

The above map is from Telegraphy. We have noted this link before to a a great interactive submarine cable mapping system by Telegraphy. This is for telecom cables and doesn't cover power lines. This is a good link to add to reference libraries. It is an interactive map that can be moved around the world and can be clicked on to identify the cable. It is a submarine reference cable mapping that we have referenced many times before. The link is at [\[LINK\]](#).

Capital Markets: USDA Consumer Price Index in Nov for food -0.1% MoM, +2.7% YoY

We believe the USDA consumer food price index is supposed to be a much better indicator for grocery store prices than the UN's food commodity price index. But we continue to believe that very few people would say their grocery cart bills are only +2.7% YoY. Rather grocery shoppers still have sticker shock on a lot of grocery staples and, as the grocery retailers highlight, consumers are always on the hunt for sale items and continue to trade down. On Monday, the USDA posted its November Consumer Price Index for food [\[LINK\]](#), which reported the Consumer Price Index for all food (CPI) was -0.1% MoM and +2.7% YoY in November. The +2.7% YoY increase in the Consumer Price Index has a relative weighting for the various food categories. Beef and veal were up +1.7% MoM, +5.0% YoY, and are expected to increase +5.5% over 2024. Retail eggs are up +7.8% MoM and +37.5% YoY, and are expected to increase +7.7% in 2024 (this increase is likely due to avian flu outbreaks). Dairy products were down -0.3% MoM but +1.2% YoY, and the full year forecast is that dairy products will decrease -0.3% over 2024. It is important to note the USDA said that the *"U.S. food prices are expected to continue decelerating in 2024 compared with recent years. In 2024, prices for all food are predicted to increase 2.3 percent, with a prediction interval of 2.2 to 2.3 percent. Food-at-home prices are predicted to increase 1.2 percent, with a prediction interval of 1.1 to 1.3 percent. Food-away-from-home prices are*

**USDA CPI for
food +2.7% YoY**

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predicted to increase 4.1 percent, with a prediction interval of 4.0 to 4.2 percent. In 2025, overall food prices are anticipated to rise at a slower pace than the historical average rate of growth. In 2025, prices for all food are predicted to increase 1.9 percent, with a prediction interval of -1.2 to 5.2 percent. Food-at-home prices are predicted to increase 0.8 percent, with a prediction interval of -3.7 to 5.8 percent. Food-away-from-home prices are predicted to increase 3.5 percent, with a prediction interval of 1.8 to 5.3 percent.”

Demographics: China extends age limits for bus/truck drivers

One of the big wave of demographic changes around most of the world will be raising retirement ages because of an aging population will need people to work longer and not draw on any old age social support money. And also the need for workers. On Friday, Xinhua (state media) reported [\[LINK\]](#) “China has revised its driving regulations to extend the age limits for drivers of medium and heavy buses and trucks, as part of the country's efforts to delay the retirement age and accommodate an aging workforce. The maximum age limit for applying for a medium or heavy bus or truck driver's license, as well as for operating these vehicles, has been raised from 60 to 63, according to the revised regulations that will take effect on Jan. 1, 2025. Drivers over 63 who intend to continue operating the vehicles may apply for a license extension, provided they successfully complete a medical examination along with tests assessing memory, judgment and reaction time. The extension can last up to three years, the Ministry of Public Security said.”

China raises age limits for truck drivers

Chinese 65 & over are now 217 million or 15.4% of total population

Here is what we wrote in our Oct 13, 2024 Energy Tidbits memo on China's aging population. “Chinese 65 & over are now 217 million or 15.4% of total population. We remind China is ageing and ageing fast. Plus it is always important to remember demographics are predictive and the direction of travel can't be changed for years. It's Senior's Day in China or the Double Ninth Festival. On Friday, Xinhua (state media) [\[LINK\]](#) reported “China's population aged 60 and above reached nearly 297 million in 2023, accounting for 21.1 percent of the total, as the country works to tackle the challenges of an aging society, according to an official report released Friday. Released jointly by the Ministry of Civil Affairs and China National Committee on Ageing, the report on the development of the country's work on aging in 2023 stated that the number of people aged 65 and above reached 216.76 million, accounting for 15.4 percent of the total population.”

Energy Tidbits: Easy to write memos every weekend with so much happening

It was another year that I was able to write Energy Tidbits memos every weekend. My target has been to write Energy Tidbits memos on at 48 to 50 Sundays a year. But 2019 and then Covid really changed the energy world and there is so much going on that I found it easy to want to write Energy Tidbits memo every weekend. Some analysts/market strategists have that great support team so they can take a week or two off and just pick right up. And that is a real skill/advantage. For the rest of us, the last five years, including the run up to Covid, have been energy crazy. People forget that in 2018/2019, the world had settled into a an outlook for \$50 or less oil and low natural gas/LNG prices. Since then there has been too much thru Covid and still today that is redefining the energy picture. And that means there is too much good energy items to ignore so, while it may be hard to be stay up on things, it is easy to want to write Energy Tidbits memos every Sunday. Energy drive the world and is

**@Energy_Tidbits
on Twitter**

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relevant to everyone in the world so it's nice to have an areas of focus that has that global significance. And that will likely be the case for years go come.

Energy Tidbits: Thank you for all the great insights/feedback over the year

I want to give a big thank you to all of the readers and Twitter/X followers who took the time to contact me with insights and feedback on my work. I have had a chance to meet and deal with financial people that I never knew in my years working in investment banking industry with GMP Securities/Griffiths McBurney & Partners. I haven't been able to squeeze in all the meetings when I travel but hopefully I can meet more people in 2025 in my travels. It's been great to set up new relationships and to learn how different financial people look at markets and energy. it has hopefully helped broaden my perspective on issues.

**@Energy_Tidbits
on Twitter**

Twitter/X: 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.

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

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

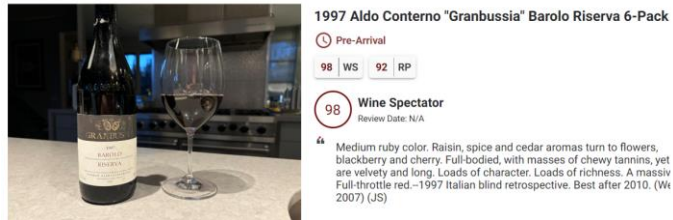
Wine of the week: 1997 Aldo Conterno "Granbussia" Barolo Riserva

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 a 1997 Aldo Conterno "Granbussia" Barolo Riserva. A good Barolo has a great shelf

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life and the Granbussia was no exception. It was excellent. There was a good run of Barolo vintages from 1996 thru 2001. And in the early 2000s, Barolo's weren't that crazy for price so i am glad I did. I am now down to a couple of the 1999s left.

Figure 53: 1997 Aldo Conterno "Granbussia" Barolo Riserva



Source: SAF Group, K&L Wine Merchants

Walmart's Birkin bag knock-off is 1% of the price of a real Hermes Birkin bag

This was probably a hot Xmas gift item that is sold out but maybe it can be a Valentines Day present. But yesterday, the New York Post story "*Walmart's \$78 Hermès Birkin dupe is the fashion world's hottest new handbag — and luxury lovers are fuming*" [LINK](#) Walmart is selling a Hermes Birkin bag knockoff for about 1% of the price of a real Birkin bag. And the big issue for Birkin bags is getting one as, at least in Calgary, Hermes will give priority to those who always have a Birkin, or Kelly, etc. Below is a picture of the Walmart knockoff from the New York post report and an authentic Hermes Birkin bag in the classic color.

Figure 54: Walmart Birkin knockoff (left), Hermes Birkin (right)



Source: New York Post, SAF Group

The Magnificent Seven and Seven Samurai

There is a never day listening to the CNBC and Bloomberg that don't hear the term Magnificent Seven stocks hundreds of times a day. Whenever I hear Mag 7, I can't help think about the Magnificent Seven 1960 movie especially because I have a Magnificent Seven picture of the movie cast in my house that I walk it by all the time. This is the 1960 western film starring Yul Brynner, Eli Wallach, Seve McQueen, Charles Bronson, Robert Vaughn, James Coburn and Horst Bucholz. It gained its

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reputation more in the non-US market than in the US and any lookback at comments on it were so so at best. And for movie experts, it was considered a lesser version of the Japanese film, it was adapted from -Kurosawa's Seven Samura. But three of the Magnificent Seven went on to star in the classic WWI film, the Great Escape. Steve McQueen was the lead and Charles Bronson and James Coburn had secondary roles.

Figure 55: The Magnificent Seven

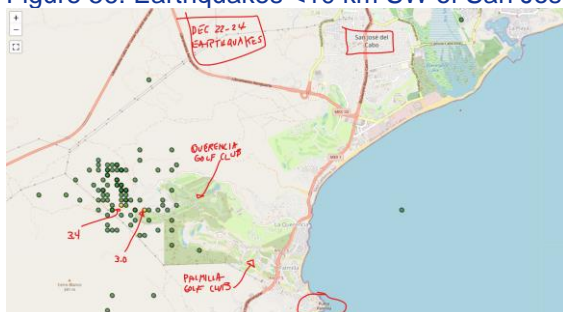


Source: Russell Young

Another week of lots of earthquakes just SW of San Jose del Cabo

Christmas is peak tourism in Cabo San Lucas/San Jose del Cabo (Mexico) and one of the conversations from people staying at the Hotel One and Only Palmilla was they didn't realize it was an area of small earthquakes. It is something that seems to have emerged in the last year or so. But this week, just from Dec 22-24 there was another cluster of earthquakes, mostly around 2 but there was a 3.0 and 3.4. For those that know the area, the earthquakes are right on or just off the west side of the Querencia golf course. Below is the SSN Servicio Sismologico Nacional earthquake map as of Dec 24 for the Dec 22-24 period.

Figure 56: Earthquakes <10 km SW of San Jose del Cabo, Dec 22-24



Source: SSN Servicio Sismologico Nacional

20 years ago was the huge Tsunami to hit Thailand

We were a little surprised we didn't see many news/history TV stories this week on the massive tsunami that hit Thailand on Dec 26, 2004. We remember it well and the nervous feelings of people who may have had their friends and families caught up in the tsunami. We were fortunate in that the people we knew in that area just missed

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the tsunami in Phuket by one day. Two our co-workers were in Thailand and around Phuket. Their mother is one of our good friends and it was her three adult children there (our two co-workers and their brother). We understood they were around Phuket but didn't know their exact schedule. When the tsunami hit, we were stressed that our friends were among the thousands caught in the tsunami. But by the grace of god, they had changed their plans and left Phuket the day before the tsunami. We didn't know that and her mom didn't and she couldn't reach them for days with the communications out. So whenever Boxing Day comes around, we can't help remember how tough it was for people worried about their loved ones and for those who lost their lives.

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