Energy Tidbits

January 5, 2025

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Microsoft: Massive Datacenters Make AI Industrial Revolution Possible but Won't Say What Fuels Will Provide 24/7 Power

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

This week's memo highlights:

1. Microsoft President describes the major industrial revolution to happen with AI but won't say only natural gas and coal can provide the increment new 24/7 power for the massive datacenters that make this possible. [click here]

2. Trump tells UK to get rid of windmills, reminds of his promised Day 1 executive order against offshore windmills. [click here]

3. Seemed like the most direct admission from Xi on China's economy challenge as it faces the *"pressure of transformation from old growth drivers into new ones".* [click here]

4. Caixin China Manufacturing PMI was 50.5 BUT commentary was negative with export orders contracting after big increase in Nov and business optimism weakening based on China recovery outlook & trade conflict with US. [click here]

5. Looks like Chevron increased Venezuela oil imports into Gulf Coast in case Trump returns to 1st term playbook of not allowing Venezuela oil into US. [click here]

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

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

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Natural Gas: -116 bcf draw in US gas storage; now -67 bcf YoY

-116 bcf draw in US gas storage

For the week ending Dec 27, 2024, the EIA reported a -116 bcf draw [LINK]. Total storage is now 3.413 tcf, representing a deficit of -67 bcf YoY compared to a surplus of +14 bcf last week. Recall, December 2023 was the hottest Dec in the last 129 years. For most of this year, storage figures exceeded the 5 year range, but this week returned to within the range. The week of Dec 27, 2024, saw storage come in -545 bcf below the previous 5-yr maximum of 3.958 tcf. Total storage is now +154 bcf above the 5-year average, below last week's +166 bcf surplus. Below is the EIA's storage table from its Weekly Natural Gas Storage report and a table showing the US gas storage over the last 8 weeks.

Figure 1: US Natural Gas Storage

	Stocks billion cubic feet (Bcf)				Historical Comparisons: Year ago (12/27/23)		5-year average (2019-23)	
Region	12/27/24	12/20/24	net change	implied flow	Bcf	% change	Bcf	% change
East	745	792	-47	-47	801	-7.0	771	-3.4
Midwest	914	960	-46	-46	973	-6.1	922	-0.9
Mountain	262	267	-5	-5	229	14.4	188	39.4
Pacific	295	293	2	2	280	5.4	242	21.9
South Central	1,197	1,217	-20	-20	1,197	0.0	1,135	5.5
Salt	349	349	0	0	340	2.6	323	8.0
Nonsalt	848	868	-20	-20	857	-1.1	812	4.4
Total	3,413	3,529	-116	-116	3,480	-1.9	3,259	4.7

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/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
Dec/27	3,413	-116	-67	154

Source: EIA

Natural Gas: HH price weakened with realization storage draw to be less than normal

HH weakened over the week

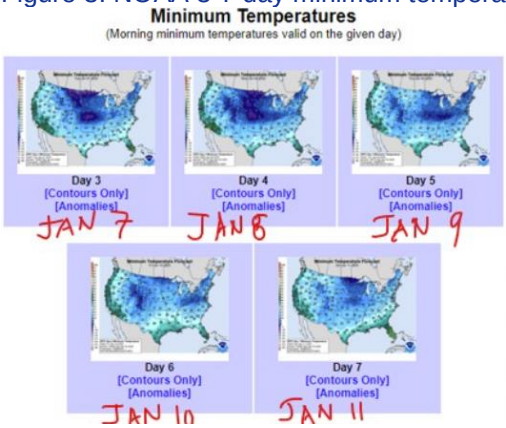
Henry Hub prices had an up and down week at $3.51 on Dec 27, $3.94 on Dec 30, $3.63 on Dec 31, $3.66 on Jan 2, and to close at $3.35 on Jan 3. When we saw HH jump up on Monday, we posted [LINK] "*Great day for #NatGas and #NatGas stocks. Henry Hub +$0.52 to $3.90 so far. Far from normal expectations as this in the face of knowing week to Dec 28 was warmer than normal and week to Jan 4 also forecast warmer than normal. Thx @business #OOTT.*" We were surprised to see the big jump in HH prices on Monday, which eventually closed at $3.35 given markets knew that the weekly draw on storage on Thursday would be less than normal, and the weekly draw on storage coming out on Jan 9 is also likely less than normal. It's been warmer than normal in the Lower 48. Our post included the Bloomberg reports that noted the heating degree days for the week ended Dec 28 were 14% less than normal and forecast for the week ended Jan 4 to be 27% below normal would HH prices weaker and not up big on Monday. That is why we said the HH move up on Monday was "*far from normal expectations*". Less heating degree days means warmer than normal. Our Supplemental Documents package includes the two Bloomberg reports on HDDs.

Natural Gas: NOAA's 3-7, 6-10 & 8-14 day temp outlook calls for cold in E1/2 Lower 48

Cold in E ½ of US ahead

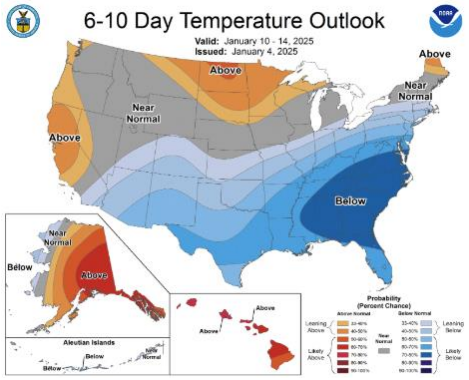
As noted above, natural gas moved down to end the week with the low storage that was expected given the warmer than normal temperatures for the storage week. It was warmer than normal to start the past week but it turned colder this weekend. And it is expected that it will stay colder than normal for the next two weeks in the more populous east half of the Lower 48. Yesterday, we posted [LINK] "*Looks like really cold coming up will stay colder than normal but just not as cold as forecasts look out for two weeks. Updated @NOAA 3-7 day, 6-10 day and 8-14 day temperature outlooks. #NatGas #OOTT.*" It looks like the really cold weather this weekend will continue for a few days, turn a little warmer but still stay colder than normal thur the eastern half of the Lower 48. Our post included the below NOAA yesterday updated temperature maps for 3-7 days, 6-10 days and 8-14 days

Figure 3: NOAA 3-7 day minimum temperature outlook covering Jan 7-11



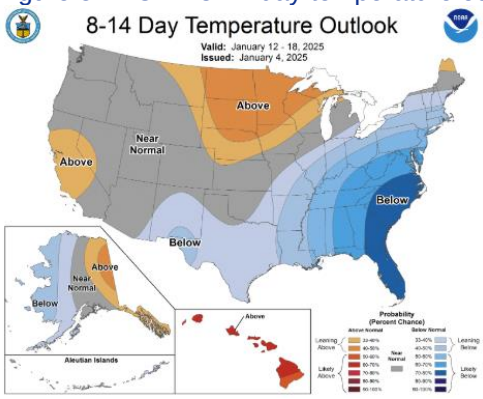
Source: NOAA

Figure 4: NOAA 6-10 day temperature outlook covering Jan 10-14



Source: NOAA

Figure 5: NOAA 8-14 day temperature outlook for Jan 12-18



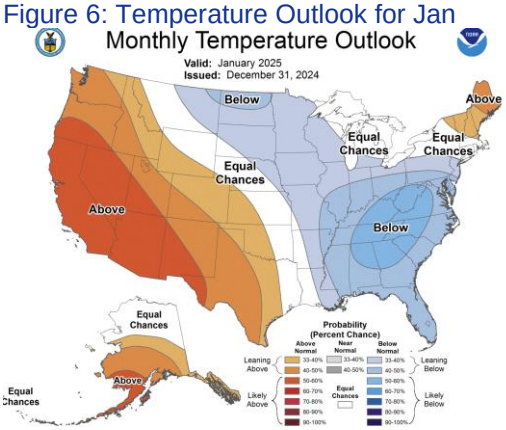
Source: NOAA

Natural Gas: NOAA forecasts Jan to be colder than normal in populous E1/2 Lower 48

NOAA Jan temperature forecast

As a reminder, temperature forecasts are generally averages over a period so NOAA's temperature outlook for Jan is for over the month that will take into account the expectations for a warm start and colder temperatures coming in now. On Tuesday, NOAA posted its 30-day temperature outlook for January that forecasts warmer than normal temperatures for the western 1/3 of the Lower 48 and colder than normal for the more populous east half of the Lower 48. Below is NOAA's 30-day temperature outlook map

Figure 6: Temperature Outlook for Jan



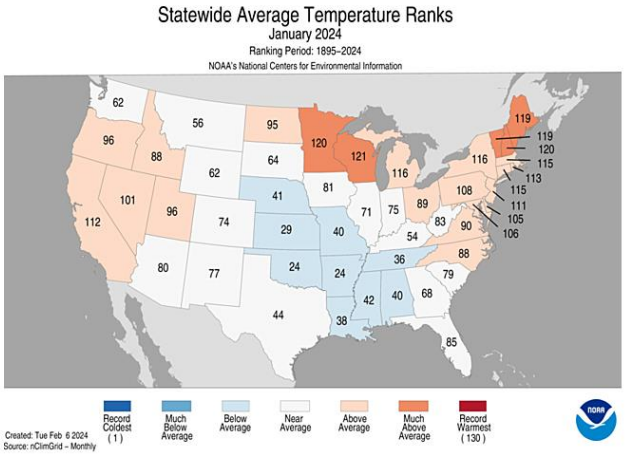
Source: NOAA

Even with cold blast, January 2024 was 48th warmest in past 130 years

Here is what we wrote in our Feb 18, 2024 Energy Tidbits memo on the warmer than normal temperatures in Jan 2024. "*Even with cold blast, January 2024 was 48th warmest in past 130 years. We have been highlighting the warmer than normal US temperatures so far this winter that has led to lower natural gas demand and the key driver for why HH prices went below $2 in Jan and have stayed there. On Thursday, the NOAA posted its national climate recap for Jan and Jan 2024 was the 48th hottest on record in the past 130 years, even with the extreme cold snap we had in the*

middle of the month. On Thursday, we tweeted [LINK] "ICYMI Here's key reason why HH #NatGas went below $2 in Jan. Even with Arctic freeze in mid-Jan, Jan was 48th warmest in last 129 yrs and, most importantly, NE US and Great Lakes was near record warmth. Nov 1-Jan 31, was 5th warmest in last 129 yrs. Thx @NOAA #OOTT". This follows Dec 2023, which was the hottest in 129 years. Below is the NOAA map showing Jan 2024 indexed average statewide temperatures for the last 130 years."

Figure 7: NOAA Average Temperatures for Jan 2024



Source: NOAA

Natural Gas: US October natural gas production -1.1 bcf/d YoY to 103.0 bcf/d

US October gas production

On Tuesday, the EIA released its Natural Gas Monthly [LINK], which includes its estimated "actuals" for October dry gas production. Key items to note are as follows: (i) October was 103.0 bcf/d, which followed September's revised 101.9 bcf/d. This brings production back up to around what we saw before in July / August. The EIA does not provide any explanation for the MoM change but the key reason for the MoM decline is the impact of hurricanes as Louisiana was -0.8 bcf/d MoM and Federal Gulf of Mexico was -0.4 bcf/d MoM. (ii) October at 103.0 bcf/d is down -1.1 bcf/d YoY and down -2.9 bcf/d since the high in February of 105.9 bcf/d. The previous high of 106.5 in December 2023 was revised down to 105.5 bcf/d. (iii) September's data was revised down -0.2 bcf/d, to 101.9 bcf/d. (iv) October's production of 103.0 bcf/d was up +1.1 bcf/d MoM and down -1.1 bcf/d YoY from October 2023's figure of 104.1 bcf/d. The EIA does not provide any commentary. Our Supplemental Documents package includes the EIA Natural Gas Monthly.

Figure 8: US dry natural gas production

bcf/d	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Jan	65.3	66.8	73.4	73.6	70.6	78.7	89.3	97.4	92.6	96.2	102.0	103.5
Feb	65.4	68.4	73.8	74.6	71.5	80.4	89.9	95.5	85.8	96.0	101.8	105.9
March	65.3	68.9	74.1	73.8	73.2	81.3	90.3	95.3	93.6	97.6	103.2	102.6
Apr	66.1	70.5	75.2	73.7	73.3	81.2	90.7	95.0	94.3	98.3	102.3	101.7
May	65.9	70.2	74.1	72.9	73.3	82.1	91.4	87.9	94.2	99.1	103.5	101.5
June	65.8	70.5	74.0	72.2	74.0	82.5	91.7	90.4	93.9	99.3	103.1	102.8
July	67.1	72.0	74.2	72.8	74.7	84.2	92.2	90.3	94.8	100.4	103.3	104.2
Aug	66.9	72.4	74.3	72.2	74.7	85.9	94.4	90.4	95.0	100.9	104.1	103.1
Sept	66.8	72.4	74.7	71.7	76.0	87.3	94.8	91.3	95.7	102.4	104.2	101.9
Oct	67.0	73.1	74.2	71.4	77.3	88.4	95.6	89.7	97.2	102.2	104.1	103.0
Nov	67.7	72.6	73.9	72.0	79.8	89.9	97.2	92.5	98.3	102.2	105.5	
Dec	66.5	73.2	73.9	71.2	80.4	89.5	97.1	93.1	99.1	100.2	105.5	
Average	66.3	70.9	74.2	72.7	74.9	84.3	92.9	92.4	94.5	99.6	103.6	103.0

Source: EIA

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

US to Mexico October natural gas exports

Last week's (Dec 29, 2024) Energy Tidbits memo highlighted the Dec 26 Department of Energy (DOE) posting of 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 comes out days before the same data in the more commonly referenced EIA Natural Gas Monthly, which was released on 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.

Figure 9: US Natural Gas Pipeline Exports to Mexico

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

US October LNG exports

Last week's (Dec 29, 2024) Energy Tidbits memo highlighted the Dec 26 Department of Energy (DOE) posting of its Dec 26 Natural Gas Imports and Exports Monthly [LINK], which also included US LNG exports for Oct. These are the same data in the more commonly referenced EIA Natural Gas Monthly that was released 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.

Figure 10: US Monthly LNG Exports

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

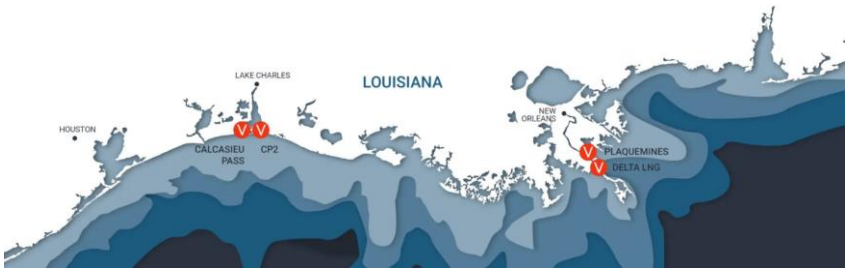
Source: EIA, DOE

Natural Gas: Cheniere Corpus Christi 3 & Venture Global LNG exports both started up

2 more US LNG exports started

As expected, the ramp up in US LNG exports in 2025 kicked off in Dec. The ramp up in US LNG exports, together with the start of commercial cargos from LNG Canada 1.8 bcf/d Phase 1 is one of the big North American natural gas themes in 2025 (i) Cheniere Train 1 of Corpus Christi Stage 3 achieves first LNG of 0.19 bcf/d. Cheniere's Corpus Christi Stage 3 is a seven-train project with an total LNG production capacity of >10 mtpa or 1.32 bcf/d, which works out to ~0.19 bcf/d per train. On Dec 30, Cheniere announced [LINK] it had produced LNG from Train 1 at Corpus Christi Stage 3. Our Supplemental Documents package includes the Cheniere release. (ii) Venture Global starts LNG production and shipments from its Plaquemines LNG. Venture Global announced "*Today, Venture Global announced it has reached first LNG production at the company's second facility, Plaquemines LNG, in Port Sulphur, Louisiana. Achieving this milestone for a 20 MTPA nameplate capacity project 30 months from its Final Investment Decision (FID) makes Plaquemines LNG one of the two fastest greenfield projects to reach first production, along with Venture Global's first facility Calcasieu Pass. Once fully operational, Plaquemines LNG will be among the largest facilities in the world."* 20 MTPA is 2.63 bcf/d. This is a multi-train project and it isn't clear to us how much is actually on stream as this is an ongoing train development. Our Supplemental Documents package includes the Cheniere and Venture Global releases.

Figure 11: Venture Global LNG project locations



Source: Venture Global

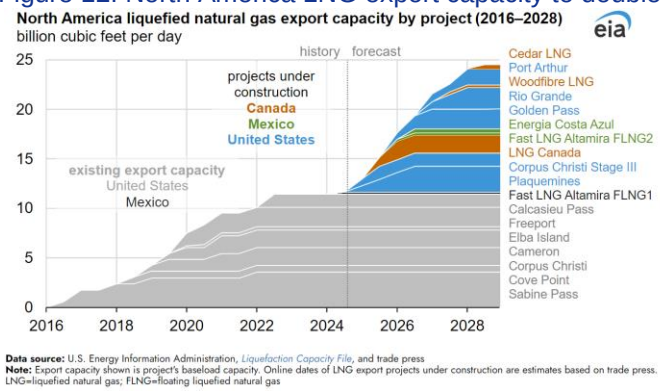
Natural Gas: Is Trump pressuring EU/Asia to buy US LNG given 2025-28 LNG growth?

Is Trump looking ahead to 2025-28?

Here is what we wrote in last week's (Dec 29, 2024) Energy Tidbits memo. "*Is Trump*

pressuring EU/Asia to buy US LNG given 2025-2028 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 on 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 aloe is to double by 2028. Whether it is deliberate or not, he is also setting the stage for Europe and Asia to remember this pr sure 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."

Figure 12: North America LNG export capacity to double by 2028



Source: EIA

Natural Gas: No change yet to increasing post-election violence in Mozambique

Increasing violence in Mozambique

We look for Mozambique news a few times each week to see if the violence/protests are deceasing or increasing. It looks like they continue to increase and there, at least as of our 7am MT news cut off, visibility to a resolve in the post-election violence. (i) The one potential bright spot for decreasing violence was the eNCA report [LINK] "*In an unexpected move, Mozambican opposition leader Venancio Mondlane has postponed announcing the final stretch of protests against the country's election results. Mondlane had announced on his Facebook page that he would outline the details of protests on Thursday. However, a few hours later, he announced a postponement. He said this was due to technical reasons and*

unforeseen circumstances. There is speculation that Mondlane's move may be due to high-level mediation efforts seeking a political solution to the post-election violence that has gripped Mozambique since October." Absent the opposition or government giving in, the fear is that Mozambique could return to broader violence. The question is why is Mondlane considering this? is it to try to overturn the election or is it to try to dampen down momentum for Mozambique to break into a broad civil war type violence. Even for those that don't follow Mozambique closely, the eNCA Dec 29 report [LINK] stated the situation well and possibly why Mondlane has taken a short pause for now. eNCA wrote "*The problem that needs to be addressed urgently is no longer who won the October elections in Mozambique but what is the best way forward to prevent the escalating civil unrest from developing into a civil war. If this happened, it would be disastrous for the Southern African region. Calls for restraint and dialogue are seemingly falling on deaf ears. South Africa's International Relations and Cooperation, Ronald Lamola, has said Pretoria is ready to assist Mozambique in any manner to facilitate this dialogue. Several Mozambican commentators and political leaders have criticised the South African government for taking too long to act in this matter."*

Will increasing violence delay TotalEnergies Mozambique LNG restart?

Here is what we wrote in last week's (Dec 29, 2024) Energy Tidbits memo. *"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."*

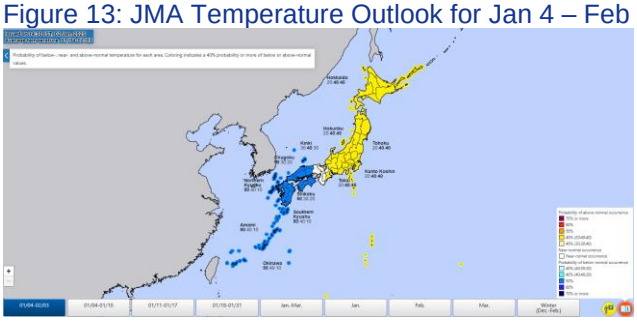
Natural Gas: JMA flips forecast from a colder Jan everywhere to warmer in the north

The JMA forecasts have been for a colder January across all of Japan. That flipped this week from colder everywhere to one forecasting warmer than normal temperatures in the north. On Thursday, the Japan Meteorological Agency updated its temperature forecast for the next 30 days, Jan 4 – Feb 3, in Japan [LINK]. There is no JMA commentary on the forecast. JMA is calling for a 50% chance of colder than normal temperatures in the southern prefectures, but

JMA temperature forecast for next 30 days

the north now has a 40% chance of being warmer than normal. We checked AccuWeather for Tokyo and for the period there are forecasted daily highs in the ~10C range and overnight lows around ~4C. This has the potential to drive a little bit of electricity heating demand during the day, and more during the nights. Below is the JMA temperature forecast for Jan 4 – Feb 3.

Figure 13: JMA Temperature Outlook for Jan 4 – Feb 3



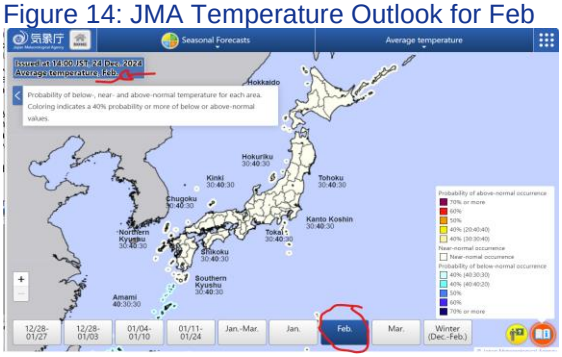
Source: Japan Meteorological Agency

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

JMA temperature updated Feb and Mar forecast

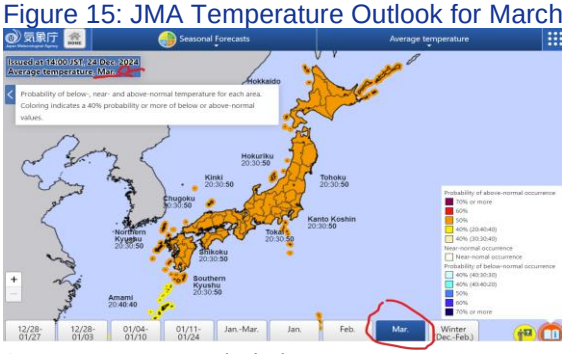
Here is what we wrote in last week's (Dec 29, 2024) Energy Tidbits memo on the JMA temperature outlook for Feb and Mar. "*JMA forecast normal temps in Feb and warmer than normal in Mar. On Tuesday, the Japan Meteorological Agency also updated its seasonal temperature forecast for Feb and Mar. JMA does 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.*"

Figure 14: JMA Temperature Outlook for Feb



Source: Japan Meteorological Agency

Figure 15: JMA Temperature Outlook for March



Source: Japan Meteorological Agency

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

Japan LNG imports in November

On December 26, Japan's Ministry of Finance (MOF) posted its import data for November [LINK]. The MOF reported Japan's November LNG imports were 8.08 bcf/d, down -1.4% MoM from October which was 8.19 bcf/d, and down -5.3% YoY from 8.53 bcf/d in November 2023. There is no explanation given but we would expect the warmer than normal Oct/Nov/Dec start to winter meant that LNG buyers didn't feel the need to load up on LNG. Japan's thermal coal imports in November were +2.2% YoY, which is likely due to the cheaper thermal coal price that will displace natural gas for electricity. Petroleum Products imports were up +7.1% YoY. Below is our table that tracks Japan LNG import data.

Figure 16: Japan Monthly LNG Imports

bcf/d	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	24/23
Jan	12.66	13.06	11.22	12.85	12.79	11.69	11.63	12.48	10.51	10.56	9.46	-10.5%
Feb	12.88	13.26	12.30	13.36	14.23	12.61	10.99	13.84	12.19	10.98	9.97	-9.2%
Mar	12.46	12.60	12.62	12.61	12.28	11.30	11.16	11.04	10.07	8.86	8.59	-3.0%
Apr	11.54	10.56	10.21	10.52	8.97	9.00	8.31	7.96	8.92	7.25	8.46	16.6%
May	10.06	8.91	8.55	9.66	9.92	8.62	7.09	7.67	8.92	7.14	7.54	5.6%
June	10.91	10.61	10.02	9.90	8.88	8.32	8.42	9.13	9.29	7.25	7.31	0.8%
July	12.14	10.77	10.19	10.19	10.55	10.56	9.35	9.58	9.54	7.88	8.70	10.4%
Aug	10.92	10.93	11.96	11.24	11.73	9.45	9.04	9.75	9.71	8.78	8.87	1.0%
Sept	11.64	11.06	10.67	9.31	10.04	10.30	10.41	8.66	8.52	8.84	8.69	-1.7%
Oct	10.75	9.38	9.73	9.50	10.12	9.75	9.20	7.17	7.88	8.38	8.19	-2.2%
Nov	11.00	10.71	12.07	10.26	10.15	10.03	9.63	9.38	8.88	8.53	8.08	-5.3%
Dec	12.79	12.51	11.69	12.31	11.23	10.54	11.96	10.89	9.39	10.06		

Source: Japan Ministry of Finance, SAF

Natural Gas: No Japan LNG stocks reporting due to New Year's holidays

No Japan LNG stocks data

There was no weekly reporting of Japan LNG stocks from METI, which we assume is due to New Year's Day holidays. New Year's Day is a big holiday in Japan and most Japan businesses and markets were closed the rest of week.

Natural Gas: Russia natural as to Europe via Ukraine stopped on Dec 31

Russian natural gas to Europe via Ukraine stopped

As of our 7am MT news cut off, we have not seen any changes or expectation for Russia natural gas to Europe via Ukraine. Rather, as both Putin and Zelensky had been waring, Russia natural gas to Europe via Ukraine stopped after Dec 31. Prior to the last day of natural gas, Gazprom had bee consistently sending the contract ~1.5 bcf/d the Sudzha pumping station. On Tues, we posted [LINK] "*Russia Gazprom fulfilling contract right to the end. Delivering 1.5 bcf/d today to Europe via Ukraine. Contract ends after tomorrow. "Putin*

stated there will definitely not be a new contract..." Not what Europe wants with colder temps ahead. #OOTT #NatGas." Then on Wed, we posted [LINK] "*End, at least for now, of Russian Gazprom #NatGas via pipeline to Europe via Ukraine. Was steady at ~1.5 bcf/d up until the last day. Fortunately, not too cold today across Europe. Thx @timeanddate #OOTT."* So after more than 50 years, the flow of Russian natural gas to Europe via Ukraine has ended. And that is forcing countries to alternatives such as cutting back consumption and increasing coal fired generation. Below is the Bloomberg map that we posted on Wed.

Figure 17: Russian natural gas flows through Ukraine Dec 31, 2024s

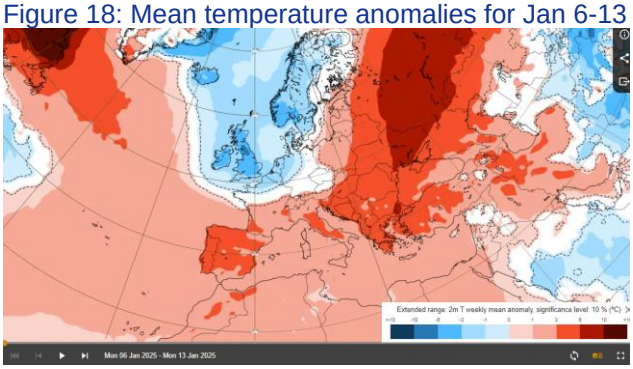
Source: Bloomberg

Natural Gas: Fortunately, forecasts are for another warm week in Europe

Warm temperature across most of Europe

Our Wed post on the stopping Russian natural gas to Europe via Ukraine said "*fortunately, not too cold today across Europe*". Fortunately, for Europe, the latest temperature forecasts are for warmer than normal temperatures across Europe other than for UK, Sweden, Norway Denmark and northern parts of Germany. The rest of Europe looks much warmer than normal temperatures. In particular, the central Europe countries most affected by the cut off of Russian natural gas are looking to be 3C to 6C above normal temperatures. Below is the ECMWF yesterday temperature forecast for Jan 6-13.

Figure 18: Mean temperature anomalies for Jan 6-13



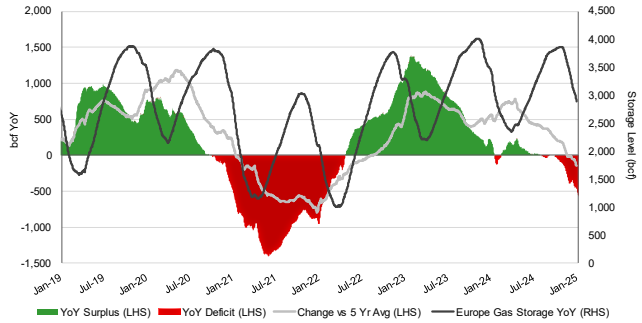
Source: ECMWF

Natural Gas: Europe storage down -3.1% WoW to 71.3% full, down -14.6% YoY

Europe gas storage

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 Dec, storage draws picked up. This week, on Jan 2, Europe storage was down -3.1% WoW to 71.3% vs 74.5% on Dec 26. Recall that winter 2023/24 was one of the hottest winters in Europe. Storage is now down -14.6% from last year's levels of 85.9% on Jan 2, 2024, and down against the 5-year average of 76.8%. Below is our graph of European Gas Storage Level.

Figure 19: European Gas Storage Level



Source: Bloomberg, SAF

Ukraine storage is currently ~6% 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 January 2, 2025, natural gas in Ukraine storage was at 16.2% of its total capacity, down compared to 17.5% of its total capacity on December 26, 2024. Last year, Ukraine

storage started the winter on Nov 1, 2023, at 39.4%. Right now, Ukraine makes up ~6% 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

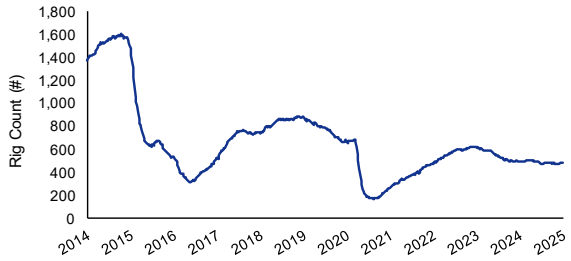
Source: Bloomberg

Oil: U.S. oil rigs down -1 rig, cold weekend weather could mean more reductions

US oil rigs down WoW

On Friday, Baker Hughes released its weekly North American drilling rig data. (i) Note Baker Hughes no longer breaks out the basin changes by oil vs gas rig type. (ii) Total U.S. oil rigs were down WoW at -1 rig to 482 oil rigs as of Jan 3, 2025. We were surprised at the flat rig count in the last couple weeks over Xmas because usually it drops off temporarily. U.S. oil rigs are now down -19 oil rigs YoY, which is slightly above the recent lows of July 2024. (iii) Note we can see the basin changes but not by type of rig; the WoW changes at the major basins were as follows; Cana Woodford +1 rig WoW. There must have been some lost rigs elsewhere because we didn't see a basin that lost an oil 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 -34 rigs YoY to 585 rigs including US oil rigs -19 oil rigs YoY to 482 oil rigs. And for the key basins, the Permian is -7 rigs YoY, Haynesville is -12 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 -1 rig YoY. (v) US gas rigs were up this week at 103 gas rigs. We believe 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. (vi) There could be some temporary reductions in the next week or two with the very cold weather coming further down in the US starting this week.

Figure 21: Baker Hughes Total US Oil Rigs



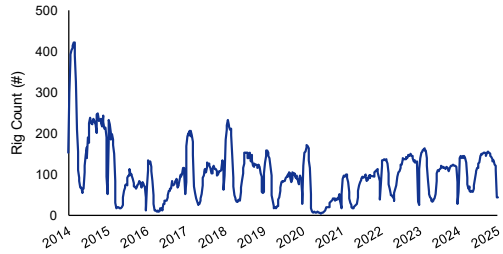
Source: Baker Hughes

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

Cdn oil rigs -1 WoW

On Friday, Baker Hughes released its weekly North American drilling rig data. This week's total oil and gas rig count was down -1 rig WoW to 94 rigs on Jan 3, which follows the normal big drop off in rigs during Xmas. Total rigs were down -1 rigs WoW this week to 94 rigs and are down -31 rigs YoY. Oil rigs are flat WoW at 44, and down -14 rigs YoY. Gas rigs are down -1 rig WoW to 50 rigs and are down -17 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.

Figure 22: Baker Hughes Total Cdn Oil Rigs



Source: Baker Hughes

Oil: US weekly oil production down -0.012 mmb/d WoW to 13.573 mmb/d, up YoY

US weekly oil production

We don't place as much emphasis on the EIA weekly oil supply estimates as others do because we recognize the near impossibility for anyone to post an accurate estimate on a Wednesday for the totality of US oil production for the week ended the prior Friday [LINK]. We have to give the EIA credit for putting out weekly oil supply estimates for the prior week-that can't be easy so no one should be surprised that the EIA weekly oil supply estimates, based on the Form 914 actuals, will regularly require re-benchmarking; sometimes the re-benchmarking can be significant and other times, it is relatively small. This week's estimate came in down -0.012 mmb/d WoW to 13.573 mmb/d for the week ending Dec 27. This is up +0.373 mmb/d YoY from 13.200 mmb/d for the week ended December 29, 2023. The November STEO forecast was posted on December 10 and slightly increased its US crude expectations for 2024 by +0.010 mmb/d to 13.240 mmb/d which will exceed the Q4/19 peak of 12.880 mmb/d, with all quarters in 2024 expected to exceed 13.200 mmb/d, other than Q1/24 at 12.940 mmb/d. 2025 estimates were revised downwards to 13.520 mmb/d, with all

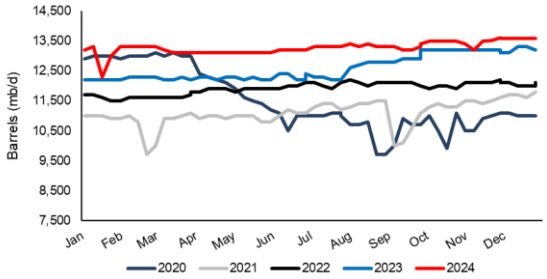
quarters exceeding 13.400 mmb/d and reaching a peak of 13.580 mmb/d in Q4/25. The EIA is no longer releasing a DPR, so we no longer have MoM expectations. This week, the EIA's production estimates were down -0.012 mmb/d WoW to 13.573 mmb/d for the week ended Dec 27. Alaska production figures were up +0.007 mmb/d WoW to 0.438 mmb/d, compared to 0.431 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)

	Week 1		Week 2		Week 3		Week 4		Week 5	
Year-Month	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
2023 Jan	01/06	12,200	01/13	12,200	01/20	12,200	01/27	12,200		
2023 Feb	02/03	12,300	02/10	12,300	02/17	12,300	02/24	12,300		
2023 Mar	03/03	12,200	03/10	12,200	03/17	12,300	03/24	12,200	03/31	12,200
2023 Apr	04/07	12,300	04/14	12,300	04/21	12,200	04/28	12,300		
2023 May	05/05	12,300	05/12	12,200	05/19	12,300	05/26	12,200		
2023 Jun	06/02	12,400	06/09	12,400	06/16	12,200	06/23	12,200	06/30	12,400
2023 Jul	07/07	12,300	07/14	12,300	07/21	12,200	07/28	12,200		
2023 Aug	08/04	12,600	08/11	12,700	08/18	12,800	08/25	12,800		
2023 Sep	09/01	12,800	09/08	12,900	09/15	12,900	09/22	12,900	09/29	12,900
2023 Oct	10/06	13,200	10/13	13,200	10/20	13,200	10/27	13,200		
2023 Nov	11/03	13,200	11/10	13,200	11/17	13,200	11/24	13,200		
2023 Dec	12/01	13,100	12/08	13,100	12/15	13,300	12/22	13,300	12/29	13,200
2024 Jan	01/05	13,200	01/12	13,300	01/19	12,300	01/26	13,000		
2024 Feb	02/02	13,300	02/09	13,300	02/16	13,300	02/23	13,300		
2024 Mar	03/01	13,200	03/08	13,100	03/15	13,100	03/22	13,100	03/29	13,100
2024 Apr	04/05	13,100	04/12	13,100	04/19	13,100	04/26	13,100		
2024 May	05/03	13,100	05/10	13,100	05/17	13,100	05/24	13,100	05/31	13,100
2024 Jun	06/07	13,200	06/14	13,200	06/21	13,200	06/28	13,200		
2024 Jul	07/05	13,300	07/12	13,300	07/19	13,300	07/26	13,300		
2024 Aug	08/02	13,400	08/09	13,300	08/16	13,400	08/23	13,300	08/30	13,300
2024 Sep	09/06	13,300	09/13	13,200	09/20	13,200	09/27	13,300		
2024 Oct	10/04	13,400	10/11	13,500	10/18	13,500	10/25	13,500		
2024 Nov	11/01	13,500	11/08	13,400	11/15	13,201	11/22	13,493	11/29	13,513
2024 Dec	12/06	13,631	12/13	13,604	12/20	13,585	12/27	13,573		

Source: EIA

Figure 24: EIA's Estimated Weekly US Oil Production



Source: EIA

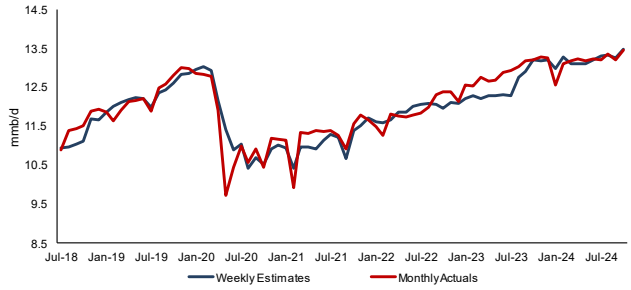
Oil: EIA Form 914 – US October oil production up MoM, and up YoY

EIA Form 914 October

On Tuesday, the EIA released its Form 914 data [LINK], which is the EIA's "actuals" for October US oil and natural gas production. (i) This month, the EIA made a very small revision to September oil production, increasing +0.006 mmb/d from 13.198 mmb/d to 13.204 mmb/d. As a result, the September actuals were -0.065 mmb/d vs the average weekly supply estimate of 13.263 mmb/d. (ii) The EIA Form 914 reported October "actuals" at 13.457 mmb/d, which was down -0.030 mmb/d against the weekly supply estimate average of 13.487 mmb/d. (iii) October "actuals" of 13.457 mmb/d are up +0.259 mmb/d MoM vs 13.204 mmb/d in September. On a YoY basis, "actuals" are up +0.238 mmb/d YoY vs October 2023

at 13.219 mmb/d. Below is a chart of monthly actuals vs. weekly estimates. Our Supplemental Documents package includes an excerpt from the Form 914 figures.

Figure 25: EIA Form 914 US Oil Production vs Weekly Estimates



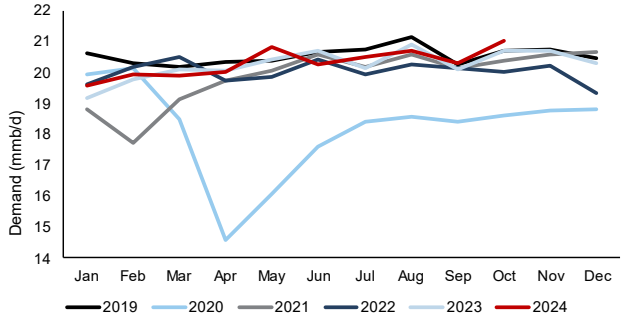
Source: EIA, SAF

Oil: US oil demand in Oct was -0.432 mmb/d below EIA STEO forecast for Oct

US oil demand

On Tuesday,, the EIA posted its "actuals" oil data for October, which includes US oil and products demand. In December, the EIA posted its monthly Short Term Energy Outlook and their backup data includes splitting their 2024 forecast into the monthly splits so we can compare how the actuals compare to the monthly forecast. On Tuesday, the EIA posted the "actuals" for October demand at 20.010 mmb/d, which is -0.432 mmb/d below the STEO forecast for October of 20.442 mmb/d. This is even bigger than last month's September actuals, when the EIA posted the "actuals" for September demand at 20.308 mmb/d, which was -0.140 mmb/d below the EIA Cot STEO forecast for October of 20.448 mmb/d. The below graph shows the EIA's reported monthly crude demand for the last 5 years.

Figure 26: EIA's Monthly US Oil Demand



Source: EIA

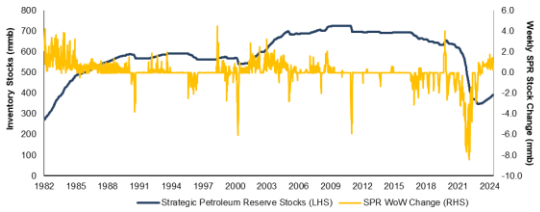
Oil: US SPR less commercial reserve deficit narrows, now -22.031 mmb

US SPR reserves

The US Strategic Petroleum Reserves (SPR) continues to be much lower than total US commercial crude oil reserves. The SPR went back below commercial for the first time since 1983 in the Sep 16, 2022, week. This week, we saw a build on the SPR side and a draw on the commercial side. The EIA's weekly oil data for Dec 27, [LINK] saw the SPR reserves increase +0.260 mmb WoW to 393.570 mmb, while commercial crude oil reserves decreased

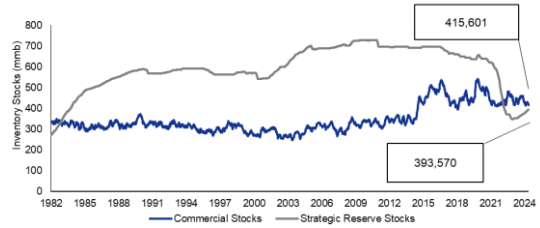
-1.178 mmb to 415.601 mmb. There is now a -22.031 mmb difference between SPR reserves and commercial crude oil reserves. The below graphs highlight the difference between commercial and SPR stockpiles, along with the weekly changes to SPR stockpiles.

Figure 27: Strategic Petroleum Reserve Stocks and SPR WoW Change



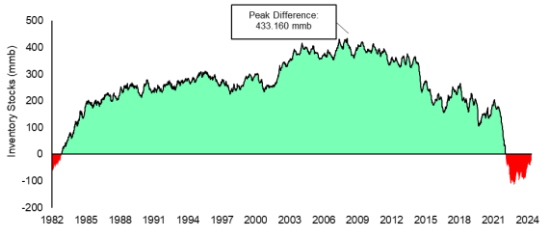
Source: EIA

Figure 28: US Oil Inventories: Commercial & SPR



Source: EIA

Figure 29: US Oil Inventories: SPR Less Commercial



Source: EIA

Oil: SPR is down 38% or down 245.1 mmb during Biden Administration

The US Strategic Petroleum Reserves (SPR) was up to 638.1 million barrels on the day Biden was sworn in as President. Biden started to sell oil from the SPR in the run up to the 2-2022 mid-term elections to help lower gasoline prices. The SPR was reduced by 291.3 mm and got down to 346.8 mmb at the end of July 2023. Biden then implemented his program to replenish the SPR and has added 46.8 mmb since then and the SPR currently sits at 393.6 mmb. So during Biden's Administration, the SPR is down 38% or down 245.1 mmb

US SPR down 38% during Biden

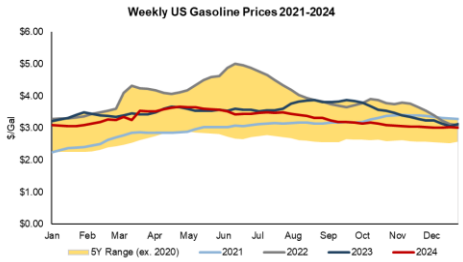
Oil: AAA reports US national average gasoline price +$0.03 WoW to $3.06 on Jan 4

Yesterday, we posted [LINK] "*AAA National average gasoline prices +$0.03 WoW to $3.06 on Jan 4,+$0.03 MoM & -$0.03 YoY. California average prices +$0.02 WoW to $4.37, -$0.03*

US gasoline prices

MoM & -$0.34 YoY. Looks like national average prices aren't going to get back to below $3. Last was May 11, 2021. Thx @AAAnews #OOTT." Yesterday, AAA reported that US national average prices were $3.06 on Jan 4, which was +$0.03 WoW, +$0.03 MoM and -$0.03 YoY. Yesterday, AAA also reported California average gasoline prices were $4.37 on Jan 4, which was +$0.02 WoW, -$0.03 MoM and -$0.34 YoY. Below is our graph of Bloomberg's National Average weekly gasoline prices.

Figure 30: AAA National Average Gasoline Prices



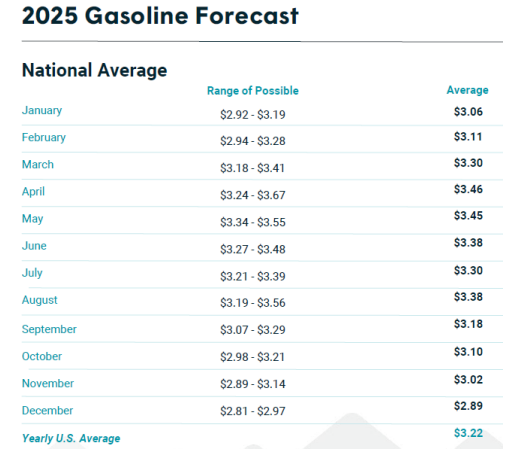
Source: AAA

Oil: **GasBuddy forecasts US gasoline prices -3% YoY to average $3.22 in 2025**

GasBuddy sees declining US gasoline prices

On Tuesday, we posted [LINK] "*Well respected, with a great gasoline price forecast track record, @GasBuddyGuy forecasts 2025 national average gasoline prices to average $3.22, down vs $3.33 in 2024. Reminds that there is seasonality to gasoline prices ie. a springtime spike and low to close 2025. #OOTT."* GasBuddy is Patrick De Haan and is well followed for his ground up market following and recap and forecast of US gasoline prices. On Tuesday, De Haan posted his "*Fuel Price Outlook 2025*". De Haan included the historical comparison of actual vs his prior forecasts and it jumps out that he has a good track record for his gasoline price forecasts. For 2025, "*GasBuddy projects that the yearly national average for gasoline in 2025 will decline to $3.22 per gallon, down from $3.33 in 2024 and significantly below the record highs of 2022. This decline represents continued relief for American drivers, but comes amid emerging uncertainties surrounding geopolitical tensions, potential tariffs and a change in energy policies that add risk to this year's forecast*." De Haan also reminded there is a seasonal aspect to gasoline prices. De Haan wrote "*Lowest Monthly Average in December: The national average price of gasoline is expected to hit its lowest point in December, averaging $2.89 per gallon for the month. Springtime Spike: Gas prices could peak in April at a monthly average of $3.53 per gallon, while the daily average could top out as high as $3.67 per gallon, driven by seasonal increases in demand and the change to summer gasoline that occurs coast to coast at a varied pace."* As a result, De Haan estimates Americans will spend $410.8b on gasoline in 2025, -8% YoY from $423.1b in 2024. Our Supplemental Documents package includes excerpts from De Haan's presentation.

Figure 31: 2025 Gasoline Price Forecast



2025 Gasoline Forecast

National Average

	Range of Possible	Average
January	$2.92 - $3.19	$3.06
February	$2.94 - $3.28	$3.11
March	$3.18 - $3.41	$3.30
April	$3.24 - $3.67	$3.46
May	$3.34 - $3.55	$3.45
June	$3.27 - $3.48	$3.38
July	$3.21 - $3.39	$3.30
August	$3.19 - $3.56	$3.38
September	$3.07 - $3.29	$3.18
October	$2.98 - $3.21	$3.10
November	$2.89 - $3.14	$3.02
December	$2.81 - $2.97	$2.89
Yearly U.S. Average		$3.22

Source: Gas Buddy

05/24/24; GasBuddy forecasts US gasoline prices to decline thru Labor Day

GasBuddy had a good call last spring on gasoline prices on a decline thru Labor Day. Here is what we wrote in our May 26, 2024 Energy Tidbits memo. "*GasBuddy forecasts US gasoline prices to decline thru Labor Day. On Friday, we tweeted [LINK] "Biden hopes this forecast turns out true! US #Gasoline prices +$0.06 YoY BUT well followed @GasBuddyGuy expects "progressive decreases between Memorial Day, July 4 and Labor Day" subject to typical caveats ie. hurricanes. refinery issues. #OOTT @andrewrsorkin @SquawkCNBC". GasBuddy is Patrick De Haan and is well followed for his ground up market following and reap of US gasoline prices. This forecast, if it turns out accurate, will be a big plus for Biden's re-election hopes if US gasoline prices are going lower and closer to $3 than $4. Our tweet included a clip of De Haan's comments. Here is a transcript we created of his reply on CNBC Squawk Box on Friday. "Prices [are] up modestly, just 6 cents from last year. It is interesting to watch the trends though, TSA predicting and already seeing some record number of travelers via air. Our week-to-date gasoline demand data showing that week to date through Thursday compared to last year, gasoline demand down about 7.7% so it looks like 2024 might be skewing towards air travel. Not necessarily on the road, but certainly there will still be millions of Americans out there, they will be paying about $3.61 a gallon as down from $3.69. The good news for anyone hitting the road this summer is we expect progressive decreases between Memorial Day, July 4, and then Labor Day. Of course there are the typical caveats, mother nature, hurricane season is a big wild card, and we have seen a rash of minor refinery issues in the great lakes. That is going to be something that could bother motorists this summer. If there are refinery outages, that could temporarily drive prices up locally."*

Oil: Crack spreads +0.43 WoW to $16.48 on Jan 3, WTI +$3.36 to $73.96

Crack spreads closed at $16.48

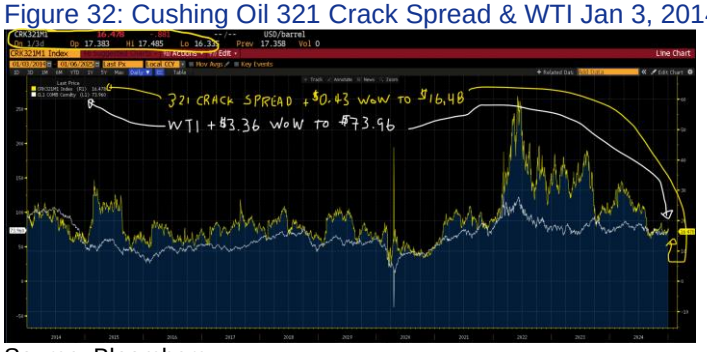
On Friday, we posted [LINK] "*321 crack spreads +$0.43 WoW to $16.48 on Jan 3. WTI +$3.36 WoW to $73.96. Reminds WTI is impacted more by global #Oil moves (ie. potential that Russia/Iran barrels are being impacted by sanctions) than by crack spreads. Thx*

@business #OOTT. Crack spreads were +$0.43 WoW to $16.48 on Jan 3 and WTI was +$3.36 to $73.96 on Friday. There was strength on oil to close the week despite continued China economy concerns given the reports that Russia and Iran oil is being more impacted by sanctions. It also fits what we have seen over the past six months that WTI has been driven more by global factors and not crack spreads. Crack spreads at $16.48 are still near the lower 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 $16.48 on Jan 3 followed $16.05 on Dec 27, $16.44 on Dec 20, $16.53 on Dec 13, $15.95 on Dec 6, $15.72 on Nov 29, $17.09 on Nov 22, $17.99 on Nov 15, $17.30 on Nov 8, $16.82 on Nov 1, $16.91 on Oct 25, $16.92 on Oct 18, $17.42 on Oct 11, and $16.65 on Oct 4.

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

It hasn't been normal times for oil markets in the last six months with a wide range of global factors. So for the most part, H2/24 was 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 +$0.43 WoW whereas WTI was +$3.36 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 $16.58 on Friday Jan3.

Figure 32: Cushing Oil 321 Crack Spread & WTI Jan 3, 2014 to Jan 3, 2025



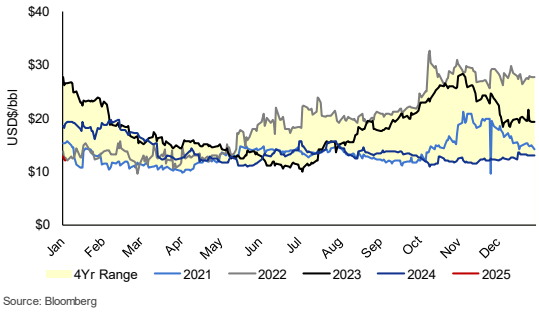
Source: Bloomberg

Oil: Cdn heavy oil differentials narrows -$1.00/bbl WoW to $12.05/bbl on Jan 3

WCS differential narrows

WCS less WTI differentials continue to trade in a narrow range relative to prior years and narrowed this week -$1.00/bbl WoW to close at $12.05 on Jan 3. It looks like TMX worked as hoped, if not better, in keeping WCS less WTI differentials way lower than would be expected in Aug/Sept/Oct/Nov and now thru Dec and into Jan. Sept/Oct/Nov is when we normally see a significant seasonal widening of the WCS less WTI differentials. That didn't happen post TMX. 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 Jan 3 at $12.05/bbl which was a narrowing of -$1.00/bbl WoW vs $13.05/bbl on Dec 27.

Figure 33: 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

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 cash flows. Increasing tanker exports post June 2024 start 590,000 b/d TMX kept WCS less WTI differentials from normal S/O/N widening, and continue to stay narrow. WCS less WTI diffs: 01/03/25: $12.05. 01/03/24: $18.25. 01/03/23: $26.50. Thx @garquake @business #OOTT."* Our post included the below chart that shows how WCS less WTI differential were low in the summer and have stayed fairly flat in Aug/Sept/Oct/Nov/Dec and how differentials were widening in Sept/Oct/Nov in 2022 and 2023.

Figure 34: WCS less WTI differentials to Jan 3, 2025 close

Source: Bloomberg

Oil: Cdn west coast oil tanker loadings down small in Dec to 0.341 mmb/d

Canada west coast oil tanker loadings

There are always tanker loading timing factors that can impact what is included in a month plus there was Christmas. But, on Tuesday, Bloomberg reported oil tanker loadings in Dec were the lowest since Sept. Bloomberg wrote "*Oil exports by tanker from western Canada fall to an average 341k b/d in Dec. from 367k b/d in Nov. as shipments to both Asia and the US drop, according to Vortexa ship-tracking data. * Total outflows at 10.58m bbl vs 11.01m bbl in Nov. ** US-West Coast shipments 142k b/d vs. 164k b/d. ** Asia shipments 167k b/d vs. 203k b/d*". Included in the Asia tanker loadings in Dec was 166,536 b/d to China vs 202,899 b/d in Nov and 257,383 b/d in Oct.

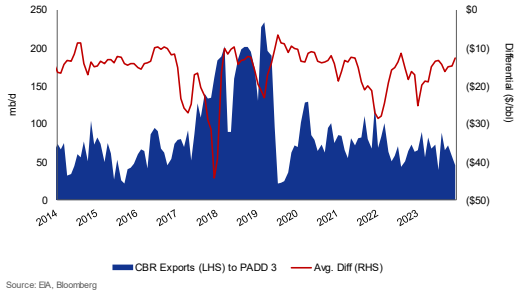
Oil: Total Cdn crude by rail imports -3,209 b/d MoM to 74,258 b/d in October

EIA Cdn crude by rail imports

On Tuesday, the EIA posted its "*Movements of Crude Oil and Selected Products by Rail*" [LINK], which includes the EIA data on US imports of Cdn crude by rail. EIA estimates total US imports of Cdn crude by rail were 74,258 b/d in October, which is down -3,209 b/d MoM from 77,467 b/d (revised) in September. The EIA estimates Cdn crude by rail into PADD 3 (Gulf Coast) were 45,548 b/d in October, which is down -11,718 b/d MoM from 57,267 b/d (revised) in September. We have been highlighting how the EIA imports of oil by rail from Canada have normally been less than the CER estimates of Cdn oil exports by crude to the US. The CER reported that 85,279 b/d of crude was exported by rail out of Canada during

October vs the EIA estimates of 74,258 b/d of Cdn oil imported by rail in October. There is no explanation given; we believe the reason for why the EIA reports lower numbers than the CER is that the difference is due to Canada crude by rail exports that go directly to US Gulf Coast ports for exports i.e. do not stay in the US. Below is our graph of Cdn CBR exports to the Gulf Coast and WCS differential over time.

Figure 35: US Imports of Canada CBR to US Gulf Coast vs WCS Differential



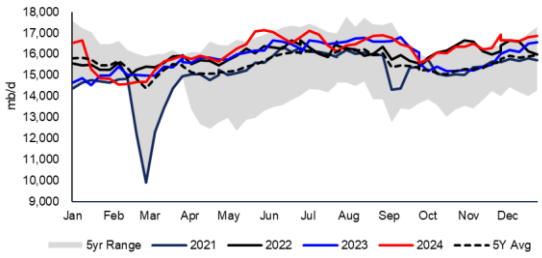
Source: EIA, Bloomberg

Oil: Refinery Inputs up +0.041 mmb/d WoW to 16.857 mmb/d

Refinery inputs +0.041 mmb/d WoW

There are always unplanned refinery items that impact crude oil inputs into refineries. And there is always different timing for refinery turnarounds; generally late October marks the point when refineries have come out of fall turnarounds and are ramping up crude oil inputs as they change from summer to winter fuel blends. And in Nov/Dec, it is normally ramps up before we start to see refineries move into turnarounds starting the end of Jan. On Wednesday, the EIA released its estimated crude oil input to refinery data for the week ended December 27 [LINK]. The EIA reported crude inputs to refineries were up +0.041 mmb/d this week to 16.857 mmb/d and are up +0.179 mmb/d YoY. Refinery utilization was up +0.2% WoW to 92.7% and was down -0.8% YoY.

Figure 36: US Refinery Crude Oil Inputs



Source: EIA, SAF

Oil: US net oil imports up +0.323 mmb/d WoW as oil imports up +0.455 mmb/d

US net imports +0.323 mmb/d WoW

The EIA reported US "NET" imports were up +0.323 mmb/d to 3.072 mmb/d for the week of December 27. US imports were up +0.455 mmb/d to 6.926 mmb/d, while exports were up smaller at +0.132 mmb/d to 3.854 mmb/d. Top 10 was down -0.079 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 -0.186 mmb/d to 3.733 mmb/d. Weekly imports have been higher for the past five months with the increased Cdn crude coming off TMX and hitting west coast US refineries. (ii) Saudi Arabia was down -0.281 mmb/d to 0.087 mmb/d. (iii) Mexico was up +0.154 mmb/d to 0.551 mmb/d. But, as a general rule, oil imports from Mexico in Q2 and Q3 were significantly lower than prior year's levels with the new Olmeca (Dos Bocas) refinery slowing ramping up in 2024 and Pemex's other refineries increasing crude oil processing. But the latest Mexico oil exports to the US and other places are due to poor refinery operations. (iv) Colombia was up +0.013 mmb/d to 0.289 mmb/d. (v) Iraq was down -0.017 mmb/d to 0.212 mmb/d. (vi) Ecuador was flat at 0 mmb/d. (vii) Nigeria was down -0.166 mmb/d to 0.071 mmb/d. (iix) Venezuela was up +0.233 mmb/d to 0.353 mmb/d.

Figure 37: US Weekly Preliminary Imports by Major Country

	Nov 1/24	Nov 8/24	Nov 15/24	Nov 22/24	Nov 29/24	Dec 6/24	Dec 13/24	Dec 20/24	Dec 27/24	WoW
Canada	3,879	3,953	3,862	4,081	4,044	3,829	4,339	3,919	3,733	-186
Saudi Arabia	443	140	220	248	392	175	81	368	87	-281
Venezuela	212	359	211	267	173	187	521	120	353	233
Mexico	247	384	768	151	279	440	526	397	551	154
Colombia	72	142	414	142	283	125	136	276	289	13
Iraq	183	121	237	277	397	213	209	229	212	-17
Ecuador	37	247	355	118	103	103	69	0	0	0
Nigeria	86	77	86	146	110	168	56	237	71	-166
Brazil	202	280	498	227	348	251	178	248	280	32
Libya	238	0	86	0	204	0	32	50	189	139
Top 10	5,599	5,703	6,737	5,657	6,333	5,491	6,147	5,844	5,765	-79
Others	641	806	947	426	957	493	502	627	1,161	534
Total US	**6.240**	**6.509**	**7.684**	**6.083**	**7.290**	**5.984**	**6.649**	**6.471**	**6.926**	**455**

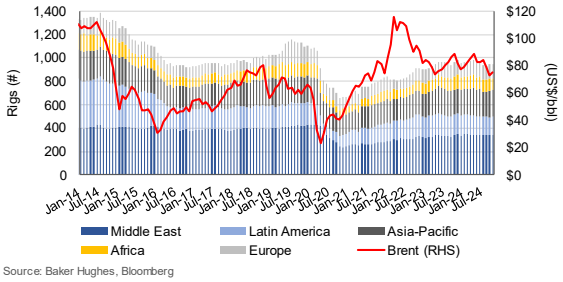
Source: EIA, SAF

Oil: Baker Hughes International -10 rigs MoM to 909 rigs in December, down -5% YoY

International rigs -10 MoM in December

On Friday, Baker Hughes posted its monthly update to international rigs, in total, rigs in December decreased -10 rigs MoM. (i) Note that Baker Hughes has changed its report format which doesn't allow us to break out all country-by-country information. (ii) Total international rigs fell by -10 rigs MoM to 909 rigs in December and total rigs are up +103 rigs from the recent low of 806 in April 2022. The MoM rig count is as follows: Africa +2, Asia-Pacific -1 rigs, Europe +2 rigs, Latin America -9 rigs, and the Middle East is -4 rigs MoM. The YoY rig count is as follows: Africa -7 YoY, Asia-Pacific +4 rigs, Europe -2 rigs YoY, Latin America -37 rigs, and the Middle East is -4 rigs MoM. (iii) We were not able to summarize the MoM data by country due to Baker-Hughes' new format. (iv) December's count of 909 rigs was down -5% YoY from 955 in December 2023, and down -16% vs pre-Covid February 2020 of 1,085 rigs. Below is our graph of international rigs by region and avg monthly Brent price.

Figure 38: Baker Hughes International Rig Count and Brent Price



Source: Baker Hughes, Bloomberg, SAF

Oil: Mexico Pemex refineries operated at 38.2% of capacity in Nov

Pemex refineries operating at 38.2% of capacity

We have been noting how US oil imports from Mexico have been higher than in Q2 and Q3 and the key reason is that Pemex refineries have been operating at lower crude oil runs of late. So Pemex processing less Mexico oil frees up more oil for export. On Monday, Bloomberg reported "*Pemex Refineries Operate Below Half Capacity for Third Month. Petroleos Mexicanos' seven refineries in Mexico operated below half of installed capacity for the third straight month as it struggles to ramp up after unplanned outages, according to company data compiled by Bloomberg. * Overall refineries operated at 38.2% capacity, up from 37.2% in October * Dos Bocas (340k b/d) processed 59k b/d in November versus zero in October following a prolonged outage; levels are still below peak of 84k b/d seen in August ** Refinery produced 1.6k b/d ultra-low sulfur gasoline, 7k b/d ULSD and petroleum coke * Runs at the Minatitlan and Salina Cruz may have fallen in December after separate fires were reported in late November".* Below is the Bloomberg table of Pemex refineries.

Figure 39: Pemex Refinery throughput in Nov

Refinery	November (b/d)	m/m	y/y	Capacity use	NOTE
Cadereyta	96,396	-42%	-35%	35.1%	6-month low
Madero	107,737	11%	544%	56.7%	
Tula	123,951	-2.1%	-44%	39.3%	Lowest since June 2022
Salamanca	100,718	-5.5%	-24%	45.8%	Still operating below levels seen in May, when refinery had a sulphuric acid leak
Minatitlan	125,578	5.4%	-3.3%	44.1%	
Salina Cruz	137,951	19%	22%	41.8%	Refinery struggles to ramp up after deadly September fire
Dos Bocas (Olmeca)	59,466	NA	NA	17.5%	
Total	751,797	2.9%	-1.4%	38.2%	

• NOTE: Pemex's seven refineries have capacity to process 1.967m b/d of crude

Source: Bloomberg

Oil: Venezuela oil exports to US hit highest since Trump

Venezuela oil exports

Earlier this morning, we posted [LINK] "*Import Venezuela #Oil before Trump takes over. VEN oil exports to US in Dec hit 295 kbd, highest since Trump 1.0 stopped US oil imports from VEN. Thx @lkassai. Makes sense Chevron is getting as much oil as possible into Gulf Coast in Dec/early Jan in case Trump stops VEN oil into US. #OOTT."* It looks like Chevron is trying to get as much Venezuela oil as possible into the Gulf Coast ahead of Trump on Jan 20. It is unclear if Trump will go back his playbook from 1.0 and grind Venezuela oil production and exports into the US. Biden reopened Venezuela and that brought Venezuela oil impacts back into the Coast. But, at least for 2024, it was another solid year for Venezuela oil with Venezuela oil exports were up +7.7% YoY to 0.555 mmb/d in 2024 according to shipping reports and Kpler data complied by Bloomberg. This is the highest since Trump imposed sanctions in 2019 that sent Venezuela oil exports down to almost zero. For the full year oil exports, Bloomberg wrote exports increased to 0.234 mmb/d whereas China decreased to 0.183 mmb/d. Bloomberg's below table shows the monthly data that sh

Figure 40: Pemex Refinery throughput in Nov

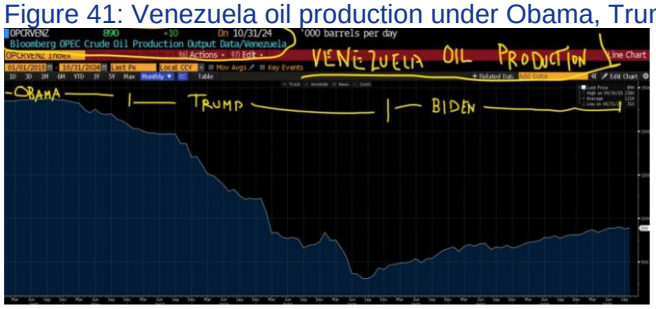
Destination	MoM Change	Dec.	Nov.	Oct.	Sept.
(Thousand barrels per day)					
China	-214	61	275	187	163
US	51	295	244	282	240
All destinations	-187	482	669	580	554

Source: Bloomberg

Trump's first term hammered Venezuela oil production and exports

Earlier this morning, we had a follow up Venezuela post [LINK] "*Forgot to include these Nov graphs of how Trump crushed Venezuela oil production and exports to US. Positive to #Oil if Trump reverts to what he did in his first term. #OOTT."* Our post included two graphs from November that reminded how Trump hammered Venezuela oil production and exports in his first term. Even though, Venezuela doesn't get much attention n the run up to Trump taking over, It can be a significant positive for oil prices if Trump goes back to his first term playbook. It will be very interesting to see how the interplay of incoming Secretary of State Rubio (an strong anti Maduro) vs incoming Energy Secretary Wright who understands US oil supply/.demand and knows US light oil production can't replace Venezuela medium/heavy crude into the Gulf Coast refineries. Below are the two November graphs attached to our post this morning.

Figure 41: Venezuela oil production under Obama, Trump & Biden



Source: Bloomberg

Figure 42: US imports of Venezuela oil under Obama, Trump & Biden

Source: Pemex

Oil: More Ukraine attacks using US made long range precision ATACMS missiles

Ukraine attacks again with US ATACMS

We have to wonder if Ukraine doesn't believe Putin when he said he still has some hypersonic Oreshnik ballistic missiles because Ukraine is continuing to use US long range ATACMS missiles to attack Russia. When Ukraine first started using ATACMS, Russia warned of retaliation was inferred to be with Oreshniks. And Russia's only use so far of the Oreshnik was successful. But Ukraine is continue to use ATACMS. Yesterday, TASS wrote [LINK] "*All ATACMS missiles launched from the territory of Ukraine in the region were shot down by the crews of the S-400 anti-aircraft missile system and the Pantsir-SM anti-aircraft missile-gun system. The crews of the S-400 anti-aircraft missile system and the Pantsir-SM*

anti-aircraft missile-gun system destroyed all American-made ATACMS operational-tactical missiles launched from the territory of Ukraine in the Belgorod region. This was reported by the Ministry of Defense of the Russian Federation. According to the defense department, an attempt to attack the Armed Forces of Ukraine was made on January 3. "In the air of the anti-missile battle, the combat crews of the S-400 anti-aircraft missile complex and the Pantsir-SM anti-aircraft missile-gun complex shot down all ATACMS missiles," the department said." At least as of our 7am MT news cut off, Russia is saying they will retaliate but not inferring it will be with Oreshniks.

Russia has some but not many hypersonic Oreshnik ballistic missiles

We have to believe Ukraine has a view that Russia doesn't have a very big stockpile of Oreshnik missiles. Here is what we wrote in our Dec 22, 2024 Energy Tidbits memo noted how Russia was downplaying the potential for using Oreshniks 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: Saudi oil exports are up because they use less oil for electricity in winters

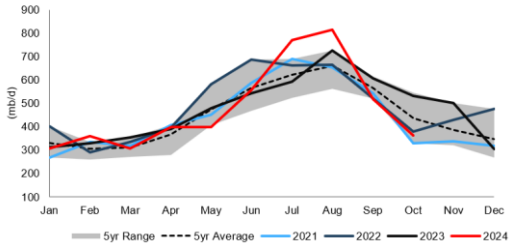
Saudi has more oil for export in winters

Yesterday, we posted [LINK] "*Winter is why Saudi #Oil exports are up. Oil exports highest in 9 mths at ~6.33 mmbd in Dec vs 6.16 mmbd in Nov. Thx @JLeeEnergy. See my 👇11/10/23 post: @MoEnergy_Saudi Abdulaziz reminded less use of oil for electricity for A/C in winter frees up more oil for export. #OOTT." (i)* Bloomberg had just reported how "*Saudi Arabia's crude oil exports witnessed a significant increase in December, reaching about 6.33 million barrels per day (bpd), recording their highest level in nine months, Bloomberg reported. The rise came after the OPEC+ alliance agreed to postpone the start of easing planned production cuts until April, and slow the addition of supplies to the market. According to tanker-tracking data compiled by Bloomberg, November export estimates were revised to 6.16 million bpd, compared with an initial estimate of 6.17 million bpd. On the other hand, preliminary data from Kepler showed that Saudi oil exports in November were 6.06 million bpd, while Vortexa estimated flows at about 6.05 million bpd."* (ii) The Bloomberg report was on the export volumes and not the reasons, which is why we posted the reminder that it's winter so Saudi Arabia uses less oil for electricity for air conditioning and that frees up more barrels for export. This is a theme we have reminded every month for year and years. (iii) Our post also included Saudi Energy Minister Abdulaziz's prior reminder of this basic that Saudi uses less oil for electricity in winter.

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

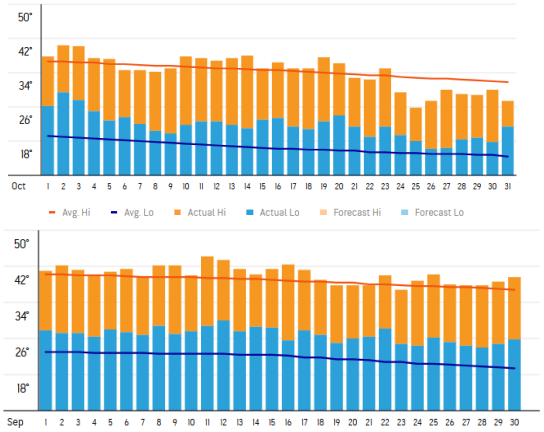
December is less hot than October so that frees up more oil for export. But even still, that trend was apparent in the Oct oil data. Here is what we wrote in our Dec 22, 2024 Energy Tidbits memo. "*Saudi use of oil for electricity down big again in Oct ie. more oil for export. The key seasonal theme for Saudi oil exports is that, all things being equal, Saudi can export more oil in winter months as it uses less oil for electricity and, conversely, it would have less oil for export in summer months as it uses more oil for electricity i.e. air conditioning. Note that a normal peak to trough decline is ~400,000 b/d. If there is less oil used for electricity, then there is more oil for export and vice versa. The JODI data for Saudi Arabia oil supply and demand for October [LINK] was updated on Wednesday. Saudi uses significantly less oil for electricity after August ends and the shoulder season begins. October saw a fall in oil usage when compared to September, which already saw a significant drop from the peak in August. Oil used for electricity generation in October was 362,000 b/d, (vs October 2023 of 531,000 b/d), September was 518,000 b/d, and August was 814,000 b/d (vs August 2023 of 726,000 b/d). Note that this year has exceeded the historical trough-to-peak swing of 400,000 b/d. The low was 308,000 b/d in January, and we saw 814,000 b/d in August. October in Riyadh saw daytime highs of 32-37°C, while the night cooled to 22-26°C. September saw daytime highs of 39-42°C, while the night sat around 26-28°C. Another factor impacting the use of oil for electricity is that Saudi Arabia is increasing its use of natural gas for electricity. Below are the AccuWeather temperature maps for Riyadh for October and September."*

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



Source: JODI, SAF

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

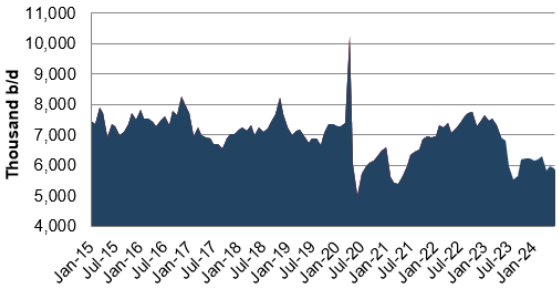


Source: Accuweather

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

Here is another item from our Dec 22, 2024 Energy Tidbits memo on this concept. "*Saudi net oil exports up +-0.156 mmb/d to 6.788 mmb/d in October. As noted above, Saudi Arabia used -0.156 mmb/d MoM less oil for electricity so we would have expected to see a MoM increase in exports or MoM increase in oil inventories. Until recently, JODI did not have access to Saudi import data. But the oil import data is available, so we calculate net oil exports. In the shoulder season, as electricity demand falls from the August peaks, we expect to see net oil exports increase slightly. In October, the JODI data showed Saudi net oil exports were up +0.156 mmb/d MoM to 5.788 mmb/d. This comes as imports were up +0.018 mmb/d and exports were up +0.174 mmb/d. Below is our graph of Saudi Arabia monthly net oil exports.*"

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



Source: JODI, SAF

11/10/23: Saudi reminded oil exports are seasonal, less in summer

Here is what we wrote in our Nov 12, 2023 Energy Tidbits memo. "*11/10/23: Saudi reminded oil exports are seasonal, less in summer. We probably should have called it Saudi Oil 101, but we were a little surprised that Saudi Energy Minister felt the*

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

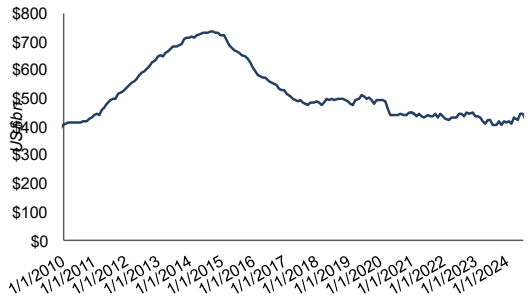
Oil: Saudi nest egg, its net foreign assets were up +$15.0b MoM in November

Saudi net foreign assets

For the past several years, we have stated that the #1 financial theme for Saudi Arabia will be the increasing use of Other People's Money "OPM" to fund their government and MBS Vision 2030 plan. This is because they have seen a $310.2b reduction in their net foreign assets in the last decade. It is also why we continue to believe Saudi Arabia will be working to keep oil prices strong and not crash oil prices for a few months to regain oil market share. We believe that will be an action of last resort. We also expect to see OPM deals in the near term to add to the piggy bank. Every month, we track Saud net foreign assets, which we have described as their piggy bank for the future. Please note that the Net Foreign Assets have seen very big swings, both up and down, in the last couple years. For November, there was a big MoM increase of +$15.0b, a big increase but that followed largest 2-month decrease in Sept/Oct of $34.2b. On Sunday, the Saudi Central Bank (SAMA) released its Monthly Statistical Bulletin for the month of November [LINK]. Our long-stated view is that the #1 financial theme for Saudi Arabia in the 2020s will be their continued, and increasing, use of Other People's Money as they try to fund MBS's Vision 2030. It continues to play out as expected. We believe this has been obvious with how Saudi Arabia's net foreign assets dropped by -42% or -$310.2b since the peak of $737.0b on Aug 31, 2014. We are surprised that markets and oil watchers did not seem to pay attention to the Saudi net foreign assets data i.e., what we call their nest egg to help them their push to MBS's Vision 2030. Recently we have been seeing much larger MoM changes, both up and down. In November there was a +$15.0b MoM increase to Saudi Arabia's net foreign assets which are now $426.8b vs $411.7b in October. Last month's data saw a decrease of -$21.6b MoM for October. The thesis and big picture remains that Saudi net foreign assets as of November 30 of $426.8b is a decline of ~-42% or -$310.2b from its peak of $737.0b on Aug 31, 2014. That is an average of -$2.5b per month for the last 123 months since the peak. Saudi Arabia is far from going broke but there has been a huge decline in the last 10 years. This net foreign asset depletion is why we have been highlighting that the primary financial theme for Saudi Arabia in the 2020s is getting Other People's Money (OPM) to fund as much of their Vision 2030 as possible. And no question, accessing OPM has helped to slow down and temporarily pause

the decline in net foreign assets. Below is our graph of Saudi Arabia net foreign assets updated for the October data.

Figure 46: Saudi Arabia Net Foreign Assets



Source: Saudi Central Bank, Bloomberg

12/1/2024: Largest 2-mth drop in Saudi Net Assets since Covid

Here is what we wrote in the Dec 1, 2024 Energy Tidbits Memo: "*We are huge believers that any picture does a great job of painting a story BUT as we like to see the numbers as the numbers reveal way more than picture. And our below table of the Saudi Net Foreign Assets shows that Sept/Oct -$34.6b was the largest 2-mth drop in Saudi Net Foreign Assets since the $59.4b drop in Mar/Apr height of Covid. And Brent averaged roughly $75 so it highlights why Saudi Arabia may not target an oil price but clearly doesn't want lower oil prices. The other reminder when you look at the numbers is that the few times it has neared dropping below $400b, there was a subsequent inflow. So when we see $411.7b for Oct 31, we fully expect to see some OPM deals adding to the piggy bank in the next couple months.*"

Figure 47: Saudi Net Foreign Assets

Saudi Arabia Net Foreign Assets *(US$bn)*										
	2020	*MoM Change*	2021	*MoM Change*	2022	*MoM Change*	2023	*MoM Change*	2024	*MoM Change*
Jan	$496.1	*$2.3*	$445.5	*($3.4)*	$429.4	*($8.1)*	$437.6	*($1.9)*	$419.3	*$2.2*
Feb	$491.6	*($4.5)*	$436.7	*($8.8)*	$424.1	*($5.3)*	$433.0	*($4.6)*	$412.1	*($7.2)*
Mar	$463.3	*($28.3)*	$444.6	*$7.9*	$434.2	*$10.1*	$418.7	*($14.3)*	$434.2	*$22.1*
Apr	$442.2	*($21.1)*	$436.3	*($8.3)*	$435.3	*$1.1*	$410.2	*($8.5)*	$423.6	*($10.6)*
May	$444.3	*$2.1*	$432.6	*($3.7)*	$435.5	*$0.2*	$422.8	*$12.6*	$444.6	*$21.0*
Jun	$442.8	*($1.5)*	$441.8	*$9.2*	$448.5	*$13.0*	$423.5	*$0.7*	$445.1	*$0.5*
Jul	$443.3	*$0.5*	$437.4	*($4.4)*	$445.6	*($2.9)*	$407.1	*($16.4)*	$429.8	*($15.3)*
Aug	$448.6	*$5.3*	$437.0	*($0.4)*	$438.9	*($6.7)*	$407.4	*$0.4*	$446.3	*$16.4*
Sep	$442.8	*($5.8)*	$448.0	*$11.0*	$448.8	*$9.9*	$420.2	*$12.8*	$433.3	*($13.0)*
Oct	$441.9	*($0.9)*	$433.2	*($14.8)*	$444.5	*($4.2)*	$406.3	*($13.9)*	$411.7	*($21.6)*
Nov	$452.1	*$10.2*	$446.9	*$13.8*	$451.8	*$7.3*	$418.1	*$11.7*	$426.8	*$15.0*
Dec	$448.9	*($3.2)*	$437.5	*($9.4)*	$439.5	*($12.3)*	$417.1	*($1.0)*		

Source: Saudi Central Bank, Bloomberg

12/1/2024: Also why Saudi starting oil price war to regain share is a last resort

Here is what we wrote in the Dec 1, 2024 Energy Tidbits Memo: We have been consistent in our view that Saudi Arabia starting an oil price war to regain oil market share is a last resort action. Their piggy bank is still massive at $411.7 b but it declined $34.6b in roughly $75 Brent. Let's say Brent went down to $40 or $50 in an

oil price war, that could hit Saudi by over $10b per month. If that had been Sept/Oct, then the drop in Saudi Net Foreign Assets would have been over $55b drop or close to what was seen in Mar/Apr 2020. We just think Saudi oil price war to regain market share is a last resort action.

Oil: Houthis keep firing missiles into Israel, some are getting thru missile defense

Israel vs Houthis

Israel has done an excellent job of making sure there is no or very sparse reporting of Houthis missile that get thru the missile defense systems. But some are getting thru. So no surprise, it has led to a big increase in US and Israel fight jet attacks and missiles on the Houthis. But the Houthis aren't stopping and their leader reiterated their vow to keep the attacks coming. The US and Israel are hitting the Houthis and have to be hurting the Houthis attack capacity but the Houthis are continuing to hit back. We have to think that sooner or later, the US and Israel attacks have to start to slow down the Houthis?

Oil: Libya oil production 1.417 mmb/d plus condensate of 0.052 mmb/d

Libya oil + condensate production 1.469 mmb/d

On Tuesday, the Libya National Oil Corporation posted its production update on Twitter/X. [LINK] The NOC posted that, on Dec 31, production was 1,417,382 b/d of oil plus 52,064 b/d of condensate for total liquids production of 1,469,446 b/d. This is up small WoW and 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 Dec 25, providing the split of oil vs condensate. They did on Dec 25 and again on Dec 31 that condensate production was just over 52,000 b/d with De 31 at 52,064 b/d. So basically right in line with our assumption in Aug/Sept/Oct/Nov of 50,000 b/d.

Oil: Xi, China faces pressure of transformation from old growth drivers into new ones

Xi's New Year's Eve address

Political speak is never direct so when we read Xi's New Year's Eve address, it seemed like the most realistic speech we have seen from Xi that China faces some real economic challenges but he says "*we can prevail with our hard work*." And he didn't give any specifics but tried to assure markets with his vague general comments. One general good comment was how Xi highlighted the "*pressure of transformation from old growth drivers into new ones*". Whenever we hear pressure of transformation, it suggests to us there are bumps in the road. The criticism to date on China has been that many of their statements are too vague. So Xi comments were more of the same. Here is the key excerpt from Xi's address. *"In 2025, we will fully complete the 14th Five-Year Plan. We will implement more proactive and effective policies, pursue high-quality development as a top priority, promote greater self-reliance and strength in science and technology, and maintain sound momentum in economic and social development. The Chinese economy now faces some new conditions, including challenges of uncertainties in the external environment and pressure of transformation from old growth drivers into new ones. But we can prevail with our hard work. As always, we grow in the wind and rain, and we get stronger through hard times. We must be confident*." Our Supplemental Documents package includes the transcript of Xi's address.

Xi reminds *"no one can ever stop China's reunification" of Taiwan*

The part of Xi's New Year's Eve address that got the most media attention was his comments on Taiwan, which was viewed as a clear warning to the US to not try to stir up the pot on Taiwan. Xi said "*On the eve of the 25th anniversary of Macao's*

return to the motherland, I visited the city again, and I was gratified to see the new progress and changes there. We will unswervingly implement the policy of "One Country, Two Systems" to maintain long-term prosperity and stability in Hong Kong and Macao. We Chinese on both sides of the Taiwan Straits belong to one and the same family. No one can ever sever the bond of kinship between us, and no one can ever stop China's reunification, a trend of the times"

Oil: China big city consumers are not spending

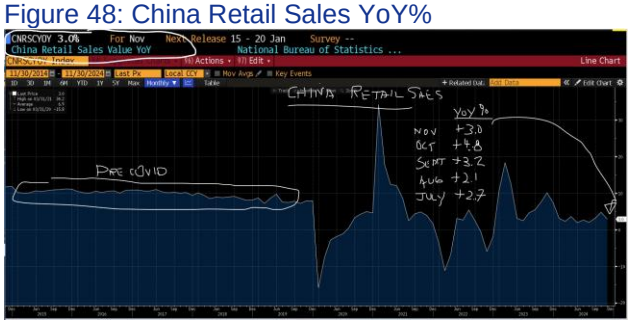
China big city consumers

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

Figure 48: China Retail Sales YoY%



Source: Bloomberg

Oil: Brutal Hong Kong retail sales

Brutal Hong Kong retail sales

We recognize that Hong Kong has the added element of more international visitors and businesspeople but it's retail sales are also an indicator of a weak Chinese consumer. Despite visitor arrivals being up approx. 1/3 YTD Nov 30, Hong Kong Nov retail sales were -8.3% YoY, which followed Oct -4.8% YoY, Sept -8.7% YoY, Aug -11.7% YoY, July -13.2% YoY and June -11.2% YoY. Bloomberg posted a table of retail sales by category and it looks like the lone positive category is Alcohol and Tobacco. All other categories are consistently down YoY and some are down huge like motor vehicles, bread &snacks, consumer durable goods, and many more. It is a brutal looking retail sales picture. The South China Morning Post wrote "South china morning post wrote *"A government spokesman said the value of total retail sales continued to decline "alongside the change in consumption patterns and the relatively strong Hong Kong dollar" - factors that would continue to weigh on the performance of the retail sector."*

Figure 49: Hong Kong monthly retail sales YoY % change

	Nov. 2024	Oct. 2024	Sept. 2024	Aug. 2024	July 2024	June 2024
	Y/y%					
Retail Sales	-8.3%	-4.8%	-8.7%	-11.7%	-13.2%	-11.2%
Food, Alcohol & Tobacco	-1.6%	-1.3%	-4.6%	-2.5%	-6.5%	-7.8%
Meat	0.5%	1.8%	-0.1%	-4.1%	-2.4%	-2.3%
Vegetables & Fruits	8.5%	5.2%	8.4%	-1.6%	-2.6%	-4.6%
Bread & Snacks	-24.3%	-21.7%	-16.6%	-10.5%	-22.2%	-20.2%
Other	-0.7%	3.0%	-1.9%	0.5%	-2.6%	-4.9%
Alcohol & Tobacco	26.5%	17.9%	9.2%	6.9%	2.2%	-5.8%
Supermarkets	-1.1%	-5.0%	-4.6%	-7.3%	-7.8%	-4.9%
(incl. department stores)	n/a	-2.7%	-5.0%	-6.6%	-8.7%	-6.3%
Fuels	-10.7%	-14.7%	-13.6%	-16.0%	-17.1%	-18.1%
Clothing & Footwear	-1.2%	-5.9%	-3.3%	-11.7%	-16.3%	-13.2%
Wearing Apparel	-1.3%	-5.8%	-3.5%	-12.2%	-15.6%	-13.4%
Footwear	-0.9%	-6.5%	-2.3%	-8.8%	-21.5%	-12.5%
Consumer Durable Goods	-21.5%	6.1%	-12.6%	-14.1%	-12.2%	-11.3%
Motor Vehicles	-34.5%	-27.8%	-26.7%	-34.6%	-27.4%	-25.0%
Electronics	-17.5%	19.1%	-7.6%	-1.3%	-2.3%	-2.9%
Furniture & Fixtures	-19.2%	-15.3%	-12.0%	-19.5%	-22.0%	-9.6%
Department stores	-12.3%	-11.1%	-12.9%	-18.0%	-25.6%	-20.4%
Jewelry, Watches & Clocks	-9.3%	-17.7%	-22.5%	-29.3%	-29.9%	-27.0%
Other Consumer Goods	-3.4%	-2.5%	-1.5%	-2.2%	-2.5%	-0.2%
Books, Newspapers & Stationery	-9.2%	-23.5%	16.9%	-2.4%	19.4%	-5.5%
Chinese Drugs & Herbs	-19.6%	-7.7%	-18.2%	-12.5%	-25.2%	-3.2%
Optical Goods	-11.7%	-10.0%	-10.7%	-18.3%	-17.3%	-15.5%
Medicines & Cosmetics	-2.9%	4.1%	-3.1%	4.7%	3.7%	4.3%
Other	-1.1%	-2.1%	-1.5%	-4.7%	-5.7%	-1.1%

Note 1: Figures are not seasonally adjusted.
Note 2: Figures for the latest month are subject to revision.
Source: Hong Kong Government Information Center

Source: Bloomberg

Oil: Reminder Chinese new year and spring festival is early this year

Chinese New Year is Jan 29

As a reminder, Chinese New Year is early in 2025 on January 29, whereas last year it was on Feb 10, 2024. This means all the normal city/economic activity slows down in January as opposed to the beginning of Feb. The Chinese New Year is also known as Lunar New Year or Spring Festival and normally includes at least a week of holidays starting with Jan 27 or 28 ie. the Shanghai stock market starts its week long New Year holiday days on Mon Jan 27. Spring Festival is the major holiday so many seem to take much more than a week of holidays.

Oil: There is a Spring Festival travel rush from Jan 14 to Feb 22

Spring Festival 40-day travel rush

On Friday, Xinhua posted *"China expects record-high air travel during Spring Festival travel rush"* [LINK]. Xinhua reminded of this extended Spring Festival 40-day travel rush. They wrote "*China's civil aviation sector is expected to handle a record number of 90 million passenger trips during the upcoming Spring Festival travel season, an official from the Civil Aviation Administration of China (CAAC) said on Friday. During the 40-day travel rush, which runs from Jan. 14 to Feb. 22, the sector will handle an average of 18,500 flights per day, an 8.4 percent increase from the 2024 level, said Xu Qing, head of the transport department of CAAC, during a press conference. Xu noted that the Spring Festival is increasingly becoming a time for travel and leisure for many Chinese citizens. Ticketing data indicates a sharp rise in demand for northern "ice-and-snow" destinations like Harbin, Changchun and Urumqi, as well as warm southern cities such as Haikou and Sanya.;"* And if more people are travelling, it means city economic activity and road congestion will have its annual big droip.

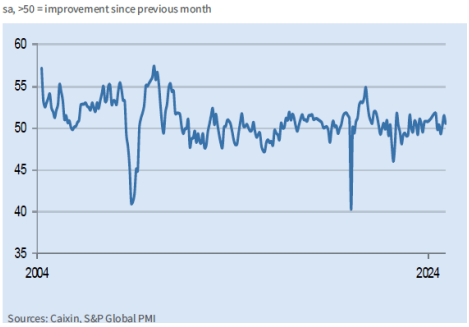
Oil: Caixin Manufacturing PMI in Dec "*export orders contracted ….*"

Caixin Manufacturing PMI December

Just like last month, there was a good reminder this week as to why we focus on the Caixin China Manufacturing PMI moreso than the official China Manufacturing PMI. Out of the two China manufacturing PMI data reports that come out each month, the Official Manufacturing PMI that the National Bureau of Statistics publishes, and the Caixin Manufacturing PMI from S&P Global, we have focused on the Caixin Manufacturing PMI. The Caixin Manufacturing PMI is viewed as more of a leading indicator for how the China recovery is doing as it primarily focusses on smaller Chinese companies who are export-oriented PMI and exports have been the big driver of China for the past 20 years. Last month, the Nov Caixin Manufacturing PMI was viewed as a positive to the economy with a big upward surprise with international buyers ramping up orders ahead of Trump becoming President. It seemed like there was this boost to export orders to get the products to the US prior to Trump taking office. And the indications were that export orders would continue solid in Dec for more China exports to get to US ahead of Trump. However, on Wed, the Caixin Manufacturing PMI was released and it looks like that Nov boost to China export orders was a one-time event or it had a big downward surprise to export orders. S&P wrote "'*export orders contracted after increasing at the fastest pace in 7 months in Nov*". On Wed, we posted [LINK] "*Was big Nov boost for export orders from China smaller & export oriented firms a one-time shot to get those goods in US before Trump on Jan 20? "export orders contracted after increasing at the fastest pace in 7 months in Nov". "business optimism weakened ..... focused on the economic recovery outlook & the trade conflict between China & the US". China Caixin Manufacturing PMI: Dec 50.5 vs Est 51.5, Nov 51.5. Oct 50.3. Sep 49.3. Aug 50.4. Jul 49.8. Jun 51.8. May 51.7. Apr 51.4. Mar 51.1. Feb 50.9. Jan 50.8. Thx*

@SPGlobalPMI. #OOTT." The Caixin Manufacturing PMI for Dec was released Wed morning (local time) [LINK]. The headlines were it was the 3rd consecutive month of expansion with Caixin PMI for Dec was 50.5 following 51.5 in Nov and 50.3 in Oct, However, Dec was well below the estimate of 51.5 and down big from 51.5 in Nov. And the tone on export orders and business optimism was negative. S&P wrote "*That said, the degrees to which new orders and production rose were both softer. Overall sales were dampened by falling export orders", "Indeed, export orders contracted after increasing at the fastest pace in seven months in November."* ""*Exports dragged on demand amid mounting uncertainties stemming from the overseas economic environment and global trade. The corresponding indicator was in contractionary territory for the fourth time in the past five months."* And "*Business optimism weakened. Concerns among surveyed companies focused on the economic recovery outlook and the trade conflict between China and the U.S. Future output expectations continued to grow, but the gauge dropped by more than 3 points from November."* Our Supplemental Documents package includes the Caixin China Manufacturing PMI.

Figure 50: China Caixin General Manufacturing PMI



Source: S&P Global

Oil: China official Dec Manufacturing PMI 3rd mth of expansion

China official Manufacturing PMI

Up until Nov 5, the China oil story was all about how much more China stimulus and how the economy and consumers are responding. And the mood was positive with what China had done and what it was pointing to do in Q1/25. But since Trump's election, there is increasing uncertainty on how his policies will impact the Chinese economy and how much spare powder does China have to give more support to the economy. So, until we see what Trump plans to do, it's hard to get too excited on China economic indicators until the Trump wildcard is clearer. On Monday, we posted [LINK] "*3rd month of expansion, albeit barely, after 5 mths of contraction for China "official" manufacturing PMI. Key wildcard still to come what happens with Trump. Dec 50.1 vs est 50.2. Nov 50.3. Oct 50.1. Sept 49.8. Aug 49.1. July 49.4. Jun 49.5. May 49.5. Smaller, more export oriented Caixin manufacturing PMI is tomorrow night. #OOTT."* The official China manufacturing PMI was released on Monday night. As a reminder, there are two China manufacturing PMI data reports that come out each month, The Official Manufacturing PMI that the National Bureau of Statistics publishes, and the Caixin Manufacturing PMI from S&P Global. The Caixin Manufacturing PMI is for more smaller, export-oriented companies. The Official Manufacturing PMI normally comes out a day or two before the Caixin Manufacturing PMI data, which was released on Wednesday

night (MT). Upcoming Trump wildcard aside, the China official manufacturing PMI for Dec was 50.1 (vs estimates 50.2), which follows 50.3 in Nov and 50.1 in Oct. These are the first three months reaction to the China Sept stimulus programs, which followed five months of contraction. Below is the Bloomberg chart of China official general manufacturing PMI.

Figure 51: China Official General Manufacturing PMI

Source: Bloomberg

Oil: Baidu China city-level road congestion in Dec was down -1.8% YoY

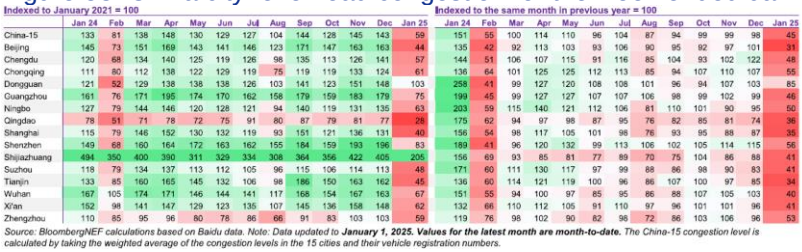
China city-level road congestion down YoY

On Thursday, BloombergNEF posted its China Road Traffic Indicators Weekly Jan 2 report, which includes the Baidu city-level road congestion for the week ended Jan 1. BloombergNEF reported Baidu city-level road congestion saw a decrease of -12.5% WoW to 127.8% of Jan 2021 levels. December 2024 data saw average daily peak congestion down -1.8% YoY when compared to December 2023. As noted earlier in the memo, Chinese New Year and Spring Festival is early this year and that means China city-level road congestion will see a huge decline in January and not in February as happened in 2024. Note that this report was formerly titled Road Traffic indicators, and is now China Road Traffic Indicators, but the content of the report is unchanged. BloombergNEF's report was titled "*Congestion rises above year-ago level"*. Below are the BloombergNEF key figures.

Figure 52: China city-level road congestion for the week ended Jan 1, 2024:

Source: Bloomberg

Figure 53: China city-level road congestion for the week ended Jan 1, 2025



Indexed to January 2021 = 100														Indexed to the same month in previous year = 100											
	Jan 24	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 25	Jan 24	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 25
China-15	133	81	138	148	130	129	127	104	144	128	145	143	59	151	55	100	114	110	96	104	87	94	99	99	98	45
Beijing	145	73	151	169	143	141	146	123	171	147	163	163	44	135	42	92	113	103	93	106	90	95	92	97	101	31
Chengdu	120	68	134	140	125	119	126	98	135	113	126	141	57	144	51	106	107	115	91	116	85	104	93	102	122	48
Chongqing	111	80	112	138	122	129	119	75	119	119	133	124	61	136	64	101	125	125	112	113	85	94	107	110	107	55
Dongguan	121	52	129	138	138	138	126	103	141	123	151	148	103	258	41	99	127	120	108	108	101	96	94	107	103	85
Guangzhou	161	76	171	195	174	170	162	156	179	159	183	179	75	199	45	99	127	127	107	107	106	98	99	102	99	46
Ningbo	127	79	144	146	120	128	121	94	140	119	131	135	63	203	59	115	140	121	112	106	81	110	101	90	95	50
Qingdao	78	51	71	78	72	75	91	80	87	79	81	77	28	175	62	94	97	98	87	95	76	82	85	81	74	36
Shanghai	115	79	146	152	130	132	119	93	151	121	136	131	40	156	54	98	117	105	101	98	76	93	95	88	87	35
Shenzhen	149	68	160	164	172	163	162	155	184	159	193	196	83	189	41	96	120	132	99	113	106	102	105	114	115	56
Shijiazhuang	494	350	400	390	311	329	334	308	364	356	422	405	205	156	69	93	85	81	77	89	70	75	104	86	88	41
Suzhou	118	79	134	137	113	112	105	96	115	106	114	113	48	171	60	111	130	117	97	99	88	86	98	90	83	41
Tianjin	133	85	160	165	145	132	106	98	186	150	163	162	45	136	60	114	121	119	100	96	86	107	100	97	85	34
Wuhan	167	105	174	171	146	144	141	117	168	154	167	163	67	151	55	94	100	97	85	95	86	88	107	105	103	40
Xi'an	152	98	141	147	129	123	135	107	145	136	158	148	62	132	66	110	112	105	91	110	97	96	101	101	96	41
Zhengzhou	110	85	95	96	80	78	86	66	91	83	103	103	59	119	76	98	102	90	82	98	72	86	103	106	96	53

Source: BloombergNEF calculations based on Baidu data. Note: Data updated to ***January 1, 2025. Values for the latest month are month-to-date.*** *The China-15 congestion level is calculated by taking the weighted average of the congestion levels in the 15 cities and their vehicle registration numbers.*

Source: Bloomberg

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

Tight range of oil demand YoY growth for 2025

Here is an item from last week's (Dec 29, 2024) Energy Tidbits memo on how this year doesn't have the wide range of demand forecasts as was seen in 2024. "*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 2025 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 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 54: Comparison of YoY oil demand growth forecasts

Comparison of YoY Oil Demand Growth Forecasts

	YoY Oil Demand Growth Forecast	
million b/d	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	0.84	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

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 mmfb/d

Source: OPEC, Saudi Aramco, IEA, EIA, Bloomberg

Prepared by SAF Group https://safgroup.ca/insights/energy-tidbits/

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

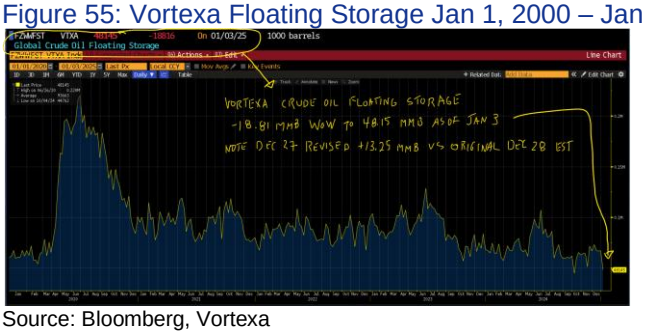
Source: EIA, IEA, OPEC, Saudi Aramco, Russia via TASS

Oil: Vortexa crude oil floating storage est 48.15 mmb at Jan 3, -18.81 mmb WoW

Vortexa floating storage

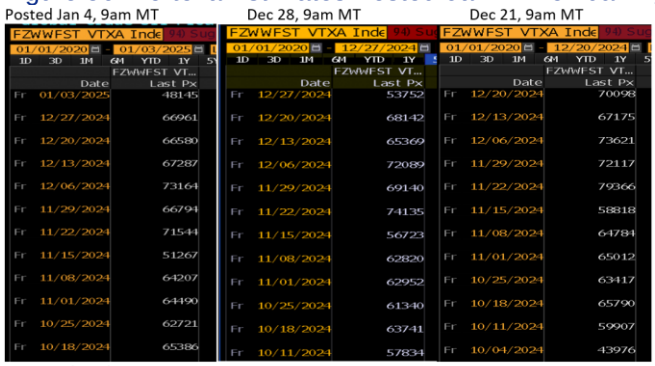
We are referencing the Vortexa crude oil floating storage data posted on the Bloomberg terminal as of 9am MT yesterday. Note that these estimates get revised over the course of the week and the revisions can go back months. We do not check daily for the revisions, so our comments on the new estimates are compared to the prior week's Vortexa estimates posted on Bloomberg on Dec 28 at 9am MT. (i) Yesterday, we posted [LINK] "*Could be big positive but too early to celebrate. Vortexa crude #Oil floating storage is -18.81 mmb WoW to very low 48.15 mmb as of Jan 3. BUT Dec 27 revised +13.25 mmb. Asia at 15.75 mmb is very low but Dec 27 revised +7.47 mmb to 32.00 mmb. Sat am are Vortexa 1st estimates for Fri floating so get updated both up and down. Even if small upward revisions, especially in Asia, would be a big positive. Thx @vortexa @business #OOTT.*" (ii) As of 9am MT Jan 4, Bloomberg posted Vortexa crude oil floating storage estimate for Jan 3 was 48.15 mmb, which was -18.81 mmb WoW vs revised up big Dec 27 of 66.96 mmb. Note Dec 27 was revised +13.21 mmb vs 53.75 originally posted at 9am on Dec 28. (iii) The Sat am Vortexa estimates are their first estimates for Fri floating storage and get revised. So it's too early to celebrate very low floating oil storage of 48.15 mmb especially the 15.75 mmb for Asia. But even if the revisions are small upward, it will still be a big positive especially in Asia as it would signal Iran's floating storage in Asia was being cleared up. (iv) Revisions. Dec 27 was revised up big +13.21 mmb. The rest of the prior seven weeks were a mix of up and down revisions with an average revision for those six weeks excl Dec 27 was -1.50 mmb. Here are the revisions for the prior seven weeks compared to the estimates originally posted on Bloomberg at 9am MT on Dec 28. Dec 27 revised +13.21 mmb. Dec 20 revised -1.56 mmb. Dec 13 revised +1.92 mmb. Dec 6 revised +1.07 mmb. Nov 29 revised -2.35 mmb. Nov 22 revised -2.60 mmb. Nov 15 revised -5.45 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 Jan 3 is 65.78 mmb vs last week's then 7-week moving average of 65.62 mmb. (vi) Also remember Vortexa revises these weekly storage estimates on a regular basis. We do not track the revisions through the week. Rather we try to compare the first posted storage estimates on a consistent week over week timing comparison. Normally we download the Vortexa data as of Saturday mornings around 9am MT. (vii) Note the below graph goes back to Jan 1, 2020 to show the run up to Covid and then how Covid started to impact Covid in March/April 2020. (viii) Jan 3 estimate of 48.15 mmb is -80.51 mmb vs the 2023 peak on June 25, 2023 of 128.66 mmb. Recall Saudi Arabia stepped in on July 1, 2023 with its voluntary cuts. (ix) Jan 3 estimate of 48.15 mmb is -19.25 mmb YoY vs Jan 5, 2024 at 67.40 mmb. Below are the last several weeks of estimates posted on Bloomberg as of 9am on Jan 4, Dec 28, and Dec 21.

Figure 55: Vortexa Floating Storage Jan 1, 2000 – Jan 3, 2025, posted Jan 4 at 9am MT



Source: Bloomberg, Vortexa

Figure 56: Vortexa Estimates Posted 9am MT on Jan 4, Dec 28 and Dec 21



Source: Bloomberg, Vortexa

Source: Bloomberg, Vortexa

Oil: Vortexa crude oil floating storage WoW changes by regions

Vortexa floating storage by region

Bloomberg posts Vortexa crude oil floating storage in key regions, but not all regions of the world. The regions covered are Asia, North Sea, Europe, Middle East, West Africa and US Gulf Coast. We then back into the "Other" for rest of world. (i) As noted above, last week's Dec 27 was revised up big +13.21 mmb. The major revisions were Asia +7.47 mmb, West Africa +3.45 mmg and Middle East +2.82 mmb. (ii) Total floating storage at Jan 3 of 48.15 mmb was -18.81 mmb WoW vs revised up big Dec 27 of 66.96 mmb. The major WoW changes were Asia -16.25 mmb, Middle East -4.29 mmb and West Africa +2.88 mmb. (iii) See our below comment on Asia. There was a big upward revision to Dec 27 that causes a bit of pause in assuming Iran floating storage offshore Asia was being cleared up.(iv) Jan 3 estimate of 48.15 mmb is -80.51 mmb vs the 2023 high on June 23, 2023 of 128.66 mmb. Recall Saudi Arabia started its voluntary 1 mmb/d production cuts on July 1, 2023. The major changes by region vs the last year June 23, 2023 peak are Asia -57.50 mmb and Other -19.06 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 27 that was posted on Bloomberg at 9am MT on Dec 28.

Figure 57: Vortexa crude oil floating by region

Vortexa crude oil floating storage by region				Original Posted	Recent Peak	
Region	Jan 3/24	Dec 27/24	WoW	Dec 27/24	Jun 23/23	Jan 3 vs Jun 23/23
Asia	15.75	32.00	-16.25	24.53	73.25	-57.50
North Sea	0.94	0.65	0.29	0.65	4.71	-3.77
Europe	2.88	4.09	-1.21	4.58	6.05	-3.17
Middle East	8.41	12.70	-4.29	9.88	6.59	1.82
West Africa	9.81	6.93	2.88	3.48	7.62	2.19
US Gulf Coast	0.00	0.00	0.00	0.00	1.02	-1.02
Other	10.36	10.59	-0.23	10.63	29.42	-19.06
Global Total	48.15	66.96	-18.81	53.75	128.66	-80.51
Vortexa crude oil floating storage posted on Bloomberg 9am MT on Jan 4						
Source: Vortexa, Bloomberg						

Source: Bloomberg, Vortexa

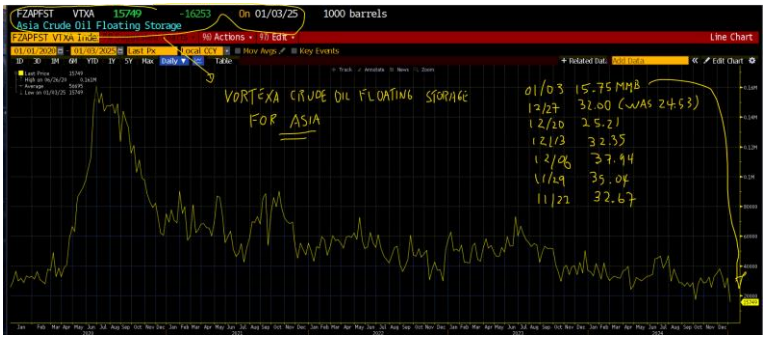
Oil: Vortexa data, not clear if Iran floating storage oil in Asia being cleared up

Vortexa Asia floating storage declining in Dec

For the past month, we have highlighted 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. Jan 3 storage of 15.75 mmb is very low,

but Dec 27 was revised +7.47 mmb to 32.00 mmb vs 24.53 mmb originally posted on Dec 28 at 9am MT. So that puts a pause in the assumption that Iran floating storage offshore Asia was cleared up. Last week's (Dec 29, 2024) Energy Tidbits memo noted that floating storage had fallen in the three last weeks and it looked like the Iran barrels were being cleared up. But given the big revision up to Dec 27 and back over 30 mmb to 32.00 mmb, we think that causes a bit of a pause to wait to see the next week or two data. The new Vortexa floating storage posted yesterday morning for Asia is 15.75 mmb for Jan 3, which followed 32.00 mmb for Dec 27, 25.21 mmb for Dec 20, 32.35 mmb for Dec 13, 37.94 mmb for dec 6, 35.04 mmb for Nov 29, and 32.67 mmb for Nov 22. Below is the Bloomberg chart for Vortexa crude oil floating storage for Asia from Jan 1, 2020 thru Jan 3, 2025 as posted as of 9am MT on Jan 4.

Figure 58: Vortexa crude oil floating for Asia Jan 1, 2020 to Jan 3, 2024

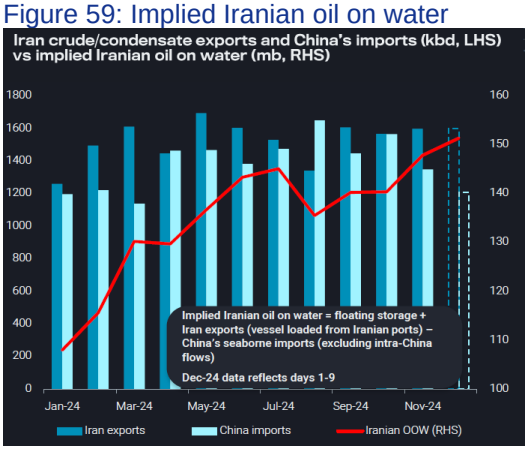


Source: Bloomberg, Vortexa

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 Ian oil. For the past few weeks, we have highlighted how Asia crude oil floating storage had jumped up. It looks like we found 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 crudeand condensate have been rapidly building up on tankers, as Chinesre buyers increasingly require cargos to be delivered on non-sanctioned vessels due to heightened US sanctions." Our post included the below Vortexa graph."*

Figure 59: Implied Iranian oil on water



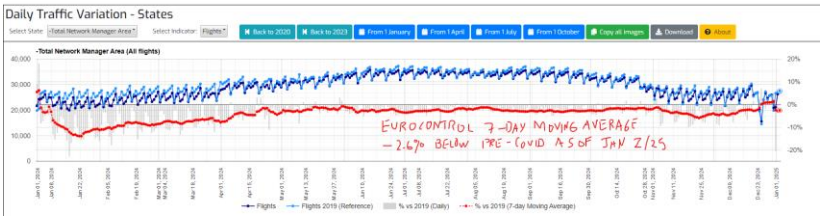
Source: Voirtexa

Oil: Europe airports daily traffic 7-day moving average back below pre-Covid

Europe airports daily traffic

Yesterday, we posted [LINK] "*Xmas Europe air travel above pre-Covid didn't last. Air travel always dips down post Xmas rush. But +0.8% vs pre-Covid on Dec 26 is now -2.6% below pre-Covid on Jan 2.7-day moving average as of: Jan 2: -2.6% below pre-Covid. Dec 26: +0.8%. 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%. Thx @eurocontrol #OOTT."* Last week was the first week above pre-Covid since the Jan 2024. Air travel always goes up for Xmas, but last week was above pre-Covid Xmas levels. And air travel always declines after Xmas but being above pre-Covid for Xmas didn't continue being above pre-Covid after Xmas and air traffic was back below pre-Covid. Other than last Xmas/New Year, European daily traffic at airports was stuck a little bit below pre-Covid. 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 -2/6% as of Jan 2, which followed +0.8% as of Dec 26, -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, and -2.0% as of Oct 31. 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].

Figure 60: Europe Air Traffic: Daily Traffic Variation to end of Jan 2



Source: Eurocontrol

Oil: IATA reminder average age of global fleet is record high of 14.8 years

An ageing global airplane fleet

One of the items that seems to be overlooked in looking at jet fuel consumption is that there is an aging global fleet of planes and older planes are, as a general rule, more fuel inefficient and will use more jet fuel per mile than new planes. The global fleet is at record high of 14.8 yrs. . The IATA reminded of this in their recent Dec 10, 2024 global outlook for air travel. Here is what we wrote in our Dec 15, 2024 Energy Tidbits memo. "*IATA forecast jet fuel consumption to be +0.40 mmb/d YoY to 6.99 mmb/d in 2025. We don't have a jet fuel forecast model, but we couldn't help think that the IATA's forecast for global jet fuel consumption to be +0.40 mmb/d YoY in 2025 seems conservative given the IATA's highlighting of an aging global air fleet and increasing demand for used planes. (i) On Tuesday, the IATA (International Air Transport Association) posted its global outlook. The headline is record air passenger and air cargo in 2024 and going higher in 2025. For 2025 vs 2024, the IATA forecasts passengers +6.7% YoY to 5.221 million, flights +4.7% YoY to 40.0 million, passenger RPK +8.0% YoY, and cargo growth CTK +6.0% YoY. (ii) On Tuesday, we posted [LINK] "Anyone else surprised IATA only fcast jet fuel consumption +0.40 mmbd YoY in 2025 to 6.99 mmbd. Follows 2024 was +0.59 mmbd YoY to 6.59 mmbd. Air travel up again YoY to new record flying in 2025 AND IATA highlights global fleet average age now record high 14.8 yrs and increased demand for used planes. Old planes tend to be relative jet fuel guzzlers. #OOTT." (iii) We don't know their model, but we would have expected fuel efficiency would have been worse ie. more liters per passenger. Before we saw the fuel efficiency table below, the IATA highlighted the backlog of new plane deliveries, "high traffic demand, coupled with capacity constraints, has led to an increase demand for used aircraft, and in turn, to a significant decline int eh share of parked fleet, which dropped to 14%, the lowest since 2019." And they highlighted "The ongoing delays in deliveries have increased the average age of the global fleet to a record high of 14.8 years, compared to an average age of 13.6 years during 1990-2024". Having read these first, we would have expected fuel efficiency to be worse in 2025 and not better in 2025. An older fleet and more used planes would have normally pointed to less fuel efficiency and therefore more jet fuel consumption given increasing flights. And that is why we have to wonder if the IATA forecast for jet fuel consumption being +0.40 mmb/d YoY in 2025 is conservative. Our Supplemental Documents package includes excerpts from the IATA global outlook."*

Figure 61: Global air industry statistics

Table 10: Industry statistics

Global airline industry	2019	2020	2021	2022	2023	2024E	2025F
Segment passengers, million	4,560	1,779	2,304	3,472	4,439	4,893	5,221
O-D passengers, million	3,974	1,570	2,017	2,962	3,808	4,216	4,477
Flights, million	37.5	19.7	24.2	29.0	35.7	38.2	40.0
Passenger growth, RPK, % YoY	4.1%	-65.8%	21.8%	64.9%	36.8%	11.2%	8.0%
Cargo growth, CTK, % YoY	-3.2%	-9.9%	18.8%	-8.1%	-1.7%	11.8%	6.0%
Capacity growth, ATK, % YoY	3.3%	-44.3%	16.6%	19.7%	21.7%	9.9%	7.1%
Total load factor, % ATK	70.1%	59.8%	61.9%	67.2%	68.7%	69.6%	69.9%
Passenger load factor, % ASK	82.6%	65.2%	66.9%	78.7%	82.2%	83.0%	83.4%

Source: IATA

Figure 62: Key industry fuel metrics

Table 7: Key industry fuel metrics

Global airline industry	2019	2020	2021	2022	2023	2024E	2026F
Fuel spend, USD billion	190	80	106	215	269	261	248
% change YoY	1.5%	-58.0%	32.3%	103.6%	25.2%	-3.2%	-4.8%
% of operating costs	23.9%	16.1%	19.0%	29.6%	31.8%	28.9%	26.4%
Fuel use, billion gallon	96	52	62	76	92	101	107
% change YoY	2.2%	-45.9%	19.9%	22.9%	20.3%	9.8%	6.0%
Fuel efficiency, liter/100 ATK	0.24	0.23	0.24	0.24	0.23	0.23	0.23
% change YoY	-0.6%	-2.7%	3.0%	0.7%	-1.8%	-0.1%	-1.0%
Fuel consumption, liter per 100 km/passenger	4.2	6.6	6.5	4.8	4.3	4.2	4.1

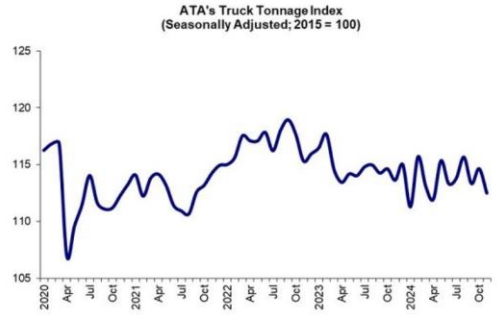
Source: IATA

Oil: ATA Truck tonnage index in November down -1.9% MoM, +1.1% YTD

November Truck Tonnage down MoM

We look to items like truck tonnage for indicators on the US economy, and the November truck tonnage is indicative of a slowly growing US economy. The American Trucking Association (ATA) released its seasonally adjusted Truck Tonnage Index for November on December 24 [LINK]. Truck tonnage contracted by -1.9% MoM and is up +1.1% YTD, after hitting a low in January 2024. Chief Economist Bob Costello noted *"The frustratingly choppy freight environment continued in November. Since hitting a low in January of this year, tonnage is up a total of 1.1%, but the path has been fraught with nice gains one month only to come back down the next. The good news is that the overall trend this year is up, albeit at a slow rate."* Trucking serves as an indicator of the U.S. economy, representing 72.6% of tonnage carried by all modes of domestic freight transportation, including manufactured and retail goods. Trucks hauled 11.46 billion tons of freight in 2022. Motor carriers collected $940.8 billion, or 80.7% of total revenue earned by all transport modes. Our Supplemental Documents package includes the ATA truck tonnage index report.

Figure 63: ATA Truck Tonnage Index



Source: ATA

Oil & Natural Gas: TIPRO Texas oil & gas jobs dip in November

TIPRO November jobs update

We check at least weekly for the Texas Independent Producers and Royalty Owners Association (TIPRO) monthly oil and gas jobs data and it must be that they publicly post the data sometime after they provide the data to members. The Texas oil and gas industry jobs data was dated Dec 20 but looks to have been publicly posted sometime after Dec 28. [LINK]. TIPRO reported a MoM decline in jobs in November following five consecutive months of growth. November jobs were down -1,500 jobs MoM vs the October jobs figure. Direct Texas upstream employment totaled 194,400 in November, down -2,100 from the

recent high in March 2024. TIPRO wrote *TIPRO's new workforce data yet again indicated strong job postings for the Texas oil and natural gas industry. According to the association, there were 10,157 active unique jobs postings for the Texas oil and natural gas industry last month, including 3,047 new postings. In comparison, the state of California had 3,476 unique job postings in November, followed by New York (2,530), Florida (1,784), Pennsylvania (1,340) and Oklahoma (1,521). TIPRO reported a total of 51,420 unique job postings nationwide last month within the oil and natural gas sector."* Our Supplemental Documents package includes excerpts from the TIPRO recaps for November.

Oil & Natural Gas: Greenland rejects Trump overture again, but wants independence

Greenland wants independence

On Friday, The Telegraph and others reported on the New Year's speech by Greenland PM Mute Bourup Egede and his call for independence from Denmark. They wrote "*Greenland's prime minister has reiterated his call for independence from Denmark after Donald Trump suggested the US could acquire the Arctic territory. "It is about time that we ourselves take a step and shape our future, also with regard to who we will cooperate closely with, and who our trading partners will be," Mute Egede said in his new year's speech. Copenhagen announced in December it would boost defence spending in Greenland, the world's largest island, by €1.3 billion (£1.04 billion) - just hours after Mr Trump said that Washington establishing "ownership and control" of the territory was an "absolute necessity".* This does not mean Egede wanted to join the US. Rather The Telegraph reminded Greenland has rejected Trump's suggestion. The Telegraph wrote "*The prime minister added that it was up to the 57,000 people of Greenland to decide on independence but did not specify when a referendum could be held. Greenland's government has twice rejected offers by Mr Trump to purchase the island, in 2019 and again last month when Mr Trump said the US needed to buy Greenland "for the purposes of national security and freedom throughout the world."*

Trump wants Greenland, would be a big strategic deal

Greenland would be of strategic value to US

Here is what we wrote in last week's (Dec 29, 2024) Energy Tidbits memo on Trump wanting Greenland. "*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 Minster 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.".*

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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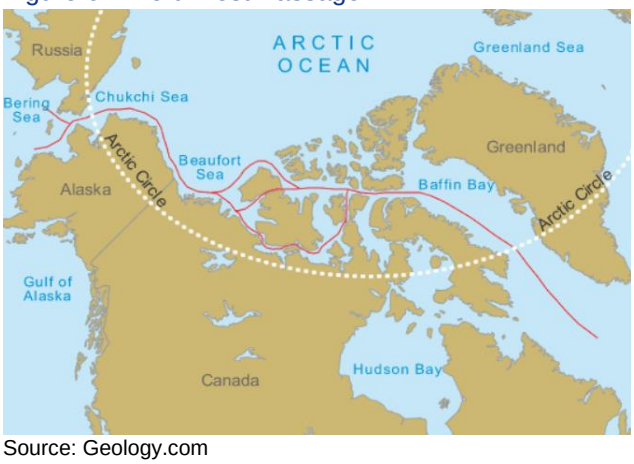
Figure 64: Northwest Passage



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."

Oil & Natural Gas: Jimmy Carter was the father of the US shale oil & gas

Jimmy Carter was the father of shale oil and gas

President Carter passed away last Sunday after we went to print for last week's Dec 29, 2024 Energy Tidbits memo. Long-term readers know I inevitably bring up Carter at least once or twice a year because the period before and when he was President was when the world of energy changed and those changes have continued to this date. I was fortunate to have lived in the US in the early/mid 70s and lived thru the Arab Oil Embargo 1973-74 and how that changed the oil and gas industry forever. Carter (the Democrat) beat Gerald Ford (Republican) in a US world that was very different. Ford had taken over as President after Nixon resigned in 1974 following Watergate. Carter tot 297 electoral votes to Ford's 240. But you wouldn't recognize a lot of the map. Carter was the first southern President and swept the south including all the strong now Republican states like Texas, Alabama, Louisiana, etc. Ford won California. The US was facing an energy crisis like never seen and Carter came in with huge energy changes. Below are a few of the key ones.

Carter saw US shale oil could produce more than Saudi Arabia

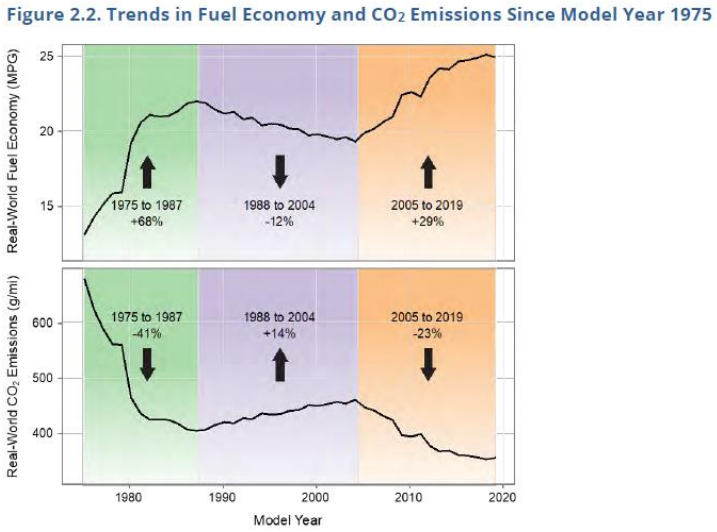
People forget that it was Carter who saw the potential of US shale oil and gas and did something to start drilling for shale and unconventional oil and gas. On Monday, we posted [LINK] "*Jimmy Carter called it on US #Shale #Oil #NatGas, which was a big unknown until he set in motion figuring out the potential. 07/15/79 classic speech. "we have more oil in our shale alone than several Saudi Arabias... we have the world's highest level of technology. we have the most skilled work force, with innovative genius.,." "I am asking for the most massive peacetime commitment of funds and resources in our Nation's history to develop America's own alternative sources of fuel - from coal, from oil shale, from plant products for gasohol, from unconventional gas, from the Sun". Carter then put forward the Shale Oil Tax Credit, $3/bl for each barrel of shale oil and Tax Credit for Unconventional Natural Gas of $0.50/mcf from new sources of tight sands, shale and coal seams. The tax credits were key to defining the huge resource potential and setting the stage for the long term. #OOTT."* His July 15, 1979 address may have been Carter's most significant Oval Office addresses on massive energy crisis of the 70s. He boldly said the US shale oil has massive oil potential. It turned out that he was right but primarily because his unconventional natural gas tax credit led to tight/shale natural gas and then tight/shale oil by drilling. This tax credit led to the first drilling on tight/shale gas, which ultimately defined the massive potential of unconventional oil and natural gas that was unlocked thru fracked horizontal wells.

Why did Biden take so long to follow Carter's focus on car fuel economy

Carter's priority in the oil crisis was reduce US oil consumption and that meant having cars drive further per tank of gas, which also meant less emissions. From the first days of Biden's plans to cut vehicle emissions, we have expressed our surprise that Biden, having been a Senator during Carter's energy crisis years, didn't focus on vehicle fuel economy to cut emissions. Here is what we wrote in our May 2, 2021 Energy Tidbits memo "*What's taken Biden so long to focus on vehicle fuel*

economy? We have noted our surprise that Biden hasn't placed a priority on conservation and efficiency items like fuel economy in vehicles and were reminded of this when, on Thursday, Argus Media reported [LINK] "US readies 'very aggressive' fuel-economy targets" "President Joe Biden's administration is preparing to pursue fuel-economy standards for cars and trucks that are ambitious enough to offset the effects of recent regulatory rollbacks, according to a top government official." Fuel economy in vehicles should have been a no brainer for Biden'. We tweeted [LINK] "know its easier to go after #Oil #NatGas Co's, but why wasn't this play 1 in #Biden emissions reduction playbook? He knew Carter & Obama fuel economy push = big emissions reduction. @ArgusMedia US readies 'very aggressive' fuel-economy targets #OOTT #ClimateChange Thx @ArgusMedia." For someone who wants to reduce emissions, we previously said its kind of annoying that Biden didn't go back to the Obama playbook and the Carter playbook and put a priority on restoring increasing fuel economy limits for cars/trucks because its clear that increasing fuel economy can materially reduce emissions. Looks like Biden will finally get at fuel economy. The EPA did a big repot in Jan "The 2020 EPA Automotive Trends Report: Greenhouse Gas Emissions, Fuel Economy, and Technology since 1975". 75". [LINK] The EPA graphs are pasted below and shows how it all started with post Jimmy Carter election in 1976. If you look at the numbers behind the graphs. Obama did well also. If you look at the data. Obama elected in 2008. From 2007 thru 2016, he reduced CO2 by ~17%, and fuel economy increased by 20%. Gains under Trump were small."

Figure 65: Fuel economy vs CO2 emissions



Source: EPA

Why Carter pushed fuel economy, the Arab Oil Embargo Oct 19, 1973

We are fortunate in North America that we haven't seen wide-spread shortages and having to have lengthy lineups to get essentials very many times post WWII. But one

that stands out was lack of gasoline in 1973. Here is another item from our May 2, 2021 Energy Tidbits memo. "*Why Carter pushed fuel economy, the Arab Oil Embargo Oct 1973. Biden is much older than me, which it shocks me it has taken him so long to get to fuel economy. Anyone who was living in the US in the early 70's should remember why Carter pushed on fuel economy. Here is what we have included in prior Energy Tidbits going back over the years/decades. "We normally include a reminder of the 1973-1974 Arab Oil Embargo because it was "THE" game changer to oil markets. Most weren't born or too young or not in the US to remember the 1973/1974 Arab oil embargo that hammered the US economy and moved oil prices from ~$3 to ~$12. It forced the US and other western countries to have their first real look at oil security. There is no question that having an immediate cut off of oil forced change. Change always happens when something is cut off rather than just becomes more expensive. It was "THE" game changer to the oil and gas industry that led to lasting trends such as the 1976 election of Jimmy Carter (who introduced the first tax credits to kickstart the US shale gas/oil revolution), the creation of Strategic Petroleum Reserves, the International Energy Agency, the push to find oil outside the Middle East in regions, the US govt push to begin to import LNG, etc . It was also a game changer for consumers and led to the move to fuel efficient cars like the Honda Civic (don't forget made in Japan wasn't a good brand in the 60's). The big reason for this was that the Arab Oil Embargo led to an immediate rationing of gasoline in many parts of the US – it was immediate. And to the famous multi block long lineups to buy gasoline. I was in college in St. Louis (Missouri) at the time and the pictures, like the one below, were reality of line ups for gasoline. In. St. Louis, it immediately had restrictions on how many gallons of gasoline on day 1, and by day 2 they had switched to only allowed restricted volumes of gasoline to be purchased on odd days if your license plate ended in odd number and vice versa for even days. Don't forget there was no self service gas stations so you couldn't fill up in violation of the restrictions. In areas like St. Louis that had poor access to gasoline, it was common to line up for an hour for gasoline with your car in neutral and turned off, and taking turns with your friends to push your car to the gas station. The end of the oil embargo was on March 13, 1974."*

Figure 66: Gas Station Line Up During Arab Oil Embargo 1973-74

Source: Time

Energy Transition: Microsoft won't say what powers the AI industrial revolution

Microsoft on the historic AI driven industrial revolution

We may understand why but we continue to be concerned that big tech companies don't to say that they need more natural gas and coal power for their rapidly increasing need for 24/7 electricity. By not saying it, they are creating a bigger power issue in the 2020s and negative impact on the normal grid customers. (i) Yesterday, we posted [LINK] "*AI Data Center Dirty Little Secret. Don't want to specifically say only new #NatGas and expanded #Coal can provide electricity in scale in next decade to power their increasing 24/7 power needs for this "great leap forward" historic industrial revolution. 👇Microsoft Pres "The Golden Opportunity for American AI" makes zero mention of what will power the "large-scale infrastructure investments that serves as the essential foundation of AI innovation and use" and "the massive datacenters that make all this possible...." If AI data centers could run on intermittent wind and solar, they would be headlining it! Value of #NatGas should keep getting better. #OOTT".* (ii) Microsoft President Brad Smith posted a blog on Friday night "T*he Golden Opportunity for American AI. A vision for technology success during the next four years."* [LINK] Smith's blog is all about how AI is creating one of the historic industrial revolutions for the world, much like the start of electricity. It is going to change the world. And he sees Americans as being the leaders in this "*great leap forward*" in technology. Smith emphasized how this great leap forward in technology is only possible with massive infrastructure investment. Smith highlights "*large-scale infrastructure investments that serves as the essential foundation of AI innovation and use" and "the massive datacenters that make all this possible...."* (iii) Microsoft is spending $80 billion this year. Smith said "*In FY 2025, Microsoft is on track to invest approximately $80 billion to build out AI-enabled datacenters to train AI models…"* (iv) Smith made zero mention of what will power these billions in infrastructure. Smith highlights the essential element for this historic industrial revolution is massive investment in infrastructure but nowhere in his 5-pg blog does Smith mention how this will all be powered. We don't think it is wrong to say that Smith would have headlined wind and solar if that was how this would be powered. But, because they need massive 24/7 power that can't be supplied by wind and solar, we believe he didn't want to say they need to tie up a big portion of existing natural gas, coal and nuclear baseload power and their need for these baseload powers sources will only accelerate. It's why we say there is no choice for new 24/7 electricity at scale in the next several years other than more natural gas and even some expanded coal generation. SMRs (mini-nukes) can't be expected to provide 24/7 electricity at scale for at least a decade. Geothermal works but can't provide 24/7 electricity at scale for a decade. (v) It's a good blog on why Microsoft sees this historic industrial revolution. They just excluded a critical factor – where to get the 24/7 power. Our Supplemental Documents package includes Smith's 5-pg blog.

Energy Transition: Norwegians bought 1.5x more ICE than BEVs in 2024

Norway ICE vs BEV 2024 sales

There is no question that Norway has been and continues to be the leading western country by a far margin in the highest percentage of new car sales that are BEV. We recognize that it gets zero media coverage but for the past couple years, we have highlighted However, when you add in used car sales in 2024, Norwegians bought 1.5x more ICE vehicles than BEVs in 2024. (i) On Thursday, we posted [LINK] "*Dirty little secret. Norwegians are buying way more ICE than BEV, just have to do it in the used car market. Headline: Norway says 89% of NEW passenger car sales are BEV. BUT if include used car sales, 51% are pure*

petrol + diesel, increasing to 65% incl petrol + diesel HEV, PHEV, vs 35% electric. #OOTT [LINK]." (ii) Norway had just released a 3-pg release "*New car sales in 2024: 9 out of 10 new passenger cars were electric cars. New car sales in 2024 landed just above last year, ending with 128,691 new first-time registered passenger cars. This is 1.4 per cent more than in 2023. Of all new passenger cars, 114 400 were electric cars, which corresponds to 89 per cent. Thus, only 10 percent remains before the 2025 goal of all new passenger cars being zero-emission cars is reached."* This was what all the media picked up – 90% of new car purchases by Norwegians in 2024 were BEV. Those are the numbers. And the release included the split of car purchases by fuel and share of total. (iii) The release didn't provide any splits of used car sales in 2024 but highlighted BEVs are now 21.5% of used car sales. Norway wrote "*Half a million changes of ownership. 2024 ended with just over 500,000 passenger cars changing hands, which was 1.4 per cent fewer than in 2023. In any case, the second-hand market is in every way Norway's largest car shop. - There has been steady and good momentum in the second-hand market over time. The fact that the number has decreased slightly, compared to low new car sales over the past two years, shows that many have chosen to keep the car they already have, or choose used rather than new," says Solberg Thorsen. There are also more and more electric cars in the second-hand market, and in 2024, 21.5 percent of all changes of ownership were electric cars – an increase in number of 11.6 percent compared to 2023."* (iv) Norway provided a link to a presentation that included 2024 used car sales by fuel. We created an excel of the new and used car sales in 2024. There were 128,691 new car sales vs 500,095 used cars sales. For 2024 new car sales, BEV dominated at 88.9%, followed by Petrol Hybrid 5.3%, Petrol Plugin Hybrid 2.7% and Diesel 2.3%. For 2024 used car sales, pure Diesel was 38.4%, followed by pure Petrol 25.4%, BEV 21.5%, Petrol plug-in hybrid 9.3% and Petrol Hybrid 4.8%. Don't forget that BEVs have dominated Norway new car sales for over a decade so there is a big existing BEV ownership in Norway. Rather, we believe it comes down Norwegians want to own an ICE for their primary vehicle. For 2024 total car sales of 628,786 sales. Pure Diesel was 31.0%, BEV was 35.3%, pure Petrol was 20.4%, Petrol Plug-in Hybrid 7.9%, Petrol Hybrid 4.9%. Our Supplemental Documents package includes the Norway release and excerpts from the presentation.

Figure 67: Norway New and Used Passenger Car Sales in 2024

Norway New + Used Car Sales for 2024						
	New Car Sales		Used Car Sales		Total Car Sales	
	Volume	Share	Volume	Share	Volume	Share
Hydrogen	9	0.0%	66	0.0%	75	0.0%
Gases	0	0.0%	17	0.0%	17	0.0%
Diesel Plugin Hybrid	17	0.0%	2,570	0.5%	2,587	0.4%
Diesel Hybrid	0	0.0%	218	0.0%	218	0.0%
Diesel	2,938	2.3%	191,932	38.4%	194,870	31.0%
Bensin (Petrol)	986	0.8%	127,265	25.4%	128,251	20.4%
Bensin (Petrol) Hybrid	6,869	5.3%	23,843	4.8%	30,712	4.9%
Bensin (Petrol) Plugin Hybri	3,472	2.7%	46,516	9.3%	49,988	7.9%
Elektrisitel	114,400	88.9%	107,668	21.5%	222,068	35.3%
Total	128,691	100.0%	500,095	100.0%	628,786	100.0%
Source: OFV Norwegian Road Traffic Information Council						
Prepared by SAF Group https://safgroup.ca/insights/energy-tidbits/						

Source: OFV Norwegian Road Traffic Information Council

03/25/23: Equinor chief economist Norwegians bought EVs as 2nd or 3rd cars

One of the themes that came our of Norway two years ago is how Norwegians aren't mostly buying BEVs as their primary car. Here is what we wrote in our March 26, 2023 Energy Tidbits memo. "*The Equinor Chief Economist Wareness comment to the FT also supported the above item on how Norwegians aren't using their EVs as much as would be expected given the massive penetration of new car sales over the past several years. Yesterday, we tweeted [LINK] "Here's why Norwegians #EV mileage is low relative to new car sales. "We've bought an EV instead of taking the bus, or it becomes the second or the third car" says @EWaerness. many other reality check energy transition views in his @FT interview [LINK] #OOTT." Waerness says that Norwegians really have bought EVs as their 2nd or 3rd cars and not the principal car. Whereas historically car buyers buy new cars as a principal car other than the wealthy who have more than a couple cars. The FT wrote "Norway's experience with electric vehicles provides an example, Wærness suggested. Subsidies to buy battery-powered cars had rapidly increased their number, and Norway has been repeatedly cited as an example of how quickly customers could switch to EVs. But the overall car fleet had swollen too, Wærness said. "We've kept a lot of the diesel cars and gasoline cars, and we've added EVs, and it took 10 years before gasoline demand went down," he said. "We've bought an EV instead of taking the bus, or it becomes the second or the third car."*

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

PHEVs dominate BEVs for BYD sales

On Wednesday, we posted [LINK] "*Breaking! PHEVs keep dominating BEVs in China. Don't forget NEVs = BEVs + PHEVs. BYD Dec/YTD Dec 31: BEV: 207,734, +8.9% YoY. 1,764,992, +12.1% YoY. PHEV: 301,706, +101.9% YoY. 2,485,378, +72.8% YoY. PHEVs outselling BEV 1.5 to 1. Dirty little secret for PHEVs, what % of kms driven are in ICE vs electric mode. PHEVs are really just more fuel efficient ICE vehicles. See 👇09/04 tweet. Volvo said its PHEVs kms driven are 50/50 ICE vs electric mode. Unknown for Chinese PHEVs. Surely more kms in electric than Volvo but how much more? #OOTT."* BYD posts its monthly NEV sales report on the 1st each month and posted its Dec 2024 sales update on New Year's Day. The Dec sales were the same trend as seen over the year – BEV sales are up modestly YoY but PHEV sales are up hugely YoY and dominate BYD's NEV sales. As a reminder in China NEV sales are the sum of BEV + PHEV sales. Our concern is that almost everyone refers to BYD's NEV sales without splitting between BEV and PHEV. We recognize it takes that extra step to go and get the split but there is likely a significant difference to the China gasoline consumption decline forecast if the cars are BEV vs PHEVs. This is not a question that the huge % increase in PHEVs is because the huge % is relative to a low base. BYD's PHEVs reached parity to BEV volumes about a year ago. So the YoY % growth between the two is from a similar bases in 2023. For Dec, BEV sales were +8.9% YoY to 207,734 and a 40.4% share of BYD's NEVs, whereas PHEV sales were +101.9% YoY to 301706 and a 5.6% share. For full year 2024, BEV sales were +12.1% YoY to 1,764,992 and a 41.3% share whereas PHEV sales were +72.8% YoY to 2,485,378 and a 58.2% share. And PHEVs are now about 1.5x BEV sales. Our table below shows the BYD Dec and YTD Dec 31 (full year 2024) NEV sales split into BEV, PHEV, Commercial vehicles – bus and Commercial vehicles – Others. Our Supplemental Documents package includes

the BYD release this morning.

Figure 68: BYD New Energy Vehicle Sales for Dec 2024

BYD New Energy Vehicle Sales - Dec 2024

	Dec-24	% Share	Dec-23	% Share	Volume Δ	% change
BEV	207,734	40.4%	190,754	55.9%	16,980	*8.9%*
PHEV	301,706	58.6%	149,424	43.8%	152,282	*101.9%*
Commercial Vehicle - Bus	1,385	0.3%	805	0.2%	580	*72.0%*
Commercial Vehicle - Others	3,994	0.8%	60	0.0%	3,934	*6,556.7%*
Total	**514,819**	**100.0%**	**341,043**	**100.0%**	**173,776**	***51.0%***

	YTD Dec 24	% Share	YTD Dec-23	% Share	Volume Δ	% change
BEV	1,764,992	41.3%	1,574,822	52.1%	190,170	*12.1%*
PHEV	2,485,378	58.2%	1,438,084	47.5%	1,047,294	*72.8%*
Commercial Vehicle - Bus	5,580	0.1%	4,705	0.2%	875	*18.6%*
Commercial Vehicle - Others	16,195	0.4%	6,806	0.2%	9,389	*138.0%*
Total	**4,272,145**	**100.0%**	**3,024,417**	**100.0%**	**1,247,728**	***41.3%***

Source: BIYD Production and Sales Volumes for December 2024, posted Jan 1, 2025
Prepared by SAF Group
Source: BYD

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

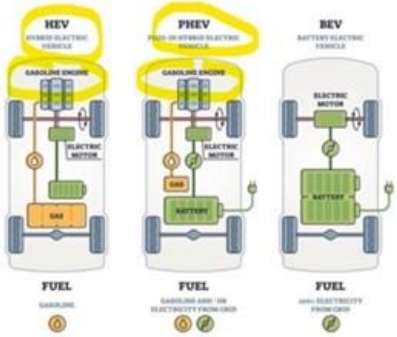
It seems like a dirty little secret for car companies to keep as to how much their PHEVs are driven in ICE mode vs electric mode. It is a split that they must all have but don't disclose whether it is in China, Europe or the US. The only clear statement we have seen was from Volvo and that wasn't in any disclosed reports, rathit was the response in a conference call on how the km driven by their PHEVs is about 50/50 split ICE vs electric mode. Our BYD post highlighted this unknown. Our Wednesday post said "*Dirty little secret for PHEVs, what % of kms driven are in ICE vs electric mode. PHEVs are really just more fuel efficient ICE vehicles. See 👇09/04 tweet. Volvo said its PHEVs kms driven are 50/50 ICE vs electric mode. Unknown for Chinese PHEVs. Surely more kms in electric than Volvo but how much more?"* BYD newer higher end cars are moving more extended range electric, which has to help them drive more in electric mode. But we don't know what % of kms are driven in ICE vs electric mode. In our prior posts on the BYD data, we remind that the vast majority of Chinese in cities live in apartments vs single family homes. And given that most of these apartments were built in the big China boom from 2000 to Covid, we doubt that they were set for broad EV charging for most of the residents. Only BYD and therefore Chinese govt knows the data on how many kms these millions of PHEVs are driven in ICE mode vs electric mode.

HEVs & PHEVs are really just more fuel efficient ICE vehicles

We call it a dirty little secret by the car companies but, for some reason, they don't want to disclose what % of kms are their PHEVs driven in ICE mode vs electric mode. They have the data and we would have thought that would be some sort of sales/marketing pitch for the value equation of PHEVs vs ICE if they are driven mostly in electric mode. But that data doesn't seem to be something they disclose. As noted in our BYD post on Wednesday, it is unknown what % of kms are driven in ICE vs electric mode given vast majority of Chinese in cities live in apartments build in prior boom. Although, given that more BYD higher end PHEVs have are extended range electric, we would expect that Chinese drive their PHEVs more in electric mode than driven by Volvo's PHEV owners. We linked to our prior disclosure on

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

Figure 69: HV vs PHEV vs BEV



Source: Engineering Infrastructure

Biden loosens rules for hydrogen subsidies

Energy Transition: Bloomberg "*Biden loosens rules for hydrogen subsidies*"

We don't have a good sense if Trump will reduce Biden subsidies for specific clean energy

actions. We know he has stated he plans to get rid of Biden EV subsidies. But one other question mark is what can and will Trump do on green hydrogen subsidies when green hydrogen is nowhere near competitive. But in another last minute Biden actions to try to drive his green power agenda, on Friday afternoon, the US Treasury Dept posted a 379-pg filing that Bloomberg described as "Biden Loosens Rules for Hydrogen Subsidies. We normally read all reports but we have not time this weekend to read the 379-pg filing [LINK].. Rather we relied on the Bloomberg Friday afternoon report "*Biden Loosens Rules for Hydrogen Subsidies Worth Billions*". The reality is that green hydrogen needs every tax credit can get as it nowhere near cost competitive and all it will do is drive up the cost of energy. The new hydrogen rules give better credits and, perhaps most importantly, seems to incentivize hydrogen from nuclear. But the question will be if this anywhere enough to make green hydrogen cost competitive and then the bigger cloud – what will Trump do. Regardless, Bloomberg's report leads off "*The Biden administration loosened some stringent safeguards on a tax credit worth billions of dollars for hydrogen production, after companies argued the rules would stifle domestic manufacturing of the fuel. The tax credit created by President Joe Biden's signature climate law now includes a carve-out, sought by companies including Constellation Energy Corp., that will benefit some existing nuclear power plants, according to final rules released by the Treasury Department Friday. The rules, which were released in draft form in December 2023, also provide pathways for hydrogen made from natural gas with carbon capture systems, methane and renewable natural gas to receive the tax credit. The credit, which provides as much as $3 per kilogram for production, is meant to spur a domestic industry for the clean-burning fuel, which advocates say is critical for lowering carbon dioxide emissions in the production of steel, cement and heavy transportation. The rules surrounding subsidies for it have been the subject of intense lobbying over what projects can qualify, with producers such as Plug Power Inc. pressing for changes."* One item that reinforces how energy costs have to go higher is the comments that hydrogen from renewable natural gas will also get a credit. RNG is already hugely subsidized as the cost for RNG is multiples of the cost for regular natural gas, and then this will throw on extra subsidies to take an already hugely subsidized RNG one step further to hydrogen. Our Supplemental Documents package includes the Bloomberg report.

BNEF triples its forecast cost to produce Green Hydrogen

The costs to make green hydrogen keep escalating. Here is what we wrote in last week's (Dec 29, 2024) Energy Tidbits memo. "*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, Green Hydrogen costs 4X cost of hydrogen from natural gas

And the costs to make green hydrogen are nowhere near competitive. Here is what we wrote in last week's (Dec 29, 2024) Energy Tidbits memo. "*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*.

Energy Transition: EIA reminds hydrogen is an energy carrier, not an energy source

Hydrogen is an energy carrier not a source

We find that many forget hydrogen is not an energy source. Rather it an energy carrier. Here is what we wrote in our Jan 23, 2022 Energy Tidbits memo. "*EIA reminds hydrogen is an energy carrier, not an energy sources. On Friday, we tweeted [LINK] ""takes more energy to produce #hydrogen (by separating it from other elements in molecules) than hydogren provides when it is converted to useful energy" "an energy carrier that must be produced from another substance". nice to see @EIAgov give facts not fiction. #OOTT #NatGas." This follows the new Jan 20 update from the EIA "Hydrogen explained". Hydrogen is considered one of the must be a significant contributor to any and all plans to get to Net Zero. Our view is unchanged, we understand why the Net Zero side pushes it for items like heavy industry, but it seems to get overlooked that hydrogen is not an energy sources like natural gas or solar. Rather it is an energy carrier. The EIA stuck to the basics on hydrogen and didn't politicize their message in their Jan 20 update on hydrogen. The EIA explained this concept clearly. "Hydrogen is an energy carrier Energy carriers allow the transport of energy in a usable form from one place to another. Hydrogen, like electricity, is an energy carrier that must be produced from another substance. Hydrogen can be produced—separated—from a variety of sources including water, fossil fuels, or biomass and used as a source of energy or fuel. Hydrogen has the highest energy content of any common fuel by weight (about three times more than gasoline), but it has the lowest energy content by volume (about four times less than gasoline). It takes more energy to produce hydrogen (by separating it from other elements in molecules) than hydrogen provides when it is converted to useful energy.*

However, hydrogen is useful as an energy source/fuel because it has a high energy content per unit of weight, which is why it is used as a rocket fuel and in fuel cells to produce electricity on some spacecraft. Hydrogen is not widely used as a fuel now, but it has the potential for greater use in the future". Our Supplemental Documents package includes the EIA Jan 20 update Hydrogen explained. [LINK]"
"

Energy Transition: Trump tells UK "*get rid of windmills*"

Trump on offshore windmils

On Friday, we posted [LINK] "*What else but #NatGas #Coal generation can step in to fill gap over next decade if less Offshore Wind Generation in US under Trump? Surely Trump tells UK "Get rid of Windmills!" in North Sea can't be positive for any new US offshore wind that require federal approvals. #OOTT*." Trump reposted a report "*Apache blames windfall tax as it announces plans to exit the North Sea because the windfall tax has made its UK operations "uneconomic"."* His post was short and sweet "*The UK is making a very big mistake. Open up the North Sea. Get rid of Windmills!*" Our post reminded of one of Trump's stated negative view on offshore windmills. We find it hard to see how new offshore wind projects that require federal approvals get passed under Trump. And the wildcard will be does Trump somehow impact existing offshore wind projects on federal lands.

Trump Day 1 executive orders to end offshore windmills & Biden EV mandate

After posting the above on Trump telling UK to end windmills, on Friday, we posted [LINK] "*Trump's promised Day 1 Executive Orders. Write out offshore windmills. Terminate Biden's insane EV mandate. See my 👇11/06/24 transcript of his 05/11/24 campaign speech. Pasted in both transcripts this time #OOTT."* Here is what we wrote in our Nov 10, 2024 Energy Tidbits memo. "*The other clearly stated energy promise by Trump for a Day 1 executive order is get rid of offshore windmills. We have trouble believing how, by executive order, he can get rid of existing offshore wind generation projects. But given that federal authority is needed for offshore wind, he could regulate effectively a halt to new offshore wind. Kind of like how Obama was to keep pushing off Keystone XL for years. Trump's big May 11 rally in New Jersey included his clear promise to hit offshore wind in a Day 1 executive order. And any delays on planned offshore wind projects will leave a big near-term gap for power generation that can really only be filled by natural gas and coal to 2030. On Wednesday morning, we tweeted [LINK] "Offshore wind to be Trump Day 1 executive order priority. 05/11/24: "You won't have to worry about Gov Murphy's 157 windmills …… They ruin the environment …. We are gong to make sure that that ends on Day 1. I'm going to write it oud in an executive order. It's going to end on Day 1." Trump. Any delays to deploy offshore wind means more #NatGas #Coal needed to fill the gap. #OOTT Thx @cspan." Our tweet included our SAF Group created transcript of comments by Donald Trump at a campaign speech in Wildwood, New Jersey on May 11, 2024. C-span video is at [LINK]. At 28:06 min mark. Trump "But unfortunately, the Democrats in New Jersey have embraced Joe Biden's radical pro-China plan plan to eliminate gas-powered cars and trucks. Can you believe it? And force everyone into ultra-expensive electric vehicles that don't go far. I always say, they have a couple of problems – they're too expensive, they're going to be made in China, and they don't go far. Other than that, I think they're wonderful. On Day 1, I will immediately terminate Joe Biden's insane electric vehicle mandate. And there will*

be no ban on gas cars and gas trucks in the Garden State. There will no ban anywhere in the United States of America on gas. You can buy electric if you want, you can buy gas, you can buy whatever you want, that's the way it should be.""

Need new natural gas & not retiring coal & nuclear to fill gap

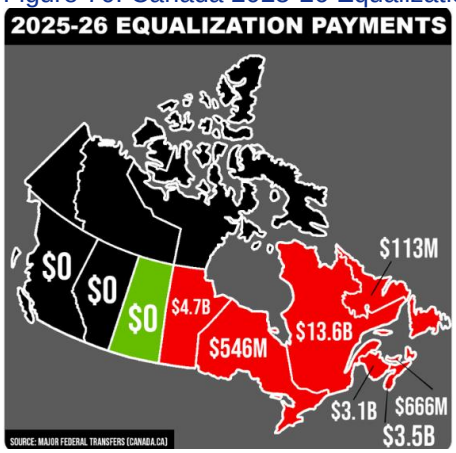
Whenever we see risks to adding electricity supply over the next decade like Trump's plan to go after offshore windmills we add what else besides new natural gas and not retiring coal and natural gas can fill the gap over the next decade so the grid has 24/7 baseload electricity. Long term readers know we are big fans of SMRs or what we have called mini-nukes but also that we just don't see scale to SMRs over the next decade. We are also believers in geothermal but again don't see it at scale over the next decade. The reality is that there really isn't anything else but new natural gas generation, not retiring coal and nuclear and possibly expanding some existing coal generation that can scale up to provide 24/7 electricity over the coming decade.

Canada's equalization payments

Energy Transition*:* Premier Moe reminds who gets Canada equalization payments

It will be very interesting to see how a Conservative govt under Pierre Poilievre tackles Canada's equalization program. On Thursday, Saskatchewan Premier Scott Moe posted [LINK] "*The federal government has announced equalization payments for 2025 and once again, SK, AB and BC will be helping support the rest of Canada*." Moe included the below map. The equalization program was set up in the late 1950s for the federal government to make payments to try to ensure all provinces can provide reasonably comparable levels of services at reasonably comparative levels of taxation ie. to try to lift up the poorer provinces. There have been controversies from various provinces, in particular Alberta, that always pay in to see provinces like Ontario and Quebec be big beneficiaries of these equalization payments. No one is surprised that Ontario and Quebec have been consistent beneficiaries as those are the two provinces that determine who wins the national election. Ontario has 121 seats and Quebec has 78 seats for 199 seats out of total 338 seats across Canada.

Figure 70: Canada 2025-26 Equalization Payments



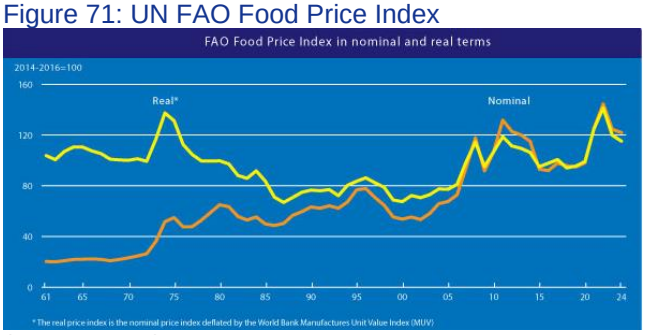
Source: Premier Scott Moe

Capital Markets: UN FAO Food Price Index down MoM in Dec, but still up +6.7% YoY

UN food price index +6.7% YoY

The UN Food Price Index is a monthly food commodities measure and not an index of consumer food prices or food prices in grocery stores. However, increases or decreases in food commodity prices should, in theory, eventually work their way into grocery prices. The UN Food Price index has been gradually decreasing since the middle of 2023 with December declining -0.5% MoM compared to November. However, the index is still +6.7% YoY. On Friday, the UN posted its monthly update of its FAO Food Price Index titled "*Despite steady monthly increases for most of 2024, primarily driven by dairy, meat and vegetable oil prices, FAO Food Price index overall in 2024 remained below its 2023 levels"* [LINK]. Note that the index is calculated on a Real Price basis. The FFPI averaged 127.0 points in December, down -0.5% from the November figures, and is up +6.7% YoY. The FFPI reported categories saw primarily decreases, with meat being the only increase. The Vegetable Oil Index was down -0.5% MoM, and up +33.5% YoY. The decrease was driven by lower quotations for rapeseed, soy, and sunflower oil, more than offsetting slightly higher palm oil prices. The Dairy Price Index was down -0.7% MoM and up +17.0% YoY. The Cereal Price Index was relatively unchanged MoM but still down -9.3% YoY. The Meat Price Index was up +0.4% MoM and up +7.1% YoY. The Sugar Price Index was down -5.1% MoM and down -10.6% YoY.

Figure 71: UN FAO Food Price Index



Source: UN FAO

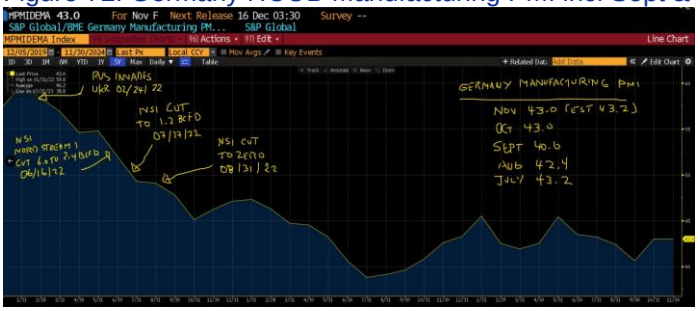
Capital Markets: Germany manufacturing PMI down MoM, outlook is "*still pretty grim*"

Germany manufacturing PMI remains flat

Germany manufacturing/industry started its big slide before Russia invaded Ukraine when Europe natural gas prices spiked and went into a steady big decline as cheap Russian natural gas via pipeline was cut to zero in 2022 following Russia's invasion of Ukraine. Cutting off cheap Russian natural gas has been the big hit to Germany's heavy industry. Add in costs of green transition and other costs and Germany's manufacturing base has been hammered. And it isn't looking any better. It's *"still pretty grim*". On Thursday, we posted [LINK] "*The situation in the [Germany] manufacturing sector is still pretty grim. Production is on a steep decline, and new orders keep slumping, making it clear that the industry won't be coming out of recession anytime soon." HCOB Manufacturing PMI: Dec 42.5. Nov 43.0. Oct 43.0. Sept 40.6. Aug 42.4. Should be interesting election! Thx @HCOB_Economics @SPGlobal #OOTT."* On Thursday, the HCOB Manufacturing PMI for Germany came in at 42.5 for Dec, down from 43.0 in Nov and 43.0 in Oct. HCOB wrote "*the PMI signalled a sharp and slightly accelerated decline in business conditions at the end of the final quarter of 2024. The drop in the headline index was driven mainly by faster falls in both output and new*

orders, its two weightiest components. Production volumes decreased at the second-quickest rate in the past 14 months in December, led by a particularly steep downturn in the intermediate goods sector. The rate of decline in new orders was likewise one of the fastest observed in 2024." And "*the situation in the manufacturing sector is still pretty grim. Production is on a steep decline, and new orders keep slumping, making it clear that the industry won't be coming out of recession anytime soon."* Our Supplemental Documents package includes excerpts from the HCOB Manufacturing PMI.

Figure 72: Germany HCOB Manufacturing PMI incl Sept & Russian natural gas events



Source: Bloomberg

Bloomberg's Billionaire index

Capital Markets: Bloomberg Top 500 billionaires index

For those with a Bloomberg terminal, typing <RICH> Go will pull up Bloomberg's Billionaire Index that is updated daily based on market close for the top 500 billionaires in the world. Below is the table of the top 10 as of Dec 31, 2024. There shouldn't be any surprises by who is at the top but what was the big story for billionaires is that Elon Musk doubled his net wort in 2023 to $442.1 billion. #2 Jeff Bezos was "only" up about 33% YoY to $240.6b. n. No surprise Elon Musk is #1 at $206.1 billion followed by Jeff Bezos at $179.4 billion. Our Supplemental Documents package includes the top 50 of the top 500 billionaires as of Dec 31, 2024.

Figure 73: Bloomberg's Top 10 billionaires as of Dec 31, 2024

Name	Rank	Worth	Chg 1D	Chg YTD	3M Range
1) Elon Musk	1	442.1B	-9.8B	213.1B	
2) Jeff Bezos	2	240.6B	-2.3B	63.7B	
3) Mark Zuckerberg	3	209.3B	-3.0B	81.2B	
4) Larry Ellison	4	193.2B	3.0B	70.3B	
5) Bernard Arnault	5	175.6B	-2.1B	-31.9B	
6) Larry Page	6	170.1B	-1.3B	43.7B	
7) Sergey Brin	7	160.0B	-1.2B	40.0B	
8) Bill Gates	8	159.7B	-1.4B	19.0B	
9) Steve Ballmer	9	147.6B	-1.9B	16.8B	
10) Warren Buffett	10	141.6B	-1.4B	21.8B	

Source: Bloomberg

Shout out to our favorite Cdn billionaire – Chip Wilson

The Bloomberg Billionaires Index allows you to sort so we asked for the list of top Canadian billionaires that are in the Bloomberg top 500 billionaires. We have to give a shout out to our favorite Canadian billionaire – Chip Wison. On Tuesday, we posted [LINK] "*Bloomberg Billionaires Index as of Dec 31/24. Shout-out to @ChipYVR! He*

bet on himself. Left a cushy job at Dome Petroleum in early 80s to start from scratch to build a clothing empire. I'm sure all of his former oil patch co-workers couldn't be happier for him." Chip started his work career as a Landman at Dome Petroleum. There are still a lot of Dome Petroleum alumni from the early 80s so I would be remiss if I didn't give a shout out to Chip Wilson for being #339 at US $8.3 billion and one of 13 Canadians that made the Bloomberg Billionaires Index top 500. Probably 99% of the people know Chip from his retail fame, in particular his creation of Lululemon. But there are still a number of us who were young people in 1981 at then high-flyer Dome Petroleum and that is where we met and worked with Chip when he was a Dome Petroleum landman. Chip's office was a couple doors down from mine in the Dome Tower and anyone who worked with him would tell you he was a good guy and also an entrepreneur back then who was going to be successful. He was a landman by day and started his first retail success, Westbeach, at night first with a summer cart on the Calgary 8th avenue mall and then his retail store thereon. His big success at Westbeach was the precursor to his huge success at Lululemon. Congratulations to Chip! Below is the list of the 13 Canadians in Bloomberg's Top 500 Billionaires list.

Figure 74: Canadians in Bloomberg's Top 500 Billionaires as of Dec 31, 2024

Source: Bloomberg

Capital Markets: New Republican Senate and House took power on Jan 3

Republican House and Senate now

On Friday, the new Republican Senate and House took over. It doesn't mean that Biden can't push things thru until Trump takes over on Jan 20 but there will be zero cooperation from the Republican Senate and House. 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, the changeover was completed.

Demographics: US Census Bureau sees US population 341.45 mm, world 8,092.0 mmb

US and world population

On Monday, the US Census Bureau posted its estimate for US and world population. [LINK] (i) For the US, the Census Bureau projected US population was +0.78% YoY or +2,640,171 YoY to 341,145,670 at the clock hit midnight EST on Jan 1, 2025. For the US, the Census Bureau wrote "*In January 2025, the United States is expected to experience one birth every 9.0 seconds and one death every 9.4 seconds. Meanwhile, net international migration is expected to add one person to the U.S. population every 23.2 seconds. The combination of births, deaths and net international migration increases the U.S. population by one person every 21.2 seconds*." (ii) For the world, the Census Bureau also projected world population would be +0.89% YoY or +71,178,087 YoY to 8,092,034,511 on Jan 1, 2025. The

Census Bureau wrote *"During January 2025, 4.2 births and 2.0 deaths are expected worldwide every second."*

China raising retirement age

Demographics: China starts raising retirement age on Jan 1, 2025

China started the gradual raising of the retirement age on Jan 1, 2025, which was in line with its announcement to do so in the fall. China's retirement age hasn't changed since the 1950s and, even with the gradual increase, will still be well below western nations. Will help keep more in the labor force longer and also defer social spending as people have to wait until retirement. On Wednesday, we posted [LINK] "*China starts gradual raise of retirement age but will still be well below western countries. "starting from Jan 1, 2025, the statutory retirement age for men will be gradually raised from 60 to 63 in the course of 15 years, while that for women cadres will be raised from 55 to 58, and that for women blue-collar workers will be raised from 50 to 55, according to Xinhua." There are ~80 million Chinese 60 to 65. #OOTT."* On Wednesday, Global Times (state media) reported "*China issues interim measures for flexible retirement system; move 'to ease elderly care burden, improve efficiency'.* [LINK]. And "*The decision, marking the first adjustment in the arrangement since the 1950s, said that starting from January 1, 2025, the statutory retirement age for men will be gradually raised from 60 to 63 in the course of 15 years, while that for women cadres will be raised from 55 to 58, and that for women blue-collar workers will be raised from 50 to 55, according to Xinhua*." Our Supplemental Documents package includes the Global Times report.

Chinese 65 & over now 217 mm, 60 & over now 297 mm

Our post this week said there are approx. 80 million Chinese in the 60 to 65 yrs age category. We pulled that estimate from Oct. 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."*

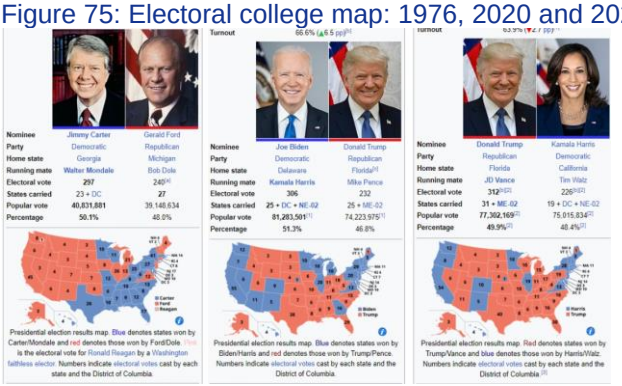
Carter's electoral college map

Demographics: Very different electoral college map for Carter in 1976

It's not hard to forget it's been almost 50 years since Carter beat Ford in 1976. But for those of us who were in the US for the election, it was a very different electoral college map in 1976. On Monday, we posted [LINK] "*For those who weren't around when Carter beat Ford in 1976. Very different electoral map. California was still solidly Republican. Carter, the 1st southern President, swept the south. NE was a jump ball. Thx @Wikipedia."* We didn't put the 1972 annihilation victory of Nixon over McGovern where Nixon won 520 electoral college votes to McGovern's 17 (District of Columbia and Massachusetts) so it was Republican everywhere. But Carter's electoral college map was all Democrat across the south to Texas.

And California was still solidly Republican. It's feels almost crazy to think states like Alabama, Mississippi, Arkansas and Missouri (where I was living in 1976) were Democrat states.

Figure 75: Electoral college map: 1976, 2020 and 2024 US Presidential elections



Source: Wikipedia

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

@Energy_Tidbits on Twitter

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 even 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.

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

@Energy_Tidbits on Twitter

Two months ago, 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/X followers. It helps me do a better job. For new followers to our Twitter/X, 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 25 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/X for early views on energy items. Our Supplemental Documents package includes our tweets this week.

Misc Facts and Figures.

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

Must be the time of year for get started sayings

It's the new year so people have resolutions and things they want to accomplish in 2025. We always like to see the Bloomberg quotes you get when you sign on the Bloomberg terminal. So given it's the new year and time to get going on projects,

Bloomberg had get started sayings this week including: “The beginning is always today” by Mary Wollstonecraft Shelley, and “The beginning is the most important part of the work” by Plato.

Wine of the week: 2005 Chateau Pavie

In August, I started the wine of the week when I realized I had to get to opening up some wines bought 20 to 30 years ago that included some that, unfortunately, were getting past their prime. One of the negatives of the change in life from Covid was a huge absence of entertaining at home, which means there has been a big shortfall in wine drinking at our home. So am now making sure what, when I bought them 15-25 years ago, were some good wines and make sure bottles get opened especially as many are 20 to 40 years old. On Tuesday, Yesterday, I posted the wine of the week, which was 2005 Chateau Pavie, St. Emillion, Bordeaux. [LINK]. It was excellent. Couldn’t tell the wine was 19 years old but had that nothing beats a great Bordeaux tasting. Parker said should drink for 50 to 100 years and I have to agree no rush to drink the remaining several bottles. I still have several bottles left from the case I bought when it was released. I remember loading up on the 2005 Bordeaux as it was a great vintage for long cellaring potential on both the Left and Right Bank.

Figure 76: 2005 Chateau Pavie

2005 Château Pavie, St Emilion, Bordeaux
Wine Advocate100/100
Grard Perse believes this is the greatest Pavie hes made to date, although certainly I would argue that list includes the 2000, as well as the 2009 and 2010, among his superstars. This wine, which I had both in the 2005 horizontal report in the Wine Advocate, and at a mini-vertical with Perse at the restaurant Maison Boulud in Montreal, looks to be a 75- to 100-year wine. Dense, opaque purple to the rim, with a gorgeously promising nose of blackberries, cassis, graphite and cedar wood just beginning to emerge, it tastes more like a three-year-old than wine that is already a decade old. This beauty is intense and full-bodied, with magnificent concentration, a majestic mouthfeel and a total seamless integration of tannin, wood, alcohol, etc. Beautifully rich, full and multidimensional, this is a tour de force in winemaking and certainly one of the top dozen or so 2005 Bordeaux. Forget it for another 3-5 years and drink it over the following 50-100 years!
Robert M. Parker, Jr. - 28/08/2015

Source: SAF Group, Robert M. Parker, Jr.

Washington Post wouldn’t publish Bezos cartoon so cartoonist resigns

Yesterday, The Guardian reported “*Post’s Pulitzer prize-winning editorial cartoonist Ann Telnaes has resigned from her position at the newspaper after its refusal to publish a satirical cartoon depicting the outlet’s owner Jeff Bezos – along with other media and technology barons – kneeling before Donald Trump as he gears up for his second US presidency. “I have had editorial feedback and productive conversations – and some differences – about cartoons I have submitted for publication, but in all that time I’ve never had a cartoon killed because of who or what I chose to aim my pen at,” Telnaes wrote on Friday in an online post on the Substack platform detailing her decision to quit. “Until now.”* Her rejected cartoon (see below) showed caricatures of Washington Post owner & Amazon founder, Jeff Bezox, Meta founder Mark Zuckerberg, LA times owner Patrick Soon Shiong and Walt Disney mascot Mickey Mouse paying homage to Trump.

Figure 77: Ann Telnaes cartoon rejected by Washington Post

Source: Ann Telnaes, The Guardian