

Energy Tidbits

Nov 10, 2024

Produced by: Dan Tsubouchi

Key Trump Iran Advisor, Brian Hook, Points to Trump Hitting Iran Economically i.e. Return to Restricting Iran's Oil Exports

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. Key Trump advisor, Brian Hook, is pointing to Trump cutting off Iran oil exports. [\[click here\]](#)
2. Trump victory speech "*promises made, promises kept*", one promise was Day 1 executive order to get rid of Biden's EV mandate. [\[click here\]](#)
3. Peak oil demand reality check: Vitol CEO "*What we're saying today is that peak oil demand is about 10 years away. The unfortunate thing is, we said five years ago that peak oil demand is 10 years away.*" [\[click here\]](#)
4. Other than RUS invade UKR 2022 year, US HH prices have slipped in Nov/Dec with a warm or normal start to winter and current forecasts are for warmer than norm temps to start winter. [\[click here\]](#)
5. BYD is the global leader in new energy vehicles BUT its big growth component is PHEV and not BEV. [\[click here\]](#)
6. Thank you to all the brave men and women who serve in the armed forces. I had the honor to have friends who came back from fighting in Vietnam in the 70s and it left lasting appreciation for their service and sacrifices.
7. Please follow us on Twitter at [\[LINK\]](#) for breaking news that ultimately ends up in the weekly Energy Tidbits memo that doesn't get posted until Sunday noon MT.
8. For new readers to our Energy Tidbits and our blogs, you will need to sign up at our blog sign up to receive future Energy Tidbits memos. The sign up is available at [\[LINK\]](#)

Dan Tsubouchi
Chief Market Strategist
dtsubouchi@safgroup.ca

Ryan Dunfield
CEO
rdunfield@safgroup.ca

Aaron Bunting
COO, CFO
abunting@safgroup.ca

Ian Charles
Managing Director
icharles@safgroup.ca

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Natural Gas: +69 bcf build in US gas storage; now +157 bcf YoY going into winter

We now have the natural gas storage levels going into the traditional winter withdraw season. For the week ending November 1, 2024, the EIA reported a +69 bcf build [\[LINK\]](#). Total storage is now 3.932 tcf, representing a surplus of +157 bcf YoY compared to a surplus of +107 bcf last week. Since February, total storage had remained above the top end of the 5-yr range, until 1 month ago when storage dipped into the 5-yr range but this week's data shows that storage has broke past the range at +55 bcf above the previous 5-yr maximum of 3.877 tcf. Total storage is now +215 bcf above the 5-year average, above last week's +178 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.

+69 bcf build in US gas storage

Figure 1: US Natural Gas Storage

Region	Stocks billion cubic feet (Bcf)				Historical Comparisons			
	11/01/24	10/25/24	net change	implied flow	Year ago (11/01/23)		5-year average (2019-23)	
East	934	919	15	15	924	1.1	912	2.4
Midwest	1,130	1,109	21	21	1,104	2.4	1,093	3.4
Mountain	290	291	-1	-1	254	14.2	224	29.5
Pacific	310	305	5	5	284	9.2	280	10.7
South Central	1,267	1,240	27	27	1,208	4.9	1,208	4.9
Salt	341	331	10	10	313	8.9	318	7.2
Nonsalt	926	909	17	17	895	3.5	890	4.0
Total	3,932	3,863	69	69	3,775	4.2	3,717	5.8

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
Sep/13	3,445	58	194	274
Sep/20	3,492	47	159	233
Sep/27	3,547	55	127	190
Oct/04	3,629	82	124	176
Oct/11	3,705	76	107	163
Oct/18	3,785	80	106	167
Oct/25	3,863	78	107	178
Nov/01	3,932	69	157	215

Source: EIA

Natural Gas: Storage would have been full if producers hadn't shut in production

There is only one storage week to go to the traditional Nov 1 storage. In May, it looked like there was the real risk for storage to be full early as it was +444 bcf YoY on May 3. But a hot summer, some hurricane supply interruptions and producers shutting in natural gas due low prices meant that storage did not get full early. Rather all it resulted in was higher YoY gas storage. So storage is now down to +107 bcf YoY as of Oct 25. Storage would be way worse if EQT, Coterra, etc didn't shut-in production in Q2 and Q3. And the fact that storage was up YoY even with the shut-in production was the big holdback to Henry Hub prices in Q2 and Q3. Since the end of Q2, we have been highlighting how gas prices would be weaker if key producers hadn't shut-in natural gas production due to low prices. In last week's Q3 call, EQT highlighted how their shut-in volumes peaked at ~1 bcf/d and they brought these volumes back on in Sept. And in last week's Q3 call, Coterra is continuing to curtail production of approx. 0.325 bcf/d. And there were others like Chesapeake and Apache who shut-in natural

Producers shut in natural gas

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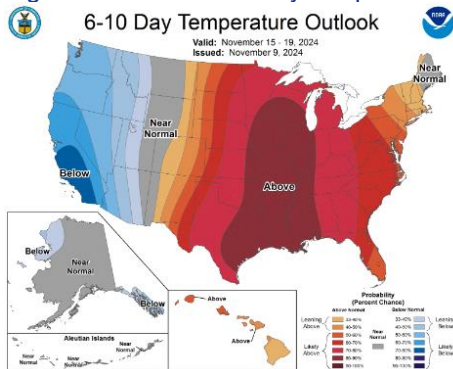
gas due to low natural gas prices. There were various estimates for voluntary shut-in total that seemed to be around 2 bcf/d or higher for the industry.

Natural Gas: NOAA forecasts warmer-than normal temps to US Thanksgiving

It's now November and that means warmer than normal temperatures minimize demand for heating ie. no need to crank up the furnace. Yesterday, we tweeted [\[LINK\]](#) "A warm start to winter is never a positive to HH #NatGas prices. @NOAA updated 6-10 & 8-14 day temp outlook for Nov 15-23 calls for much warmer than normal temps across the populous east 2/3 of Lower 48. #OOTT." There is always demand for natural gas especially at nighttime in November, but our reminder is that warmer than normal in Nov temperatures generally mean much less weather driven natural gas demand. Below are NOAA's updated, as of yesterday, 6-10 day and 8-14 day temperature outlook maps covering Nov 15-23.

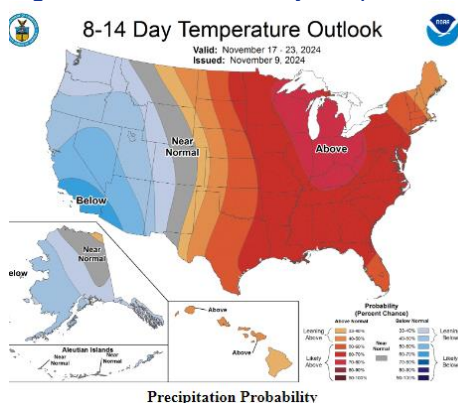
NOAA updated 6-10 and 8-14 day temp outlook

Figure 3: NOAA 6-10 day temperature outlook for Nov 15-19



Source: NOAA

Figure 4: NOAA 8-14 day temperature outlook for Nov 17-23



Source: NOAA

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

For years, we have warned on the risk to HH gas prices unless it's cold to start winter ie. in Nov/Dec. Yesterday, we tweeted [\[LINK\]](#) "Reason to be cautious on #NatGas as long as 🙌"

Risk to HH prices going into winter

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@NOAA next 2 weeks temp forecasts is for warm start to winter. Other than 2022 when global #NatGas prices were driven up post RUS 02/24/22 UKR invasion, HH prices weakened in Nov/Dec with warm or even normal temps in Nov/Dec. #OOTT." Our tweet included the below graph showing the seasonal HH price moves. Russian invaded Ukraine on Feb 24, 2022 and that drove up global natural gas and LNG prices with Europe cutting off cheap Russia natural gas pipeline gas. Putting 2022 aside, all the other years have seen HH gas prices weaken in Nov/Dec even when temperatures were normal. And our weekly memos have been highlighting US gas storage is up YoY and would have been full if producers hadn't shut in natural gas production due to low prices. And @NOAA's updated next 2-week temperature forecast continues to call for a warmer than normal start to winter. Our concern is that the graphs remind it is tough for HH gas prices to catch up with a weak start to winter. So, there is risk going into the winter unless it starts off cold."

Figure 5: HH gas prices seasonal comparison to Nov 8, 2024 close



Source: Bloomberg

Natural Gas: Shell still seems to point to LNG Canada 1.8 bcf/d Phase 2 FID

It seems like others in Calgary also expect LNG Canada to FID its 1.8 bcf/d Phase 2 in the coming months. Here is what we wrote in last week's (Nov 3, 2024) Energy Tidbits memo. "Shell held its Q3 call on Thursday. On Friday, we tweeted [\[LINK\]](#) "Seems still pointing to LNG Canada 1.8 bcf/d Phase 2 FID. Shell CEO Sawan in Q3 call Q&A. Phase 1. 1.8 bcf/d is 95% complete, still hoping for 1st commercial cargos by mid 2025. Phase 2. 1.8 bcf/d. "has to be an investable opportunity. They are developing that, and in due course, they'll be able to put it forward to us to be able to reflect, along with the other shareholders doing the same." #OOTT #NatGas." In the Q&A, mgmt was asked on the status of LNG Canada 1.8 bcf/d Phase 2. Our tweet included an excerpt from the transcript with CEO Sawan's response. (i) First, he recapped the status of LNG Canada 1.8 bcf/d Phase 1, which is 95% complete, receiving natural gas for plant commissioning and still looking for first commercial cargos by mid-2025. We remind that there will be commissioning LNG cargos before that time. (ii) On LNG Canada 1.8 bcf/d Phase 2, CEO Sawan did not say it would FID and, if so, when. However, he doesn't raise any doubt and his comments seem to point to a continued path to FID in the coming months. Sawan replied "LNG Canada Phase 2, of course, the joint venture, which is an independent joint venture, will have to present their proposal to their shareholders. Of course, that has to be an investable opportunity. They are developing that, and in due course, they'll be able to put it forward for us to be able to reflect, along with the other shareholders doing the same." (iii) CEO Sawan didn't raise any BC government approval risk. CEO Sawan's comments were on Thursday and after the BC election that saw the return of the BC NDP in another majority government. LNG Canada has been dealing

**LNG Canada 1.8
bcf/d Phase 2**

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with the NDP government and we would assume that if Shell saw BC NDP risk to Phase 2, he would at least mention a potential risk to get BC NDP onside. (iv) Shell has tied up acreage to support LNG Canada volumes. It's not clear if Shell has tied up acreage to help support both Phase 1 and 2 but CEO Sawan confirmed they have tied up more acreage. He said 'In terms of acreage, we're very pleased with the position we have, which really gives us the option, not the obligation, the option to be able to either produce out of our existing acreage or to pull from third-party suppliers in ACO That is the beauty of the position we have there, and that's one where we will continue to be able to look forward as we bring LNG Canada up, to be able to optimize and to create value out of.'

Natural Gas: TotalEnergies commences 0.26 bcf/d 15-year LT LNG deal with Sinopec

On Monday, TotalEnergies announced that the company signed a long-term 15-year LNG sales agreement with Sinopec for 0.26 bcf/d for 15 years beginning in 2028 [\[LINK\]](#). Note that the press release reminds that China considers natural gas and LNG as part of their clean energy transition. The press release reported Mr. Niu Shuanwen, SVP of Sinopec Corporation said *"Sinopec and TotalEnergies are strategic partners. This HoA further strengthens the cooperation between the two companies in natural gas. Natural gas is an important enabler for realizing energy transition and dual carbon goals. Sinopec is committed to building the world's leading clean energy and chemical company and will continue to promote energy transition and the clean, diversified and secure supply of energy. Sinopec strives to make positive contributions to global energy governance and climate change"*. Our Supplemental Documents Package includes the TotalEnergies press release.

**Total Energies /
Sinopec sign
15-yr LNG
supply deal**

There have been 26.66 bcf/d of long-term LNG supply deals since July 1, 2021

The abrupt big wave of LNG deals started in July 2021, and we highlighted this in our July 14, 2021, 8-pg "Asian LNG Buyers Abruptly Change and Lock in Long Term Supply – Validates Supply Gap, Provides Support for Brownfield LNG FIDs". We continue to update that table, which now shows 26.66 bcf/d of long-term LNG deals since July 1, 2021. 64% of the deals have been by Asian LNG buyers, but we are now seeing rest of world locking up long term supply deals post Russia/Ukraine. Note in our non-Asian LNG deals will major LNG players (i.e. Chevron, Shell, etc.) buying for their LNG portfolio supply. China has been particularly active in this space, accounting for 43% of all Asian LNG buyers in long term contracts since July 1, 2021. Below is our updated table of Asian and European LNG buyers new long-term supply deals since July 1, 2021.

Figure 6: Long-Term LNG Buyer Deals Since July 1, 2021

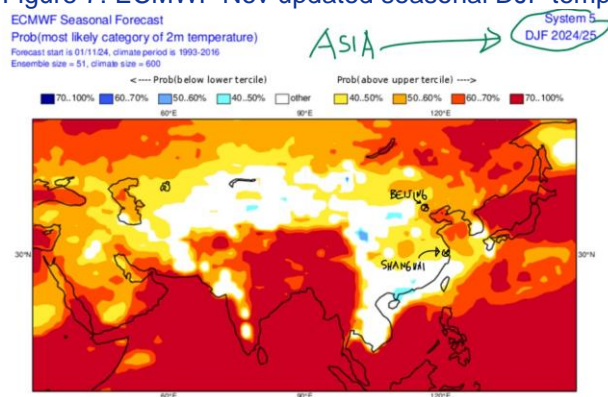
Long-Term LNG Buyer Deals Since July 1, 2021								Long-Term LNG Buyer Deals Since July 1, 2021							
Date	Buyer	Seller	Country	Volume (bct/d)	Duration	Start	End	Date	Buyer	Seller	Country	Volume (bct/d)	Duration	Start	End
Asian LNG Deals								Non-Asian LNG Deals							
Jul 7, 2021	CNOOC	Petronas	China / Canada	0.30	10.0	2022	2032	Jul 28, 2021	PGNIG	Venture Global LNG	Poland / US	0.26	20.0	2023	2043
Jul 9, 2021	CPC	QatarEnergy	Taiwan / Qatar	0.16	15.0	2022	2037	Nov 12, 2021	Engie	Cheniere	France / US	0.11	20.0	2021	2041
Jul 9, 2021	Guangzhou Gas	BP	China / US	0.13	12.0	2022	2034	Mar 7, 2022	Shell	Venture Global LNG	US / US	0.26	20.0	2024	2044
Jul 12, 2021	Korea Gas	QatarEnergy	Korea / Qatar	0.25	20.0	2025	2045	Mar 16, 2022	NFE	Venture Global LNG	US / US	0.13	20.0	2023	2043
Sep 29, 2021	CNOOC	QatarEnergy	China / Qatar	0.50	15.0	2022	2037	Mar 16, 2022	NFE	Venture Global LNG	US / US	0.13	20.0	2023	2043
Oct 7, 2021	Shenzhen	BP	China / US	0.04	10.0	2023	2032	May 2, 2022	Engie	NextDecade	France / US	0.23	15.0	2026	2041
Oct 11, 2021	ENN	Cheniere	China / US	0.12	13.0	2022	2035	May 17, 2022	PGNIG	Sempra Infrastructure	Poland / US	0.40	20.0	n.a.	n.a.
Nov 4, 2021	Unipac	Venture Global LNG	China / US	0.46	20.0	2023	2043	May 25, 2022	RWE Supply & Trading	Sempra Infrastructure	Germany / US	0.30	15.0	n.a.	n.a.
Nov 4, 2021	Sinopec	Venture Global LNG	China / US	0.53	20.0	2023	2043	Jun 9, 2022	Equinor	Cheniere	Norway / US	0.23	15.0	2026	2041
Nov 5, 2021	Sinochem	Cheniere	China / US	0.12	17.5	2022	2040	Jun 21, 2022	EnBW	Venture Global LNG	Germany / US	0.20	20.0	2026	2046
Nov 22, 2021	Foan	Cheniere	China / US	0.04	20.0	2023	2043	Jun 22, 2022	INEOS Energy	Sempra Infrastructure	UK / US	0.21	20.0	2027	2047
Dec 6, 2021	Guangdong Energy	QatarEnergy	China / Qatar	0.13	10.0	2024	2034	Jun 22, 2022	Chevron	Venture Global LNG	US / US	0.26	20.0	n.a.	n.a.
Dec 8, 2021	S&T International	QatarEnergy	China / Qatar	0.13	15.0	2022	2037	Jun 22, 2022	Chevron	Cheniere	US / US	0.26	15.0	2027	2042
Dec 10, 2021	Suntien Green Energy	QatarEnergy	China / Qatar	0.13	15.0	2022	2037	Jul 12, 2022	Shell	Mexico Pacific Ltd	US / Mexico	0.34	20.0	2026	2046
Dec 15, 2021	SPIC Guangdong	BP	China / US	0.03	10.0	2023	2033	Jul 13, 2022	Viol	Defin Midstream	US / US	0.07	15.0	n.a.	n.a.
Dec 20, 2021	CNOOC Gas & Power	Venture Global LNG	China / US	0.26	20.0	2022	2043	Aug 2, 2022	Centrica	Defin Midstream	UK / US	0.13	15.0	2026	2041
Dec 29, 2021	Foan	BP	China / US	0.01	10.0	2023	2032	Aug 24, 2022	Shell	Energy Transfer	US / US	0.28	20.0	2026	2046
Jan 11, 2022	ENN	Novatek	China / Russia	0.08	11.0	2024	2035	Oct 6, 2022	EnBW	Venture Global LNG	Germany / US	0.26	20.0	2022	2042
Jan 11, 2022	Zhejiang Energy	Novatek	China / Russia	0.13	15.0	2024	2039	Dec 6, 2022	ENGIE	Sempra Infrastructure	France / US	0.12	15.0	n.a.	n.a.
Feb 4, 2022	CNPC	Gaspro	China / Russia	0.98	30.0	2023	2053	Dec 20, 2022	Gulp	NextDecade	Portugal / US	0.13	20.0	n.a.	n.a.
Mar 24, 2022	Guangdong Energy	NextDecade	China / US	0.20	20.0	2026	2046	Dec 20, 2022	Shell	Oman LNG	UK/Oman	0.11	10.0	2025	2035
Mar 29, 2022	ENN	Energy Transfer	China / US	0.36	20.0	2026	2046	Jan 25, 2023	PKN ORLEN	Sempra Infrastructure	EU/US	0.13	20.0	2027	2047
Apr 1, 2022	Guangzhou Gas	Mexico Pacific Ltd	China / Mexico	0.26	20.0	n.a.	n.a.	Jan 30, 2023	BPOTAS	Oman	Turkey / Oman	0.13	10.0	2025	2035
Apr 6, 2022	ENN	NextDecade	China / US	0.26	20.0	2026	2026	Mar 27, 2023	Shell	Mexico Pacific Ltd	UK / Mexico	0.15	20.0	2026	2046
Apr 22, 2022	Kogas	BP	Korea / US	0.20	18.0	2025	2043	Apr 24, 2023	Hartree Partners LP	Defin Midstream	US / US	0.08	20.0	n.a.	n.a.
May 2, 2022	Gumir Singapore Pte	Energy Transfer	Singapore / US	0.26	20.0	2026	2046	Jun 21, 2023	Equinor	Cheniere	Norway / US	0.23	15.0	2027	2042
May 3, 2022	SK Gas Trading LLC	Energy Transfer	Korea / US	0.05	18.0	2026	2042	Jun 22, 2023	SEFE	Venture Global LNG	EU/US	0.30	20.0	2026	2046
May 10, 2022	Exxon Asia Pacific	Venture Global LNG	Singapore / US	0.26	n.a.	n.a.	n.a.	Jul 14, 2023	ONEE (Morocco)	Shell	Africa/US	0.05	12.0	2024	2036
May 11, 2022	Petronas LNG	Venture Global LNG	Malaysia / US	0.13	20.0	n.a.	n.a.	Jul 18, 2023	IOCL	Adnoc	India/UAE	0.16	14.0	2026	2040
May 24, 2022	Hameln Energy	TotalEnergies	Korea / France	0.08	15.0	2026	2036	Aug 28, 2023	OMV	BP	Austria/UK	0.13	10.0	2026	2036
May 25, 2022	POSCO International	Cheniere	Korea / US	0.05	20.0	2026	2036	Aug 4, 2023	ConocoPhillips	Mexico Pacific Ltd	US/Mexico	0.29	20.0	2025	2045
June 5, 2022	China Gas Holdings	Energy Transfer	China / US	0.09	25.0	2026	2051	Aug 22, 2023	BASF	Cheniere	Germany / US	0.10	17.0	2026	2043
Jul 5, 2022	China Gas Holdings	Cheniere	China / US	0.13	1.0	2026	2036	Aug 30, 2023	Shell	Oman LNG	US / Oman	0.11	10.0	2025	2035
Jul 20, 2022	PetroChina	Cheniere	China / US	0.24	24.0	2026	2050	Oct 11, 2023	TotalEnergies	QatarEnergy	France / Qatar	0.46	27.0	2026	2053
Jul 26, 2022	PTT Global	Cheniere	Thailand / US	0.13	20.0	2026	2046	Oct 18, 2023	Shell	QatarEnergy	Netherlands / Qatar	0.46	27.0	2026	2053
Jul 27, 2022	Exxon Asia Pacific	NextDecade	Singapore / US	0.13	20.0	2026	2046	Oct 23, 2023	ENI	QatarEnergy	Italy / Qatar	0.13	27.0	2026	2053
Sep 2, 2022	Woodside Singapore	Commonwealth	Singapore / US	0.33	20.0	2026	2046	Oct 31, 2023	Viol	Chesapeake Energy	Sweden / US	0.13	15.0	2026	2043
Nov 21, 2022	Sinopec	QatarEnergy	China / Qatar	0.53	27.0	2026	2053	Nov 29, 2023	OMV	Netherlands / US	0.11	15.0	2029	2044	
Dec 26, 2022	INPEX	Venture Global LNG	Japan / US	0.13	20.0	n.a.	n.a.	Dec 5, 2023	Woodside Energy	Mexico Pacific Ltd	Australia / Mexico	0.17	20.0	2024	2044
Dec 27, 2022	JERA	Oman LNG	Japan / Oman	0.11	10.0	2025	2035	Mar 16, 2024	SEFE	ADNOC	Germany / UAE	0.13	20.0	2024	2044
Jan 19, 2023	ITOCHU	NextDecade	Japan / US	0.13	15.0	n.a.	n.a.	Apr 17, 2024	Shell	Oman LNG	US / Oman	0.21	10.0	2025	2035
Feb 7, 2023	Exxon Asia Pacific	Mexico Pacific Ltd	Singapore / Mexico	0.26	20.0	n.a.	n.a.	Apr 22, 2024	TotalEnergies	Oman LNG	France / Oman	0.11	10.0	2025	2035
Feb 23, 2023	China Gas Holdings	Venture Global LNG	China / US	0.26	20.0	n.a.	n.a.	May 8, 2024	EnBW	ADNOC	Germany / UAE	0.08	15.0	2026	2043
Mar 6, 2023	Gumir Singapore Pte	Chesapeake Energy	Singapore / US	0.26	15.0	2027	2042	June 13, 2024	Saudi Aramco	NextDecade	Saudi Arabia / US	0.16	20.0	2026	2048
Apr 28, 2023	JERA	Venture Global LNG	Japan / US	0.13	20.0	n.a.	n.a.	June 26, 2024	Saudi Aramco	Sempra Infrastructure	Saudi Arabia / US	0.66	20.0	2029	2049
May 16, 2023	KOSPO	Cheniere	Korea / US	0.05	19.0	2027	2046	July 23, 2024	Fluys	ConocoPhillips	Belgium / US	0.10	18.0	2027	2045
Jun 1, 2023	Bangladesh Oil	QatarEnergy	Bangladesh / Qatar	0.24	15.0	2026	2031	Aug 5, 2024	Gulp	Cheniere	Portugal / US	0.07	20.0	2030	2050
Jun 21, 2023	Petro Bange	Oman	Bangladesh / Oman	0.20	10.0	2026	2036	Sep 19, 2024	Unipac	ConocoPhillips	Germany / US	0.10	10.0	2026	2036
Jun 21, 2023	CNPC	QatarEnergy	China / Qatar	0.53	27.0	2027	2054	Sep 19, 2024	Glencore	Commonwealth LNG	Switzerland / US	0.26	20.0	2026	2046
Jun 26, 2023	ENN LNG	Cheniere	Singapore / US	0.24	20.0	2026	2046	Sep 19, 2024	SEFE	ConocoPhillips	US / European	0.09	10.0	2025	2035
Jul 5, 2023	Zhejiang Energy	Mexico Pacific Ltd	China / Mexico	0.13	20.0	2027	2047	Total Non-Asian LNG Buyers New Long Term Contracts Since Jul/21							
Aug 8, 2023	LNG Japan	Woodside	Japan / Australia	0.12	10.0	2026	2036	Total New Long Term LNG Contracts since Jul/21							
Sep 7, 2023	Petrochina	China / UAE	n.a.	n.a.	n.a.	n.a.	n.a.	26.66							
Nov 2, 2023	Foan	Cheniere	China / US	0.12	20.0	n.a.	n.a.	*Excludes Asian short term/spot deals							
Nov 4, 2023	Sinopec	QatarEnergy	China / Qatar	0.39	27.0	2026	2053	*on Dec 20, 2021 CNOOC agreed to buy an additional 0.13 bct/d from Venture Global for an undisclosed shorter period							
Nov 27, 2023	Gumir Singapore Pte	Defin Midstream	Singapore / US	0.10	15.0	n.a.	n.a.	Source: Bloomberg, Company Reports							
Dec 20, 2023	ENN	Singapore / UAE	India / Singapore	0.13	10.0	2026	2036	Prepared by SAF Group. https://safgroup.ca/news-insights/							
Jan 5, 2024	GAIL	Viol	India / Singapore	0.13	10.0	2026	2036								
Jan 8, 2024	Shell	Kai Usins LNG	Singapore / Canada	0.26	20.0	2027	2047								
Jan 16, 2024	ExxonMobil	Singapore Pacific Ltd	Singapore / Mexico	0.16	20.0	2024	2044								
Jan 29, 2024	ExxonMobil	QatarEnergy	Bangladesh / Qatar	0.13	15.0	2026	2041								
Jan 30, 2024	ADNOC	GAIL India	UAE / India	0.07	10.0	2024	2034								
Feb 6, 2024	Petronas LNG	India / Qatar	India / Qatar	0.99	20.0	2026	2048								
Feb 19, 2024	Deepak Fertilisers	Equinor	India / Norway	0.09	15.0	2026	2041								
Feb 26, 2024	Kogas	Woodside	Korea / Australia	0.07	10.5	2026	2037								
Feb 29, 2024	Sembcorp	TotalEnergies	Singapore / France	0.11	16.0	2027	2043								
Apr 29, 2024	Kogas	BP	Korea / Singapore	0.12	11.0	2026	2037								
May 26, 2024	AMNS	Shell	India / Canada	0.05	10.0	2027	2037								
May 28, 2024	Hakado	Santos	Japan / Australia	0.05	10.0	2027	2037								
Jun 4, 2024	IOCL	TotalEnergies	India / France	0.11	10.0	2026	2036								
Jun 5, 2024	CPC	QatarEnergy	Taiwan / Qatar	0.53	27.0	2025	2052								
Jul 11, 2024	CPC	Woodside	Taiwan / Australia	0.79	10.0	2024	2034								
Aug 8, 2024	Oskia Gas	ADNOC	Japan / UAE	0.11	10.0	2026	2036								
Aug 26, 2024	KPC	QatarEnergy	Kuwait / Qatar	0.39	15.0	2025	2040								
Aug 26, 2024	POSCO International	Mexico Pacific Ltd	Korea / Mexico	0.09	20.0	2027	2047								
Sep 2, 2024	BOTAS	Shell	Turkey / UAE	0.29	10.0	2027	2037								
Sep 2, 2024	Indian Oil	ADNOC	India / UAE	0.13	15.0	2026	2043								
Sep 17, 2024	JERAS	Woodside Energy	JERA / Woodside	0.05	10.0	2026	2036								
Sep 24, 2024	BOTAS	TotalEnergies	Turkey / France	0.15	10.0	2027	2037								
Nov 4, 2024	AMNS	TotalEnergies	China / France	0.26	15.0	2028	2043								
Total Asian LNG Buyers New Long Term Contracts Since Jul/21								16.29							

Natural Gas: ECMWF forecasts a warmer Dec/Jan/Feb in Japan and Northern China

On Wednesday, we tweeted [LINK](#) “Asia forecast warmer than normal temperatures in Dec/Jan/Feb in Japan and for northern part of China incl Beijing. @ECMWF update. Rest of China mostly normal temp. Not as hot as winter 23/24 but warm enough to be cautious on #LNG going into the winter. #OOTT”. Winter temperatures are key to natural gas and LNG prices. Last month, we highlighted the ECMWF forecasts for a warm start to winter in Asia. On Wednesday, our tweet referenced the new ECMWF short term temperature forecast for Asia that forecast a warmer than normal winter in Japan and Northern China including around Beijing. It reminds that most will remain cautious until they see winter isn’t turning out to be warmer than normal. We recognize weather forecasts are far from 100%, and we also remind that the winter is not forecasted to be as warm as the very 2023-24 winter. The European Centre for Medium Range Weather Forecasts (ECMWF) updated its seasonal forecast with a November base time for Asia for winter. The ECMWF expects a warmer than normal Dec/Jan/Feb in Japan and Northern China, which includes Beijing, the rest of China is primarily expected to have normal winter temperatures. The ECMWF didn’t provide any commentary.

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

Figure 7: ECMWF Nov updated seasonal DJF temperature forecast for Asia

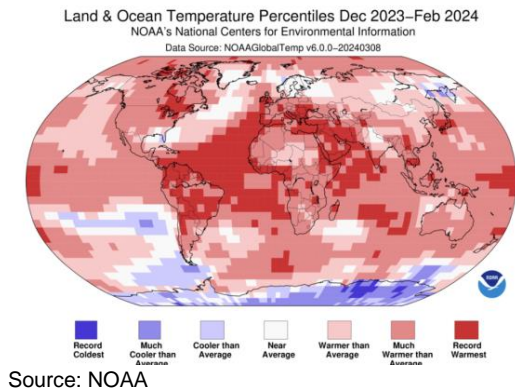


Source: ECMWF

Asia winter 2023/24 (DJF) was 10th warmest on record

Our tweet on the ECMWF temperature forecast for Asia being warmer than normal included NOAA's map from its global temperature recap for winter 2023/24 [LINK](#). We said that the current ECMWF temperature forecast isn't expected to be as hot as last winter in Asia. Overall for winter Dec/Jan/Feb 2023/24 temperatures, NOAA ranked Asia as the 10th warmest on record, which included Japan at its record warmest winter. Below is NOAA's land & ocean temperature percentiles for Dec 2023-Feb 2024.

Figure 8: Land & Ocean Temperature Percentiles for Dec 2023-Feb 2024



Natural Gas: Japan expects warmer than normal temps to end Nov and start of Dec.

It was a hot summer in Japan and the warmer than normal temperatures continued through October and are expected to continue through to the beginning of December. On Thursday, the Japan Meteorological Agency updated its temperature forecast for the next 30 days, Nov 9 thru Dec 12, in Japan [\[LINK\]](#). There is no JMA commentary on the forecast. JMA is calling for above normal temperatures for all of November and the beginning of December. There is a +70% probability of above normal temperature occurrence everywhere during the period. It is important to note the above average temperatures expected during the end of November and first week of December to start winter. We checked AccuWeather for Tokyo and, for November, there are forecasted daily highs in the 14-17C range and overnight lows from 7-9C. This will be pleasant daytime weather but potentially a little bit of electricity heating demand at night. Below is the JMA temperature forecast for the end of November and beginning of December.

**JMA temperature
forecast for the
next 30 days**

Figure 9: JMA Average Temperature Outlook for Nov 23 – Dec 6



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

On Thursday, Japan's Ministry of Finance posted its import data for September [\[LINK\]](#). The MOF reported Japan's September LNG imports were 8.69 bcf/d, down -2.1% MoM from August which was 8.87 bcf/d, and down -1.7% YoY from 8.84 bcf/d in September 2023. Japan's thermal coal imports in September were +27.8% YoY and Petroleum Products imports were -2.8% YoY. Below is our table that tracks Japan LNG import data.

**Japan LNG
imports in
September**

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Figure 10: 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		
Nov	11.00	10.71	12.07	10.26	10.15	10.03	9.63	9.38	8.88	8.53		
Dec	12.79	12.51	11.69	12.31	11.23	10.54	11.96	10.89	9.39	10.06		

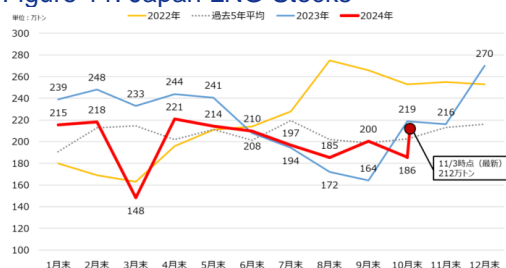
Source: Japan Ministry of Finance, SAF

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

It's been a warm fall in Japan, which means no significant weather driven electricity demand. Japan's LNG stocks are up WoW, are down YoY, and are down when compared to the 5-year average. On Wednesdays, Japan's METI releases its weekly LNG stocks data [\[LINK\]](#). LNG stocks on November 3 were 101.8 bcf, up +2.4% WoW from October 27 of 99.4 bcf, and down -1.9% from 103.7 bcf from a year ago. Stocks are down compared to the 5-year average of 102.3 bcf. Below is the Japanese LNG stocks graph from the METI weekly report.

**Japan LNG stocks
up WoW**

Figure 11: Japan LNG Stocks



Source: METI

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

We continue to highlight that, where possible, China favors imports of cheaper natural gas from pipelines over more expensive LNG imports but will take advantage of lower LNG spot pricing when possible. But since China has been taking maximum pipeline natural gas from Russia in 2023, it created a higher base for YoY comparisons and China is only able to have more modest YoY increases. China's General Administration of Customs (GACC) provided the split of natural gas imports via LNG vs pipeline for September [\[LINK\]](#). i) LNG imports. GACC reported that over September, China imported 10.95 bcf/d of LNG, up +8.1% MoM from 10.13 bcf/d in August and up +20.2% YoY from 9.11 bcf/d in September 2023. ii) Natural Gas via pipeline imports. GACC reported that over September, China imported 8.25 bcf/d of natural gas via pipeline, which is up +1.9% MoM from 8.09 bcf/d in August and +15.5% YoY from 7.14 bcf/d in September 2023. China has been benefitting from cheap natural gas exports from Russia but have also been opportunistic in their buying of LNG given weak spot prices in recent months.

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

Here is what we wrote in our June 9, 2024 Energy Tidbits memo. "For years, we

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

Natural Gas: Could Russian natural gas return in 2023 with a Ukraine deal?

We don't know if it's all, but it must very close to all commentators expecting Trump's election will force/convince Zelensky to do a deal with Putin and do so quickly ie. likely within days of Trump's inauguration on Mon Jan 20, 2025. And the consensus is that any deal, on a territory basis, is likely to be more in line with Putin's acceptable deal. Zelensky was widely reported to say, post his Thursday meeting with European leaders, that any concessions by Ukraine would be unacceptable to Ukraine and suicidal for all of Europe. And "we would like a fair ending to the war" and "A quick ending would be a loss." Territorial issues aside, the energy markets have focused on the potential for Russia oil to more freely trade. The other significant energy question is what happens to Russian LNG and pipeline natural gas. The return of cheap pipeline natural gas to Germany would be a big boost to German industry.

Could Russian natural gas return?

Putin would do a Ukraine deal incl "fact that we have new regions"

Putin held his big annual Q&A at the plenary session of the annual meeting of the Valdai International Discussion Club on Thursday. Putin was asked about a potential near-term deal with Ukraine and he seemed to added a little more to what he has been saying is an acceptable deal. He seemed to say a deal works taking into account the new lands that have come under Russia control. It makes sense as this was after Trump's win and Putin would feel he will can ask for more. On Friday, we tweeted [LINK](#) "Near-term Ukraine/Russia ceasefire/deal could see even more lands to Russia. Putin "Yes, or course, it is possiblefixing the new borders of Ukraine along the line of division, and, perhaps, even taking into account the fact that we have new regions" #OOTT." Our tweet included the TASS report that said "'Yes, of course, it is possible," he said, answering a question about the possibility of ending the Ukrainian conflict. - It has long been known that [the conditions for ending the conflict] are neutral Ukraine, fixing the new borders of Ukraine along the line of division, and, perhaps, even taking into account the fact that we have new regions. So there was some chance." Our Supplemental Documents package includes the TASS report.

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

It's been over a few month since Ukraine invaded the Russian region of Kursk and took over control of the Sudzha natural gas intake station in Russia for transport on the last remaining open natural gas intake station in Russia for transport on the last remaining open natural gas pipeline allowed to export Russian natural gas to central European countries. Europe TTF gas prices were up 5% when Ukraine took over Sudzha on fears of supply interruption. However, since then Gazprom has confirmed almost daily, if not daily, that there has been no interruption in natural gas supplies. Bloomberg reports on the Gazprom volumes most days and the latest confirmation we saw was the Bloomberg Friday Nov 8 report that Gazprom continues to ship the same volume of natural gas of 1.50 bcf/d via Sudzha. That shouldn't surprise because if Gazprom stops natural gas from entering the pipeline at Sudzha, they will be forsaking any export natural gas revenues and Russia needs every dollar it can get. And, at the same time, Ukraine continues to take the transit fees revenue. So, for now at least, it looks like a reminder from Ukraine to Russia that they can cut off Russian natural gas at any time. Below is a 2018 map from Oxford Institute for Energy Studies showing Sudzha.

**Ukraine captures
key Russian gas
infrastructure**

Figure 12: The Ukrainian pipeline system



Source: OIES

Source: Oxford Institute for Energy Studies

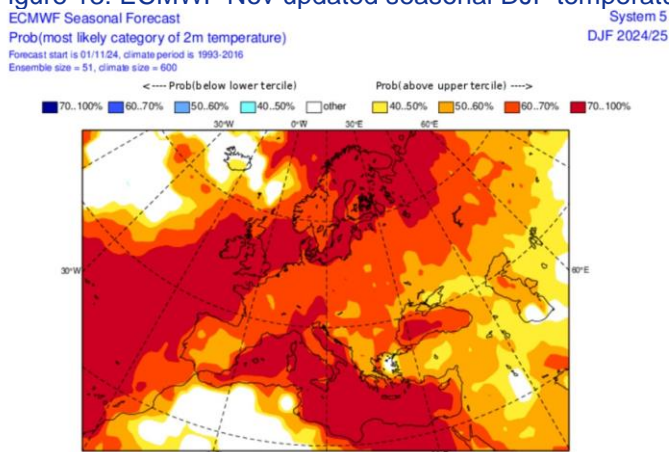
Natural Gas: ECMWF forecasts a warmer than normal Dec/Jan/Feb across Europe

On Wednesday, we tweeted [\[LINK\]](#) "Reason to be cautious on Europe #NatGas going into the winter. @ECMWF updated Dec/Jan/Feb temperature forecast is for warmer than normal temperatures across Europe. Absent unexpected supply interruption, warm winters are never positive for #NatGas #OOTT". Winter temperatures are key to natural gas and LNG prices; the forecast for a warmer than normal winter in Europe is a reminder that most will remain cautious until there is visibility on how long it will stay warmer than normal to start winter. We recognize weather forecasts are far from 100%, and we also remind that the winter is not forecasted to be as warm as the 2023-24 winter. Last winter, it was way warmer than normal around the world and the warm winter LNG, TTF and HH prices relatively weak all year. The European Centre for Medium Range Weather Forecasts (ECMWF) posted its Nov updated DJF seasonal temperature forecast for Europe. The Nov update is a continuation to the Oct update that called for a warm start to winter, and now warmer temperatures across Europe for the DJF winter months. The ECMWF didn't provide any commentary.

**Forecast warmer
than normal
temps across
Europe**

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Figure 13: ECMWF Nov updated seasonal DJF temperature forecast for Europe

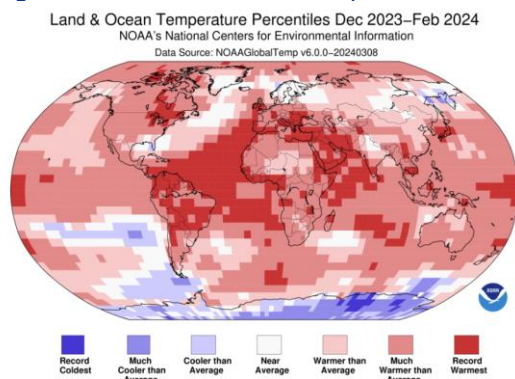


Source: ECMWF

Europe winter 2023/24 (DJF) was 2nd warmest on record

Our tweet on the ECMWF temperature forecast for Asia being warmer than normal included NOAA's map from its global temperature recap for winter 2023/24 [\[LINK\]](#). Overall for winter Dec/Jan/Feb 2023/24 temperatures, NOAA ranked Europe as the 2nd warmest on record despite normal temperatures in northern Europe. NOAA wrote "Europe recorded its second-warmest winter on record at 2.74°C (4.93°F) above the 20th century average." "Germany experienced its third warmest winter on record, 2.7°C above the 1991–2020 average." Below is NOAA's land & ocean temperature percentiles for Dec 2023-Feb 2024.

Figure 14: Land & Ocean Temperature Percentiles for Dec 2023-Feb 2024



Source: NOAA

Natural Gas: NW Europe LNG imports down big -479 bcf, -1.57 bcf/d YoY thru Nov 4

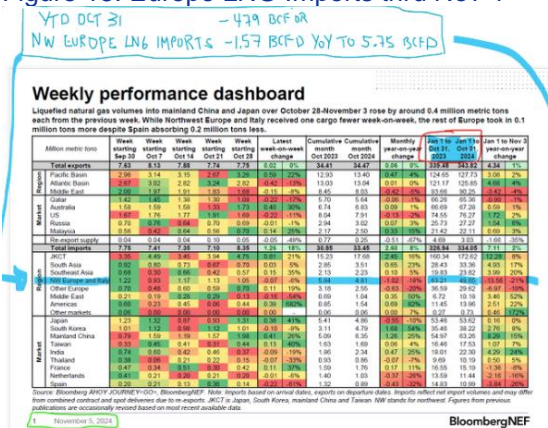
On Wednesday, we tweeted [\[LINK\]](#) "NW Europe #LNG imports -0.35 bcf/d WOW to 5.30 bcf/d for week Oct 28-Nov 4 Storage would be full if NW EU hadn't cut back LNG imports in Q2/Q3. YTD Oct 31, NW EU #LNG imports -479 bcf YoY or -1.57 bcf/d YoY to 5.75 bcf/d to YTD Oct 31 If not for Israel/Iran or RUS/UKR risk, EU #NatGas prices would be lower going

**Europe LNG
 imports down big
 in 2024**

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into winter. Thx @BloombergNEF #OOTT". The LNG market story continues to consider, to some modest degree, potential supply risks from a number of factors including if an Israel/Iran escalates and impacts LNG and oil tanker traffic thru the Strait of Hormuz, or Israel's Mediterranean Sea natural gas production was impacted or if Russia/Ukraine escalates to impact Europe winter natural gas supply. If not for this escalation risk, we have been highlighting that there is a big holdback to Europe natural gas prices; that being, Europe's gas storage would be way worse if it hadn't significantly reduced LNG imports over Q2 and Q3 due to the possibility of storage being full early. LNG imports into NW Europe are down big YoY in 2024. On Tuesday, BloombergNEF posted its LNG Trade Weekly. BloombergNEF estimates NW Europe LNG imports were -0.35 bcf/d WoW to 5.30 bcf/d for the Oct 28-Nov 4 week. NW Europe LNG imports that are down -479 bcf YoY or -1.57 bcf/d YoY for YTD Nov 4. Our tweet included the below BloombergNEF chart.

Figure 15: Europe LNG Imports thru Nov 4



Source: BloombergNEF

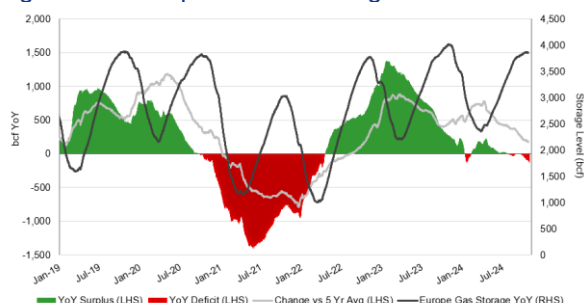
Natural Gas: Europe storage down -1.1% WoW to 94.1% full, down -5.5% YoY

As noted above, Europe gas storage would have been effectively full if they hadn't cut back on LNG imports in Q2 and Q3. We have been highlighting that a big LNG theme in Q2 and Q3 was how NW Europe reduced LNG imports because storage was very high YoY leaving winter 2023/24. It got to +95% full, which we have been saying was what we considered to be effectively full. This week, Europe storage was down -1.1% WoW to 94.1% vs 95.2% on October 31. Storage is now down -5.5% from last year's levels of 99.6% on November 7, 2023, but up against the 5-year average of 92.5%. Below is our graph of European Gas Storage Level.

Europe gas
storage

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Figure 16: European Gas Storage Level

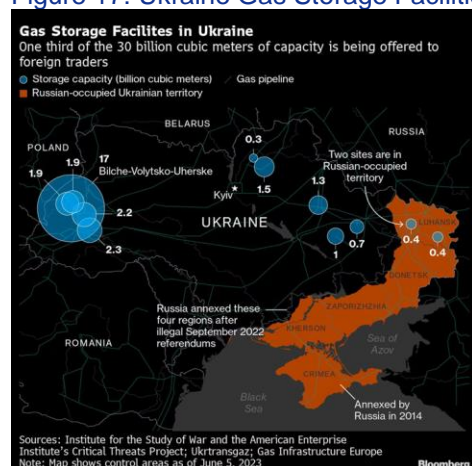


Source: Bloomberg, SAF

Ukraine storage is currently ~8% 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 November 6, 2024, natural gas in Ukraine storage was at 26.7% of its total capacity, flat compared to 27.2% of its total capacity on October 30. Last year, Ukraine storage started the winter on Nov 1, 2023, at 39.38%. Right now, Ukraine makes up ~8% 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 17: Ukraine Gas Storage Facilities as of June 2023



Source: Bloomberg

Oil: U.S. oil rigs flat WoW and down -15 rigs YoY to 479 oil rigs

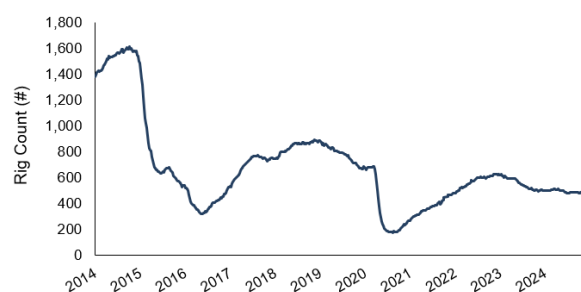
On Friday, Baker Hughes released its weekly North American drilling rig data. (i) Note Baker Hughes no longer breaks out the basin changes by oil vs gas rig type. (ii) Total U.S. oil rigs

**US oil rigs flat
WoW**

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were flat WoW at 479 oil rigs as of November 8, 2024. US oil rigs are now only down -15 oil rigs YoY. The smaller YoY difference is because, in 2023, US oil rigs went below 520 rigs on Aug 25, 2023 and then were lower in the 490-510 rigs for several months. But then dropped down to 477 on July 19, 2024, which was the lowest oil rig count since December 2021. U.S. Oil rigs are currently down -15 YoY, and nearing the recent lows in July 2024 (iii) Note we can see the basin changes but not by type of rig; the WoW basin changes were, Ardmore Woodford down -1 rig WoW to 1 rig, DJ Niobrara down -1 rig WoW to 7 rigs, Cana Woodford up +1 rig WoW to 21 rigs, Granite Wash down -1 rig to 3 rigs, Haynesville down -1 rig to 32 rigs, and Marcellus +1 rig to 24 rigs. (iv) The overlooked U.S. rig theme is the YoY declines, which have begun to taper as Q4 2023 saw activity leveling off, however, it is still important to note the YoY change. Total U.S. gas and oil rigs are down -31 rigs YoY to 581 rigs including US oil rigs -15 oil rigs YoY to 479 oil rigs. And for the key basins, the Permian is -7 rigs YoY, Haynesville is -5 rigs YoY, DJ Niobrara is -7 rigs YoY, Marcellus -3 rigs YoY, Williston up +3 rigs YoY, Arkoma Woodford up +2 YoY, Granite Wash is down -3 rigs YoY, Eagle Ford is down -3 rigs YoY, Barnett up +2 rigs YoY, Mississippian -1 rig YoY, and Cana Woodford +8 rigs YoY. (v) US gas rigs were flat this week at 102 gas rigs. It is important to note that U.S. gas rigs will need to increase over the next several months as more U.S. LNG capacity comes onstream in 2025. Lastly, U.S. miscellaneous rigs are flat WoW, and flat YoY.

Figure 18: Baker Hughes Total US Oil Rigs



Source: Baker Hughes

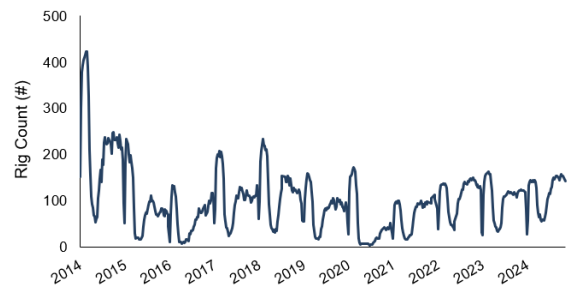
Oil: Total Cdn oil rigs down -4 WoW on Friday, with gas rigs -2 WoW

On Friday, Baker Hughes released its weekly North American drilling rig data. This week's total oil and gas rig count was down -6 rigs WoW from 213 rigs on November 8. Every year, Canadian rigs typically increase until mid-October, where remain relatively flat until late November when they begin ramping up until the end of December. However this week, we saw a slight fall in line with depressed AECO pricing for the week. Cdn oil rigs were down -4 rigs WoW this week to 142 rigs and are up +17 rigs YoY. Gas rigs are down -2 rig WoW to 65 rigs and are down -9 rigs YoY, and miscellaneous rigs are flat WoW and YoY at 0 rigs total. As a reminder Baker Hughes changed their reporting format which does not allow us to see the provincial breakouts.

**Cdn rigs -6
WoW**

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Figure 19: Baker Hughes Total Cdn Oil Rigs



Source: Baker Hughes

Oil: US weekly oil production flat WoW at 13.500 mmb/d

We don't place as much emphasis on the EIA weekly oil supply estimates as others do because we recognize the near impossibility for anyone to post an accurate estimate on a Wednesday for the totality of US oil production for the week ended the prior Friday [\[LINK\]](#). We have to give the EIA credit for putting out weekly oil supply estimates for the prior week. That can't be easy so no one should be surprised that the EIA weekly oil supply estimates, based on the Form 914 actuals, will regularly require re-benchmarking; sometimes the re-benchmarking can be significant and other times, it is relatively small. The EIA's weekly oil supply estimates had been essentially unchanged for the last nine months ranging from 13.100 to 13.300 mmb/d with the weekly estimates in July all at 13.300 mmb/d. This week's estimate came is slightly above the previous range, flat WoW at 13.500 mmb/d for the week ending November 1. On October 8, the EIA released its October STEO and the EIA provides the backup monthly estimates for US oil production, and they are more or less in line with July at 13.200 mmb/d, August at 13.360 mmb/d, and September at 13.250 mmb/d. This week, the EIA's production estimates were flat WoW at 13.500 mmb/d for the week ended November 1. Alaska was down -0.007 WoW to 0.428 mmb/d, compared to 0.435 mmb/d last week. Below is a table of the EIA's weekly oil production estimates.

US weekly oil
production

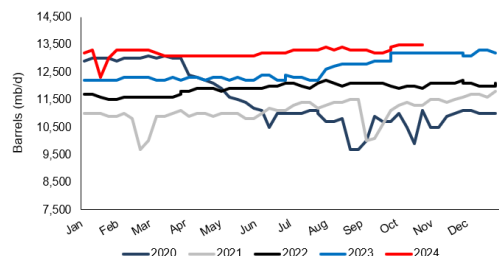
Figure 20: EIA's Estimated Weekly US Field Oil Production (mb/d)

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

Source: EIA

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Figure 21: EIA's Estimated Weekly US Oil Production



Source: EIA

Oil: Diamondback, high \$60s oil should keep cautious Permian drilling

Our position on Trump's drill baby drill leading to lower oil prices hasn't changed – we don't see US oil companies cranking up drill especially if it will lead to lower oil prices. We can't see them abandoning their returns to shareholders models and returning to the old days of growth at any cost. And we believe 2024 has shown that oil prices in the high \$60s isn't high enough to lead to any big increase in oil drilling. Diamondback, one of the big Permian players, reinforced that oil in the high \$60s shouldn't be enough for industry to crank up drilling. On Tuesday, Diamondback held its Q3 call and we tweeted [\[LINK\]](#) *"WTI in high \$60s should be a price that makes Permian plays cautious as opposed to drill baby drill. But Diamondback warns not all US players get this concept. 'macro environment for oil prices and near-term global oil supply and demand dynamics remains volatile at best and tenuous at worst' 'Should oil prices weaken from current levels, we will make the correct capital allocation decision and focus on Free Cash Flow generation and capital efficiency over oil volumes.' 'I think being cautious when things are -- when oil is in the high 60s and you have pockets of geopolitical premium coming in and out is a prudent thing to do. So at the end of the day, the lowest-cost operators should be producing the last barrel in the basin. But I think that spreadsheet math is what's gotten this industry in trouble in the past and feels like we're getting ourselves in trouble again. So I think again, I can't hammer enough that free cash flow trumps CapEx at Diamondback these days.' #OOTT."*

**Diamondback on
Permian drilling**

Oil: EIA, US tight "oil" plays get gassier over time

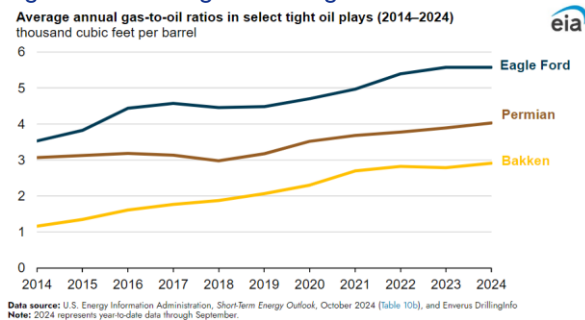
With Trump's win, it seemed like more people have started to drill down more on US shale/tight plays. One of the topics was on US shale/tight "oil" plays becoming gassier over time. Here is what we wrote in last week's (Nov 3, 2024) Energy Tidbits memo. *"This should not surprise anyone to see the EIA remind that the share of natural gas production in US tight oil plays has increased over the last decade. We have been highlighting this concept for a decade or more of oil and gas fundamentals for oil wells that produce associated natural gas. And this is what we see for the 'oil' plays in the Permian, Eagle Ford, Bakken, Niobrara. As any oil well that produces associated natural gas produces over time, the producing zone loses pressure and that means the more freely moving associated natural gas will increase in proportion of the hydrocarbons moving into the wellbore. I.e. the gas to oil ratio increases. On Thursday, the EIA posted a blog 'Share of natural gas production in U.S. tight oil plays increased over the last decade' [\[LINK\]](#). The EIA wrote 'Natural gas produced from the three largest tight oil-producing plays in the United States has increased in the last decade. Natural gas comprised 40% of total production from the Bakken, the Eagle Ford, and the Permian*

**US tight "oil"
plays get gassier**

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compared with 29% in 2014. Combined crude oil and natural gas production from these plays more than doubled over this period as hydraulic fracturing—also known as fracking—and horizontal drilling have allowed producers to access and extract more crude oil and natural gas from tight formations. However, production of associated natural gas, which is natural gas produced from predominantly oil wells, has increased more rapidly from these tight oil plays. Natural gas production from these plays more than tripled—an increase of 22 billion cubic feet per day (Bcf/d)—over the period compared with crude oil output, which more than doubled—an increase of 4 million barrels per day (b/d).” And “As more oil and natural gas are released within a well, the GOR tends to progressively increase, increasing the volume of associated natural gas produced per every barrel of oil. Pressure within the reservoir declines as more oil is brought to the surface, which allows more natural gas to be released from the geologic formation. The pressure will also decrease as more wells are concentrated within an area.” Our Supplemental Documents package includes the EIA blog.”

Figure 22: Average annual gas-to-oil ratios in select tight oil plays 2014-2024

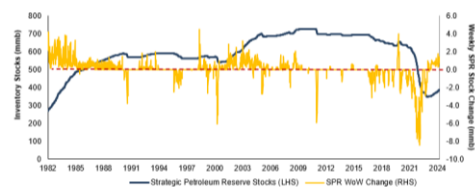


Oil: US SPR less commercial reserve deficit widens, now -40.435 mmb

The US Strategic Petroleum Reserves (SPR) continues to be much lower than total US commercial crude oil reserves. The SPR went back below commercial for the first time since 1983 in the Sep 16, 2022, week. This week, we saw a build on the SPR side and a build on the commercial side. The EIA's weekly oil data for November 1, [\[LINK\]](#) saw the SPR reserves increase +1.392 mmb WoW to 387.223 mmb, while commercial crude oil reserves increased +2.149 mmb to 427.658 mmb. There is now a -40.435 mmb difference between SPR reserves and commercial crude oil reserves. The below graphs highlight the difference between commercial and SPR stockpiles, along with the weekly changes to SPR stockpiles.

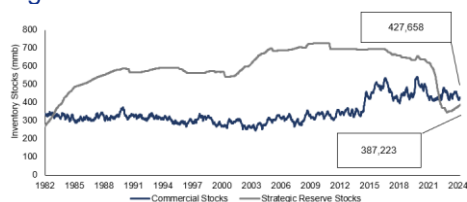
US SPR reserves

Figure 23: Strategic Petroleum Reserve Stocks and SPR WoW Change



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Figure 24: US Oil Inventories: Commercial & SPR



Source: EIA

Figure 25: US Oil Inventories: SPR Less Commercial



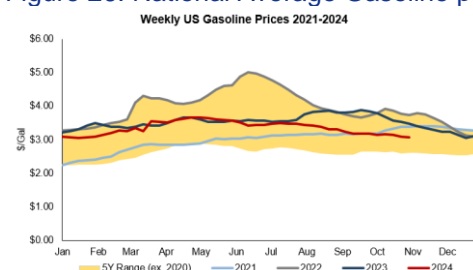
Source: EIA

Oil: AAA reports US national average gasoline price -\$0.02 WoW to \$3.09 on Nov 9

Yesterday, we tweeted [LINK](#) "AAA National average prices -\$0.02 WoW to \$3.09 on Nov 9, -\$0.12 MoM & -\$0.31 YoY. California average prices -\$0.04 WoW to \$4.51, -\$0.17 MoM & -\$0.60 YoY. Grocery prices, not gasoline prices, were the bigger factor in election. Thx @AAAnews #OOTT." Yesterday, AAA reported that US national average prices were \$3.09 on Nov 9, which was -\$0.02 WoW, -\$0.12 MoM, and -\$0.31 YoY. Yesterday, AAA also reported California average gasoline prices were \$4.51 on Nov 9, which was -\$0.04 WoW, -\$0.17 MoM and -\$0.60 YoY. Below is our graph of Bloomberg's National Average weekly gasoline prices.

US gasoline prices

Figure 26: National Average Gasoline prices



Source: Bloomberg

Oil: Crack spreads +\$0.48 WoW to \$17.30, WTI +\$0.89 WoW to \$70.30

On Friday, we tweeted [LINK](#) "321 crack spreads +\$0.48 WoW to \$17.30 on Nov 8. WTI +\$0.89 WoW to \$70.30. Cracks were fairly flat all week. WTI was up & down on Thurs/Fri as markets guess on Trump impact. \$17.30 cracks not high enough to incentivize refineries to take extra crude. Thx @business #OOTT." Cracks spreads were +\$0.48 WoW to \$17.30 on Nov 8 and WTI was +\$0.89 WoW to \$17.30. Crack spreads were fairly flat every day this

Crack spreads closed at \$17.30

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week. WTI was flat until the US election and then moved up on Thurs and back down on Friday as markets try to guess on how Trump will impact oil markets. But, as a general rule, over the past two months, WTI has been driven more, both up and down, by China economy views in response to the stimulus and Israel/Iran risk. Crack spreads at \$17.30 are in line with the middle of the pre-Covid \$15-\$20 range, and generally not high enough to incentivize refineries to take any more crude than necessary. Crack spreads of \$17.30 on Nov 8, followed \$16.82 on Nov 1, \$16.91 on Oct 25, \$16.92 on Oct 18, \$17.42 on Oct 11, \$16.65 on Oct 4, \$15.82 on Sept 27, \$15.57 on Sept 20, \$14.30 on Sept 13, \$14.79 on Sept 6, \$17.06 on Aug 30, \$17.10 on Aug 23, \$20.75 on Aug 16, and \$22.92 on Aug 9.

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

It hasn't been normal times for oil markets for the past few months with Iran/Israel, Chinese stimulus and other factors. So for the most part, the last two months are good examples that global oil and market items impact WTI more than crack spreads. As noted above, cracks spreads were fairly flat all week but WTI had some up and down moves to end the week as markets tried to guess on the Trump impact on oil. 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. Plus, this year, as noted below, we have less US refinery turnarounds so there is less refinery capacity offline this fall than prior years. 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 \$17.30 on Friday Nov 8.

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Figure 27: Cushing Oil 321 Crack Spread & WTI Nov 8, 2014 to Nov 8, 2024



Source: Bloomberg

Oil: Cdn oil plays keep getting bigger and better with new emerging value

This will be busy week for smaller Cdn oil producers reporting Q3 and we expect to see continued strong results from the multi-leg no-frack oil plays. Here is what we wrote in last week's (Nov 3, 2024) Energy Tidbits memo on these plays. "On Tuesday, we tweeted [\[LINK\]](#) "Cdn #Oil plays keep getting better with new emerging value. Big growth potential for industry in Mannville heavy oil stack. PSK sees growth from 150 kbd back to 90s level of 350 kbd. New, previously uneconomic Mannville heavy stack zones are now economic. New oil plays in Southern Alberta from the 90s are being reopened up with fracking. Waterflood in the Clearwater is expanding & also polymer flooding (tertiary recovery) is working. See 📢 \$PSK CEO Q3 Q&A. #OOTT." PrairieSky held its Q3 call on Tuesday. (i) There were some relatively new or underappreciated developments in the Cdn oil plays. This means there is likely some hidden or newly emerging value in some of the Cdn oil producers and that also means some near-term strength in Cdn heavy/medium oil production. (ii) Big production growth potential for industry in the Mannville heavy oil stack. PrairieSky sees growth from 150,000 b/d, back to 90s level of 350,000 b/d. These are the multiple heavy oil zones that are being opened up by the tightly spaced multi leg no frack wells. Mgmt said "And then, the Mannville Stack, obviously, I think that -- you know, that's an area of the basin that once produced 350,000 barrels, it's down to 150. We think it has the easy ability to get back there, and we're the largest line owner in that place. So that's one that will be in the multi thousand barrels a day of net royalty production." (iii) There are some new, previously uneconomic Mannville heavy stack zones that are now economic with successes from the tightly spaced multi leg no frack wells. PrairieSky said "Continued refinement of both drilling techniques as well as fluid systems has not only improved economics and recovery factors, but also opened up potential on a number of new zones within the Mannville Stack that were previously uneconomic." (iv) Waterflood in the Clearwater is expanding and also polymer flooding (tertiary recovery) is working. I.e. lower effective decline rates. Mgmt said "Water flood activity across the Clearwater has continued to show positive response, lowering our declines and ultimately increasing recovery factors in this play." And this means lower decline rates and longer production lives. 25% of Clearwater is under waterflood and an unspecified is under polymer floods. Polymer as in tertiary. It's another reminder of advantages for the Cdn no-frack plays. Waterflood and now polymer flood are working. It is important to note that tertiary recovery has been implemented since the 90s. (v) Some new oil plays from the 90s are being reopened up with small fracking in southern Alberta. Just like the Mannville heavy

**Cdn oil plays keep
getting better**

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oil stack that was a big play in the 30 to 40 years ago, industry is going back to another 80's/early 90's play area – oil in southern Alberta. In the Q&A, mgmt replied “A couple of areas where we've seen some new well results are kind of Southern Alberta, people taking kind of more modern South fracs to the tighter Mannville sands like the basal quartz and seeing some really good results.” (vi) Continue to see growth potential in the Duvernay.”

10/24/22; Upside to many Cdn oil from tightly spaced multi leg no frac wells

The success of the tightly spaced multi leg no frac wells was to be expected. We have been following this development for years primarily from former oil industry coworkers/competitors in the 80s/90s. And it made it apparent that this drilling technique would be applicable to a wide range of Cdn oil plays and for big and small producers. And it is a drilling technique that should be able to be done effectively by every producer, no matter the size. Here is what we wrote in our Oct 30, 2022 Energy Tidbits memo. “We think its worth noting this “technology” development from that is applicable to a wide range of oil plays for a wide range of Cdn oil producers. This should provide upside to many Cdn oil and gas oil plays. On Wednesday, we tweeted [\[LINK\]](#) “It's Working! Upside is applicable to many Cdn #Oil plays by small/big producers. See 📌 \$CPG tightly spaced multi-leg horizontal wells without need for fracking cost/execution. Works in Viewfield, looking at Shaunavon & “see if “can apply it throughout our other assets”. #OOTT”. Crescent Point held its Q3 call on Wednesday. This seems straightforward and not any proprietary technology. It's a simple drilling concept and the reality of the world is, it's the part of drilling a well (the horizontal section) that would seem difficult to not execute. Afterall, industry has been drilling horizontal wells, especially in SE Sask, since the late 80s. This can be copied easily by any company especially small ones that are disadvantaged by not being able to access the frac spreads. Technology advancements are on plays that we have called for years crappy conventional oil zones that became way better with multi stage frac wells. We don't think the math will work as well for true shale plays, but, the reality is that most of the “new” oil plays over the past decade are crappy conventional oil zones in Canada and the US. This should make more of any potential recoverable oil reserves economic, extend the recovery factor of these pools by sweeping up more of the pool edges. This will add to reserve values as it makes previously uneconomic oil reserves economic. The concept is drilling multi-leg horizontal wells on a tight spacing without fracking. So it is a drilling cost play. And not a fracking play. Crescent Point is doing it in the Viewfield Bakken and say also the Shaunavon, but there is no reason why the concept shouldn't work in the other crappy conventional plays. And they also note that they are looking to apply it “throughout our other assets”. Here is what CPG said in the opening statement, and then in the Q&A where they explained it. It's not huge but we suspect the payouts are very quick. And the other advantage is that it becomes impossible to screw up a well, which could happen with a bad frac job. This is drilling several legs so each leg is an independent well bore. “For example, in our Viewfield Bakken play, we drilled our first multilateral open horizontal well and are now drilling a second based on the success of the first. By adopting a new well design, we have removed the need for fracture stimulation in these multilateral horizontals, expanding the economic boundaries of the play. We also continue advancing our decline mitigation

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projects throughout our Saskatchewan operations to enhance secondary recoveries and moderate future capital requirements” “Yeah, thanks for the question, Michael. So this is something that our teams have been looking at. Trying to figure out how to expand the economic boundaries of the play as you step out from the core. So with this, I think drilling has -- the drilling technology has gotten so good that -- it's a little bit cheaper now to attack some of the areas in this play with just drilling instead of having to frac. So these multilaterals are obviously tighter space than our frac wells and if you look at total recovery and initial production from a section under these multilateral wells versus our conventional frac well, you get higher production and higher reserves potentially for lower capital. So we're pretty excited about it. It's early days, 125 plus boe per day per well, and if our production hangs in and it hits our UR estimates, we probably have over 100 or more locations to go and incorporate that into our five-year plan in Viewfield. And we are looking at other areas in our portfolio i.e. like Shaunavon, obviously this area and Viewfield has a little bit better porosity permeability maybe then say Shaunavon does. So early days still, but we will to see if we can apply it throughout our other assets.” There was nothing specific in the slide deck.”

Oil & Natural Gas – Liberals’ proposed cap on Cdn oil and gas emissions

We are surprised that anyone is surprised by the Liberals announced oil and gas greenhouse gas pollution cap. Some sort of major Liberals impact on the oil and gas sector was to be expected in the run up to COP29 that starts tomorrow. Like him or not, Liberals Environment Minister Guilbeault is strategic and now has a major hit against the oil and gas sector to highlight at COP29. The Liberals announce “*The proposed regulations work by setting a cap on greenhouse gas pollution within the sector, equivalent to 35 percent below 2019 levels. They would create a cap-and-trade system designed to recognize better-performing companies and incentivize those that are higher polluting to invest in making their production processes cleaner. The proposed regulations put a limit on pollution, not production, and have been informed by extensive engagement with industry, Indigenous groups, provinces and territories, and other stakeholders. The proposed regulations are carefully designed around what is technically achievable within the sector, while allowing continued production growth.*” Note that this is a draft and they will be accepting feedback but we find it highly unlikely that any significant relaxation will emerge before it goes final in early 2025. Please recognize that accepting and consulting does not mean in any way it will lead to changes. Note their language on how these regulations “*have been informed by extensive engagement with industry*”. In non-political speak, it probably means they were informed by industry of why this was going to hurt the oil and gas sector but that probably informed them they were on the right track if they want to hit oil and gas. We will be having more on this over the coming months. Our Supplemental Documents package include the Liberals release and backgrounder.

Liberals cap on oil and gas emissions

Liberals 16% production growth to 2030-32 means zero growth from H1/25

Earlier this morning, we tweeted [\[LINK\]](#) “*Overlooked. Talking points in Liberals cap on oil & gas emissions were still see oil & gas production growth of 16% to 2030-2032. Most overlooked the +16% was vs 2019 starting point. Using CER govt data: Production growth has been +10.32% from 2019 thru H1/24. Leaves +5.15% to 2030-2032. Applied equally to oil & gas leaves +258,000 b/d oil & +0.94 bcf/d natural*

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gas from H1/24 to 2030-2032. Most expect continued oil growth over next 12-mths and natural gas growth with LNG Canada 1.8 bcf/d Phase 1 startup mid-2025. The +16% growth from 2019 to 2030-2032 effectively means Liberals assume zero growth from H2/25 to 2030-2032. #OTT @ABDanielleSmith @PierrePoilievre.”

The Liberals key talking point is that this is a cap on emissions and not production and that they still see oil and gas production growth of 16% by 2030. These were the ministers’ key talking points. And, outside Alberta and Saskatchewan, it looks to have worked. When we were listening to the BNNBloomberg early reporting on the announcement, they noted the Liberals talking point that oil and gas production growth would still be 16% to 2030-2032. We remind it is crafty and annoying (but not untruthful) drafting because the Liberals realize most will focus on the 16% growth in production to 2030-2032 and not the starting point. The Liberals backgrounder says “*The proposed Regulations put a limit on pollution, not production. The proposed Regulations are carefully designed around what is technically achievable within the sector, while enabling continued production growth in response to global demand. In fact, modelling shows that Canadian oil and gas production is projected to increase 16% between 2019 and the 2030-2032 period with the proposed Regulations in place.*” They clearly say they use 2019 as the starting point. We did the math using the Cdn government, CER Canada Energy Regulator, latest data for total Canada oil production thru July 2024 and total Canada natural gas production thru June 2024. The CER data shows oil and gas production growth from a 2019 starting point thru Q2/24 is 10.32%. If we take 2019 and add 16%, it leaves a further +5.15% of growth. If we then apply that remaining +5.15% of growth thru 2030-2032 equally to oil and natural gas, it means oil growth will be +258,000 b/d from Q2/24 to 2030. And natural gas growth will be +0.94 bcf/d from Q2/24 to 2030. That basically means zero growth from the H1/25 to 2030-2032 if we assume the continued near-term growth in oil production and if Cdn natural gas production increases by at least 0.94 bcf/d with the start of LNG Canada’s 1.8 bcf/d Phase 1 LNG project by mid-2025.

Industry Association, CAPP see the cap leading to lower production

CAPP, the Canadian Association of Petroleum Producers, is the industry association for all medium and large oil and gas companies. It is the key spokesperson for the oil and gas industry and interacts with government officials. CAPP also benefits by having all the large oil companies providing resources for analysis. CAPP’s response [\[LINK\]](#) was clear on the negative impact. CAPP CEO Lisa Baiton said “*The draft emissions cap regulations will be an unnecessarily complex layer on top of an already overly complex web of energy and climate regulations across the country. The introduction of this draft regulation comes with the high probability of negative impacts on the Canadian economy and no guarantee of emissions reductions. Since this plan’s inception, CAPP has expressed serious concerns about the cap’s complexity and potential negative economic impacts, particularly as Canada faces significant economic headwinds. Canada’s policy and regulatory environment is already creating a challenging investment environment for the types of projects we need to create jobs and power our economy. CAPP and our members believe the draft emissions cap regulations, if implemented, are likely to deter investment into Canadian oil and natural gas projects. The result would be lower production, lower exports, fewer jobs, lower GDP, and lower revenues to governments to fund the*

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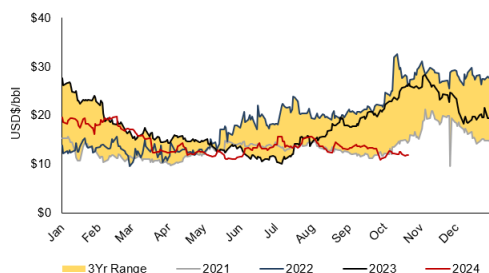
critical infrastructure and social programs on which Canadians rely. Given new federal Competition Act rules introduced in Bill C-59, CAPP is unable to directly discuss the oil and gas industry's decade-long track record on emissions reductions. Therefore, we invite Canadians to review the federal government's national inventory data and draw their own conclusions. CAPP will thoroughly review the draft regulations once they are released to fully understand their impact. From an initial review, we believe the draft emissions cap, if fully implemented, will have serious negative consequences for Canada's workers and our economic future."

Oil: Cdn heavy oil differential narrows -\$0.75 WoW to close at \$11.70 on Nov 8

WCS less WTI differentials narrowed this week -\$0.75 WoW to close at \$11.70 on November 8. As noted in the following item, we have been saying that the real test for WCS less WTI differentials will be in Sept/Oct as to how much the startup of the 590,000 b/d TMX expansion will impact WCS less WTI differentials. And it looks like TMX is working as hoped, if not better, in keeping WCS less WTI differentials way lower than would be expected at this time of year. Sept/Oct/Nov is when we normally see a significant seasonal widening of the WCS less WTI differentials. And WCS less WTI differentials has remained much lower and has not widened meaningfully this fall. But even with the TMX startup, there will always be the unexpected impact on WCS less WTI differentials from other items like refineries up and downs, wildfires, etc. Below is graph showing WCS-WTI differentials that shows this normal seasonal trend of narrowing WCS-WTI differentials that normally widens into or through October, which it did not. The WCS less WTI differential closed on November 8 at \$11.70 which was a narrowing of -\$0.75 WoW vs \$12.45 on November 1.

WCS differential narrows

Figure 28: WCS less WTI oil differentials to November 8 close



Source: Bloomberg

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

It looks like TMX is having, at least so far, the expected big impact of 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. \$15 narrower vs a year ago and approx. \$17 narrower than two years ago. That is a big win for Cdn oil producers. For the past few several months, we have been saying that the big test for the impact of the start of the 590,000 b/d TMX expansion on WCS less WTI differentials will be in late Aug, Sept and Oct when differentials normally start to widen with seasonal refinery turnarounds. On Friday, we tweeted [\[LINK\]](#) "Big positive for Cdn #Oil Q4/24 cash flows. Ramp up of volumes on 590,000 b/d TMX has, at least so far, kept WCS less WTI differentials from normal Sept/Oct/Nov

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widening. WCS less WTI diffs: 11/08/24: \$11,70. 11/08/23: \$26.50. 11/08/22: \$29.10. Thx @garquake @business #OOTT." Our tweet included the below chart that shows how WCS less WTI differential have been stronger this summer, been fairly flat in Aug/Sept/Oct/Now and how differentials were widening in Sept/Oct/Nov in 2022 and 2023.

Figure 29: WCS less WTI differentials to Nov 8, 2024 close



Source: Bloomberg

Oil: Oil exports by tanker from Western Canada now 398,000 b/d in Oct

Here is what we wrote in last week's (Nov 3, 2024) Energy Tidbits memo on the ramp up of tanker loadings from TMX "On Thursday Bloomberg reported on Vortexa tanker tracker data or oil exports by tanker from western Canada in October. Tanker loadings continue to increase as volumes on the new 590,000 b/d TMX expansion ramp up. In October oil exports from Western Canada by tanker rose +88,000 b/d MoM to 398,000 b/d, compared to 310,000 b/d in September. On Friday we Tweeted [LINK](#) "Cdn #Oil tanker exports new record as 590,000 b/d TMX expansion ramps up. Oil exports by tanker from BC up to 398 kbd in Oct vs 310 kbd in Sept reports @roberttuttle @Vortexa It's why WCS less WTI differentials ~\$12 instead of normal big widening in Oct. See 📌 Oct 25 tweet. #OOTT". A primary destination of the increased exports was China, which increased +84,803 b/d MoM to 207,480 b/d in October from 122,677 b/d in September. This has been a significant driver of the narrowing WCS-WTI differential. Below is the Bloomberg table which shows Canadian tanker exports. Our Supplemental Documents Package includes the Bloomberg article."

**Cdn oil exports by
tanker rise in Oct**

Figure 30: Canadian tanker exports by destination

DESTINATION COUNTRY	MoM Change	Oct	Sep	Aug
Brunei	-17,245	0	17,245	0
China	84,803	207,480	122,677	89,733
Ecuador	1,455	1,455	0	0
Japan	0	0	0	16,662
South Korea	0	0	0	79,720
United States	18,863	188,828	169,965	182,665

Source: EIA

Oil: Refinery Inputs up +0.281 mmb/d WoW to 16.334 mmb/d

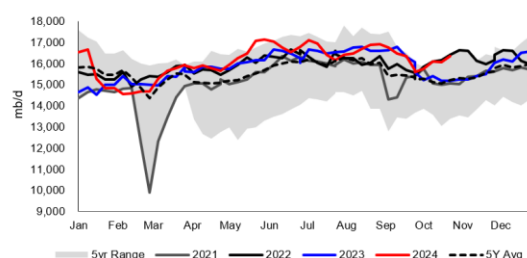
There are always unplanned refinery items that impact crude oil inputs into refineries. And there is always different timing for refinery turnarounds; generally late October marks the

**Refinery inputs
+0.281 mmb/d
WoW**

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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. However, as noted in our Sept 22, 2024 Energy Tidbits memo, US refinery maintenance is expected to be less this year, which means that, on average, turnarounds will be shorter than normal i.e. less extra maintenance. Although there are more refineries available to receive crude, we may see refineries reduce runs given the low crack spreads. On Wednesday, the EIA released its estimated crude oil input to refinery data for the week ended November 1 [\[LINK\]](#). The EIA reported crude inputs to refineries were up +0.281 mmb/d this week to 16.334 mmb/d and are up +1.099 mmb/d YoY. Refinery utilization was up +1.4% WoW to 90.5% and was up +5.3% YoY.

Figure 31: US Refinery Crude Oil Inputs



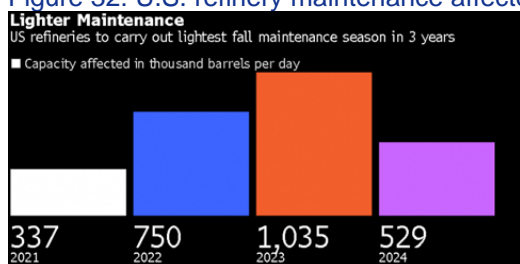
Source: EIA, SAF

US refinery preventative maintenance in fall 2024 was less YoY

US refinery crude oil inputs continue to be at or near the high of the 5-year range. Here is what we wrote in September 22, 2024, Energy Tidbits memo. “On Thursday, Bloomberg posted a good reminder that US refineries are expected to have a light preventative maintenance season this fall according to IIR Energy data. Note they focused on “preventative maintenance” and didn’t use the word turnarounds. Refineries have turnarounds to allow the refinery to switch from summer blend to winter blend fuel mix. Normally refineries schedule preventative maintenance at the same time as a turnaround. If preventative maintenance is less than normal, it means that the downtime for refineries will be less. They forecast that only 0.529 mmb/d of crude-processing capability is estimated to go offline during the fall, which is -0.506 mmb/d less than the fall of 2023, which saw 1.035 mmb/d go offline during the same period. However, this fall’s capacity reduction of 0.529 mmb/d, is still +0.192 mmb/d when compared to the fall 2021 capacity that went offline of 0.337 mmb/d. If 321 crack spreads were high, we would expect to see the refineries run at high utilization rates to make the big profits. But with 321 crack spreads low, we would expect refineries to not run at high utilizations rates. Below is the Bloomberg chart.”

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Figure 32: U.S. refinery maintenance affected capacity



Source: Bloomberg, IIR Energy

Oil: US net oil imports up +1.676 mmb/d WoW as oil exports down -1.411 mmb/d

The EIA reported US "NET" imports were up +1.676 mmb/d to 3.390 mmb/d for the week of November 1. US imports were up +0.265 mmb/d to 6.240 mmb/d, while exports were down -1.411 mmb/d to 2.850 mmb/d. Top 10 were up +0.300 mmb/d. (i) Previously we have noted that the EIA did not report weekly Venezuela imports, however, last month the EIA resumed reporting imports from Venezuela. Give the EIA credit for putting out weekly oil import estimates, but it's a reminder that we must be careful about using the weekly oil import estimates. Rather we need to make sure we go to the monthly data for oil imports. (ii) Canada was up +0.219 mmb/d to 3.879 mmb/d. Weekly imports have been higher for the past five months with the increased Cdn crude coming off TMX and hitting west coast US refineries. (iii) Saudi Arabia was up +0.430 mmb/d to 0.443 mmb/d (iv) Mexico was down -0.374 mmb/d to 0.247 mmb/d. Oil imports from Mexico lately have been significantly lower than prior year's levels with the new Olmeca (Dos Bocas) refinery ramping up and Pemex's other refineries increasing crude oil processing; however, this week Mexico refineries saw refinery utilization fall to 43.9% in September, from 50.4% in August. Notably, Dos Bocas did not process any crude in September. (v) Colombia was down -0.078 mmb/d to 0.072 mmb/d. (v) Iraq was down -0.033 mmb/d to 0.183 mmb/d. (vi) Ecuador was down -0.030 mmb/d to 0.037 mmb/d. (vii) Nigeria was down -0.059 mmb/d to 0.86 mmb/d. (iix) Venezuela was down -0.038 mmb/d to 0.212 mmb/d.

**US net imports
down +1.676
mmb/d WoW**

Figure 33: US Weekly Preliminary Imports by Major Country

	Sep 13/24	Sep 20/24	Sep 27/24	Oct 4/24	Oct 11/24	Oct 18/24	Oct 25/24	Nov 1/24	WoW
Canada	4,155	3,912	3,799	3,499	3,537	3,719	3,660	3,879	219
Saudi Arabia	210	291	145	285	314	150	13	443	430
Venezuela	0	0	297	315	134	289	250	212	-38
Mexico	420	499	448	382	406	258	621	247	-374
Colombia	121	295	347	149	223	365	150	72	-78
Iraq	155	265	152	241	70	237	216	183	-33
Ecuador	54	4	253	228	35	138	67	37	-30
Nigeria	264	135	84	44	134	125	145	86	-59
Brazil	306	0	186	134	154	285	88	202	114
Libya	0	0	77	28	0	81	89	238	149
Top 10	5,685	5,401	5,788	5,305	5,007	5,647	5,299	5,599	300
Others	637	1,055	840	934	522	784	676	641	-35
Total US	6,322	6,456	6,628	6,239	5,529	6,431	5,975	6,240	265

Source: EIA, SAF

Oil: Russian refineries crude processing in October fell to lowest in 2.5 years

We have noted the impact of refinery maintenance on exports in October, due to seasonal turnarounds, and wrote in our October 27, 2024, Tidbits to expect a fall in exports in November as refineries came back online. On Monday, Bloomberg reported that Russia's refinery rates fell to the lowest since May 2022, at only 5.11 mmb/d in October. This fall was

**Russian oil
refineries**

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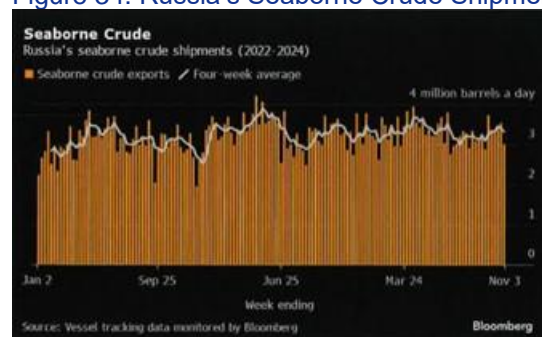
reported to be driven by seasonal refinery maintenance, as well as weaker refining margins. Bloomberg said: *"Russia's primary crude-processing rates averaged 5.11m b/d during Oct. 1-30 amid planned seasonal maintenance, according to a person with knowledge of the matter. That's down by around 162k b/d compared with the average processing rates for most of September and is the lowest monthly average since May 2022... Refining runs may also have been affected by lower margins, making crude processing at some facilities in southern Russia less attractive"*. Our Supplemental Documents package includes the Bloomberg report.

Oil: Russia's seaborne crude oil exports fall for second week in a row

This week, the four-week average for Russia's seaborne crude exports fell for the second consecutive week, as there were no shipments from the Arctic port of Murmansk, and only one from Novorossiysk on the Black Sea. We do not know the specific reasons but refineries were coming off maintenance is last October so, in theory, it should have reduced crude available for export. We have noted, there were Russian refineries coming off maintenance; this means there was a reduction in oil exports from western Russia in November. As a reminder if Russian refineries are in maintenance or turnaround, then that means less Russian oil is processed in Russia, which means more Russian oil is available for export. We previously noted that, in line with the seasonal trend for fall turnarounds, the beginning of October saw Russian refining fall to the lowest since mid-March which has allowed for more exports. Generally, when Russian refining capacity gets hit, it allows for more oil for export. The four-week average fell -90,000 b/d for the week to November 3. Bloomberg reported *"Four-week exports fell by 90,000 barrels a day, extending their decline for a second week, despite major ports on the Baltic and Pacific coasts operating near peak levels. The drop in cargoes from Novorossiysk mirrors a four-day gap in the loading program; such periods often indicate maintenance at a port or on the pipelines serving it. The slump in Arctic shipments may simply be a reflection of scheduling, with three tankers loading the previous week and four more at, or very close to, Murmansk fjord by the end of the most recent period."* Russia made significant output cuts in May, June, and July; however they were still slightly above their promised targets. Notably, in last OPEC JMMC, the committee confirmed the cooperation of Russia in complying with these cuts going forward. Our Supplemental Documents package includes the Bloomberg report.

Russia's seaborne crude exports

Figure 34: Russia's Seaborne Crude Shipments



Source: Bloomberg

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Russia oil exports to China remain below April levels

It's been about five months where Russia's oil exports to China have been down. Russia oil shipments to China averaged 1.360 mmb/d for the first half of April. But they were down thereafter with the reports that Russia had cut its discounts to China, meaning China was taking less Russian oil. Bloomberg's above report this week highlighted the four-week average of Russia oil shipments to China were up +0.060 mmb/d to 1.300 mmb/d for the week ending November 3, 2024, up from last week's 1.240 mmb/d for the week of October 27, 2024. The week up to September 15 was the first figure to come in above 1.300 mmb/d in months. We have not seen any reports of pricing discount, but we have to believe Russia has given some sort of discount to China. We have been highlighting that the warning that China oil imports from Russia were being hit on April 22 by one of our favorite commentators on the Gulf Intelligence Daily Energy Podcasts is Victor Yang, Senior Analyst JLC Network Technology. He is based in China, so we like to hear his on-the-ground views on oil, natural gas and markets in China. Here is what we wrote in our April 28, 2024 Energy Tidbits memo referencing Yang's comments from our April 22, 2024 tweet that included a transcript we made of Yang's comments. *"And for the second quarter, we see a lot of refinery maintenance, is imports will actually come down. And for now, the premium for Russian cargoes have strengthened this year, from -0.5 barrels to -0.3 barrels. And now it's flat to Brent, meaning 0 now. So, this has dampened refiners, particularly independents, interest in Russian crude. Their margins for imported crude, including Russian crude, actually turned negative late last month and the beginning of this month. So, it's now kind of [inaudible] slightly above the breakeven point. So, the interest in this has been dampened too. So, we are not expecting imports to grow much in the second quarter, yes."* Below is the table from Bloomberg's Russia oil exports report this week.

Figure 35: Russian Crude Exports to Asia

Crude Shipments to Asia						
Shipments of Russian crude to Asian buyers in million barrels a day						
4 weeks ending	China	India	Other	Unknown Asia	Other Unknown	Total
September 29, 2024	1.40	1.67	0.04	0.00	0.00	3.11
October 6, 2024	1.34	1.80	0.00	0.00	0.00	3.14
October 13, 2024	1.24	1.85	0.00	0.00	0.00	3.09
October 20, 2024	1.36	1.71	0.00	0.05	0.03	3.15
October 27, 2024	1.24	1.68	0.00	0.11	0.19	3.12
November 3, 2024	1.30	1.27	0.00	0.14	0.32	3.03

Source: Vessel tracking data compiled by Bloomberg

Bloomberg

Source: Bloomberg

Oil: OPEC+ countries delay return of voluntary cuts by 1 month to Dec 31, 2024

On Sunday, OPEC announced that Saudi Arabia, Russia et al agreed to extend voluntary production cuts by one month, which means the planned return of the voluntary cuts would start on Jan 1, 2024, instead of Dec 1, 2024. [\[LINK\]](#). Please note that our tweet last Sunday was before the US election and Trump winning. So we did not address the potential of for Trump to win and move to immediately cut back Iran oil exports. Last Sunday we tweeted [\[LINK\]](#) *"OPEC: Saudi et al extend voluntary cuts 1 month to Dec 31. See my 📢 10/30 tweet. Hard to see add back of voluntary barrels in Q1/25 given #Oil demand in Q1/25 seasonally*

OPEC+
countries
voluntary cuts

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declines ~1.2 mmb/d QoQ vs Q4/24. 1 mth only is probably to keep other producers from taking more advantage of their market support. #OOTT". The voluntary cuts are 2.200 mmb/d until the end of December 2024, after which the cuts will begin to decrease. The OPEC press release said the following: "The eight OPEC+ countries Saudi Arabia, Russia, Iraq, the United Arab Emirates, Kuwait, Kazakhstan, Algeria, and Oman, which previously announced additional voluntary adjustments in April and November 2023, have agreed to extend the November 2023 voluntary production adjustments of 2.2 million barrels per day for one month until the end of December 2024.... the eight countries reiterated their collective commitment to achieve full conformity with the Declaration of Cooperation, including the additional voluntary production adjustments that were agreed to be monitored by the JMMC during its 53rd meeting held on April 3rd, 2024, and to fully compensate by September 2025 for the overproduced volumes since January 2024 in accordance with the compensation plans submitted to the OPEC Secretariat". As noted below, we have the same concern on OPEC restarting the return of voluntary cuts on Jan 1, 2024, that we had on them restarting on Oct 1, 2024. Our Supplemental Documents package includes the OPEC press release.

OPEC+ will have to wait until Q2/25 if it doesn't add back barrels on Dec 1/24

If Trump doesn't move to immediately cut back Iran oil exports, we still believe it will be difficult for Saudi et al to add back barrels in Q1/25. For the past few months, we have been reminding of the big challenge for the OPEC+ voluntary cut countries in their planned start to adding back oil was that, if they didn't start adding back the voluntary cut oil on Oct 1, they might be forced to wait until at least Q2/25. As the speculation on delaying the restart was building, we tweeted [\[LINK\]](#) "Reminder if #OPEC doesn't back #Oil starting Q4/24, they may have to wait until at least Q2/25. See 📌 Aug 13 tweet. Global oil consumption is always seasonally lower in Q1 each year vs the preceding Q4. #OOTT." The OPEC+ voluntary cut countries delayed the planned restart of barrels by two months from Oct 1, 2024 to Dec 1, 2024. Even with the change, our view is unchanged from what we wrote over the past few months. We continue to believe the challenge for OPEC+ in adding back barrels is that, if they don't start adding back barrels on Oct 1, 2024 as per their plan, they will have to wait until at least Q2/25. After IEA posted its Aug OMR on Aug 13, we tweeted [\[LINK\]](#) "Here's why OPEC+ will have to wait until at least Q2/25 to add back #Oil barrels if they don't start adding back on Oct 1, 2024. Oil consumption is always seasonally lower in Q1 each year vs the preceding Q4. Today's IEA OMR is -1.4 mmbd QoQ. OPEC MOMR is -0.66 mmbd QoQ #OOTT." The problem is that global oil consumption is always seasonally lower in Q1 of a year relative to Q4 of the preceding year. So the last thing we think OPEC would do is start adding back oil in a declining demand period. OPEC's MOMR Aug forecasts Q1/25 oil demand at 104.91 mmb/d, which is down -0.66 mmb/d QoQ vs Q4/2 of 105.57 mmb/d. IEA's OMR Aug forecasts Q1/25 oil demand at 102.3 mmb/d, which is down -1.4 mmb/d QoQ vs Q4/24 of 103.7 mmb/d.

Oil: Will OPEC's next decision in early Dec reveal if Trump plans to hit Iran oil exports

It will be interesting to watch OPEC announces in a month on what Saudi, Russia et al decide about bringing back the voluntary cut barrels on Jan 1, 2025. Will they start the add back of voluntary oil barrels in Q 1/25 which is forecast to have lower QoQ oil demand vs Q4/24. Will they add back the barrels in Q1/25? If so, we have to believe Saud Arabia and

**Saudi, UAE
should know on
Trump vs Iran**

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UAE and Russia have some indication from Trump that he is going to move immediately to cut Iran oil exports. In his CNN Interview on Thursday, Brian Hook (former envoy on Iran in Trump's 1st administration and rumored lead on the transition team on US State Dept) made a point of highlighting that Trump's Day 1 calls were with Saudi Arabia, UAE, Egypt and Israel.

Oil: Trump's Brian Hook points to Trump cutting off Iran oil exports

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

**Looks like
Trump to hit
Iran oil**

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

Here is what we wrote in last week's (Nov 3, 2024) Energy Tidbits memo on all the pre-election chatter that a Trump win and drill baby drill would lead to lower oil prices. *"There are so many issues that will affect markets and oil with the US election on Tuesday. But we were asked on Thursday if we believe if Trump's drill baby drill to let industry crank up production will do as Trump says and lead to way lower oil, gasoline and diesel prices. (i) The caveat was that there are so many other factors that will impact oil than just his drill baby drill. (ii) We don't see oil companies cranking up drilling as suggested. There will be some increase with a view of a better operating environment, but we don't see a big jump up in the near term. We said we don't agree with the how it seems everyone is interpreting it and talking about it. The*

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US sector and, more importantly, investors and banks allocating capital to oil and gas, have moved away from a growth model to a new norm of focusing on returns and returning capital to stakeholders. And if US were to crank up drilling to accelerate production, if it leads to lower prices, the oil and gas companies won't see the returns so won't just go back and crank up drilling no matter the returns. So the way everyone is talking about it, they are assuming the oil sector abandons their returns model and cranks up drilling so oil prices go lower. And if they are cranking up capex with lower prices, it has to mean they companies will cut back dividends and share buybacks. We just don't see that. (iii) However, we can make the case for US oil players cranking up drilling and oil prices not changing much. It is something we have noted several times but, for some reason, analysts aren't talking about. So the case can be made for drill baby drill and not lower oil prices. Simply Trump goes back to his 2016 playbook and enforces sanctions on Iran and Venezuela. This will take probably 2 mmb/d off global oil markets., which will increase prices and allow US companies to drill more. But it won't necessarily meet Trump's other promise to lower gasoline prices. (iv) Russia and Saudi Arabia would be the big winners. No question, going back to his playbook of cutting out Iran and Venezuela oil exports will allow for US oil companies to drill baby drill. But perhaps of even more significance to Trump, it would allow for his most significant global relationships Saudi Arabia and Russia to add back oil without crashing oil prices. There would be a void that would allow the voluntary cuts of Saudi Arabia, Russia and others to add back oil without sending oil down. Absent Trump forcing Iran and Venezuela oil exports back to where it was under his Administration, we don't see how oil prices can be more or less protected to encourage US oil companies to drill, baby drill and maintain their returns models. And similarly allow Saudi, Russia, et al to add back their voluntary cuts without hitting oil prices. (v) Israel would also benefit as Iran's cash flow would be cut down hugely by probably >\$100 million a day hit to cash flow. (vi) So Trump enforcing sanctions on Iran and Venezuela would be a win for his Saudi, Russia and Israel relationships, which is why we have been highlighting this as the most significant way Trump can impact oil markets. And do so while taking care of his relationships. But we don't see it reducing oil and gasoline and diesel prices. (vii) The caveat is that there is much more that impacts oil prices but Trump going back to his prior playbook of cutting Iran and Venezuela oil exports would likely be a net positive to oil prices and not a net negative even if US oil industry increases oil drilling. (viii) This is not a new position, rather we have highlighted multiple times in our Energy Tidbits memo that Trump returning to his prior stance on Iran and Venezuela would be the biggest impact on oil prices."

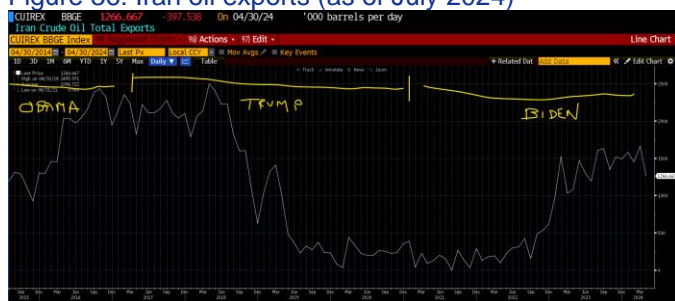
Trump's big impact on oil will be from what he does on Iran and Venezuela

Please note that both Iran and Venezuela have increased oil production since we wrote the following comments. Here is the last time, we wrote on Trump on Iran and Venezuela in our July 21, 2024 Energy Tidbits memo. *"We recognize that the market is focused on Trump's big impact on oil being his "drill, baby, drill" for the US oil industry that he said twice in his acceptance speech on Thursday. Trump was clear that he says unleashing oil drilling in the US will lead to lower oil prices. We continue to believe that Trump's big impact on oil will be from what he does on Iran and Venezuela, and if he will go back to what he did in enforcing sanctions and bringing*

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their oil exports down to almost nothing. Trump did not address Venezuela oil in his acceptance speech but did highlight how he was forcing Iran to run out of money by enforcing the sanctions. Here is what Trump said on Thursday night "Iran was broke. Iran had no money. Now Iran has \$250 billion. They made it over the last two-and-a-half years. They were broke. I watched the other day on a show called De-Face the Nation. Has anyone seen it? And they had a congressman who is a Democrat say, well, whether you like them or not, Iran was broke dealing with Trump. I told China and other countries, if you buy from Iran, we will not let you do any business in this country and we will put tariffs on every product you do send in or 100 percent or more. And they said to me, well, I think that's about it, they weren't going to buy any oil. And they were ready to make a deal, Iran was going to make a deal with us. And then we had that horrible, horrible result that we'll never let happen again, the election result. We're never going to let that happen again. They used COVID to cheat. We're never going to let it happen again. And they took off all the sanctions and they did everything possible for Iran. And now Iran is very close to having a nuclear weapon, which would have never happened. This is a shame what -- what this administration -- the damage that this administration has done." Whether you like Trump or not, he was responsible for cutting Iran's oil exports down to effectively zero and squeezing Iran's cash. Here is what we wrote in our May 19, 2024 Energy Tidbits memo. "There were a number of comments on Trump reportedly promising to work with the oil industry, but we believe the bigger impact that Trump will have on oil prices is he moves back to enforcing sanctions on Iran and Venezuela sanctions. If he goes back to what he did, he will be knocking a million b/d or Iran oil exports off global oil markets and likely at least 150,000 b/d of Venezuela oil out of US oil imports."

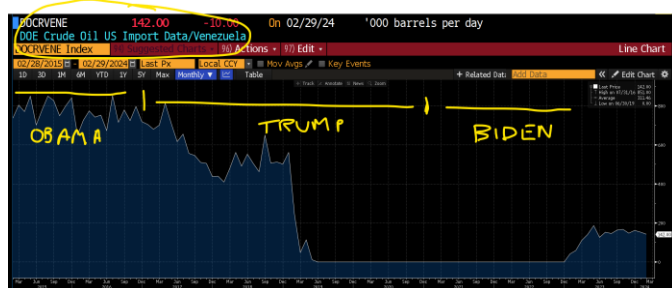
Figure 36: Iran oil exports (as of July 2024)



Source: Bloomberg

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Figure 37: US oil imports from Venezuela (as of July 2024)



Source: Bloomberg

Oil: Saudi, Russia, Israel win if Trump cuts Iran oil exports

Our tweets on Brian Hook's comments on Iran note that the winners will be Saudi Arabia, Russia and Israel. Israel will win if Iran's cash flow gets hammered as it means less money to fund the proxies and its own military spending. Saudi Arabia, Russia and other OPEC+ partners will be winners as cutting ~2 mmb/d of Iran oil off export markets will give the space for Saudi, Russia et al to quickly bring back the voluntary cut barrels without crashing oil prices. Because without Trump taking off the Iran barrels, Saudi, Russia, et al would be adding back the voluntary cut barrels into a period when global oil demand is down QoQ. Here is what we wrote in last week's (Nov 3, 2024) Energy Tidbits memo. "It was another week of analysts and OPEC commentators discussing whether Saudi et al will continue with their stated plan to start adding back the voluntary cut barrels on Dec 1. We have been surprised that we haven't seen analysts and OPEC commentators focus on the key oil demand fundamental that we see shaping that decision. Or at least should be shaping that decision - oil demand in Q1/25 is estimated to be seasonally lower by -1.2 mmb/d vs Q4/24. On Thursday, we tweeted [\[LINK\]](#) "The oil fundamental that can/should cause Saudi et al to push back the Dec 1, 2024 start of adding back voluntary barrels - #Oil demand in Q1/25 seasonally declines -1.2 mmb/d QoQ vs Q4/24. Challenge is that it could push back return to Q2/25. #OOTT." We have been highlighting this oil demand fundamental for months - oil demand is always seasonally lower in Q1 each year vs the preceding Q4. So if Saudi et al didn't start adding back barrels on Oct 1 (as originally planned), then they would be adding back barrels into a declining oil demand period unless they wait until Q2/25. We find it hard to believe Saudi will want to add more oil into a declining oil demand period. Our exception is as noted later in the memo is if Trump wins and notes he plans to do as he did during his first term and enforce the sanctions on Iran and Venezuela. But apart from that scenario our tweet included an excerpt from OPEC's Monthly Oil Market Report Oct 2024, which forecasts Q4/24 oil demand at 105.61 mmb/d then decreasing 1.20 mmb/d QoQ to Q1/25 demand at 104.41 mmb/d. Our Supplemental Documents package includes the excerpt from the OPEC Oct MOMR on oil demand."

**Trump is good
for Saudi
Arabia, Russia
and Israel**

Oil: Reminder Iran's taking 52 US hostages started 45 years ago on Nov 4, 1979

The news cycle this week was focused on the US election. Plus people forget over time and it's really only an event that baby boomers remember. So we aren't surprised to see there weren't any reminders of what was one of the defining oil events that has lasted to this day - Iranians stormed the US embassy in Tehran on Nov 4, 1979 and took 52 US diplomats and

**Iran's US
hostages was
45 yrs ago**

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citizens and held them hostage for 444 days until Jan 20, 1981. It totally redefined US relationship with Iran to this date. It also led to one of the great Cdn stories as, separately, six US diplomats made it to the Cdn embassy, e haven't been more reminders that 39 years ago, Nov 4, 1979, is when Iran stormed the US embassy in Tehran and took 52 US diplomats and citizens and held them hostage for 444 days until Jan 20, 1981. Separately, 6 US diplomats made it to the Cdn embassy, hid there until Canada and the CIA were able to get them out of Iran as Canadians in 1980 in the "Canadian Caper". A pretty amazing and heartwarming story that reflected the strength of Canada and US relationship and the people involved at that time.

Oil: Houthis leader not stopping anti-Israel operations despite Trump election

Whether you respect the Houthis or not, you have to acknowledge they don't mind standing up to anyone. Post the Trump election, the Houthi leader came out saying they aren't stopping their anti-Israel operations in support of Palestine. On Thursday, Al Masirah (Houthi news) reported [\[LINK\]](#) "In a televised speech, the leader underscored that this decision is resolute regardless of the results of the US elections, adding that some Arab regimes are raising their people's fears of the US new President Donald Trump. "We, in Yemen, had an experience with Trump, and he failed to impose his terms on Iran, Syria, Iraq, Lebanon and Palestine. Trump only managed to reap billions of dollars from the rich Arab states." "Trump views rich Arab countries as a cash cow, and regards the poor as miserable. He has worked hard to make some Arab regimes serve Israel. All the US presidents have just served the Israeli interests, recalling the failure of the "deal of the century". "The outcome of the US election won't affect our principled positions in support of Gaza. Neither Trump nor [outgoing president Joe] Biden can dissuade us from our firm position in supporting the Palestinian nation," the leader emphasized." And "The leader underscored that Yemenis will stand firm on the path to support Palestinians, vowing that Yemeni Armed Forces will not stop their anti-Israeli operations as long as Gaza and Lebanon are under attack."

**Houthi leader
says not
stopping**

Oil: Libya oil + condensate production of 1.364 mmb/d is back to Aug 1 levels

Libya oil production returned to Aug 1 levels two weeks ago and continues to be stable at those levels. On Monday, the Libya National Oil Corporation tweeted [\[LINK\]](#) "The Libyan oil and gas fields continue to steadily increase daily production, in line with the National Oil Corporation's strategic plan. Today, the country recorded a rise in crude oil and condensate output, bringing total production to 1,364,438 barrels of crude oil and 208,000 barrels of oil equivalent in gas." This is right in line with the NOC Aug 1 production update of 1.324 mmb/d. In the last three updates, the NOC has not provided a split of oil vs condensate in the 1.333 mmb/d. In our Oct 13, 2024 Energy Tidbits memo, we wrote "One item to keep in mind is that the NOC is not splitting out oil vs condensate volumes. But a decent rule of thumb is that condensate is probably about 50,000 b/d of the combined oil + condensate. Yesterday, we tweeted [\[LINK\]](#) "Libya #Oil has been quickly restored and almost back to Aug 1 levels. Note Libya NOC isn't splitting out oil vs condensate. Today: oil + condensate is back to 1.279 mmb/d. Aug 1: oil + condensate was 1.324 mmb/d (1.271 oil, 0.053 condensate). #OOTT." It is fair to use an approximate 50,000 b/d of condensate production included in the NOC reporting of total crude oil + condensate production ie. the current 1.364 mmb/d is 1.314 mmb/d of crude oil and 0.050 mmb/d of condensate. Note that including natural gas, total Libya oil, condensate and natural gas production is over 1.5 mmmboe/d.

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

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Oil: Libya NOC sees oil production +0.2 mmb/d to 1.5 mmb/d by year-end 2024

We have been highlighting how the Libya NOC has been careful to be specific when it refers to either crude oil or oil + condensate production. It is why we were surprised by the NOC's Thursday tweet on comments from their meetings at ADIPEC 2024 in Abu Dhabi that the NOC expects to raise "crude oil" production to 1.5 mmb/d by the end of 2024 and to 2 mmb/d by the end of 2025. On Thursday, the NOC tweeted [\[LINK\]](#) "This participation comes as part of the Corporation's strategy to enhance international cooperation and raise crude oil production rates to 1.5 million barrels per day by the end of 2024, and two million barrels per day by the end of 2025."

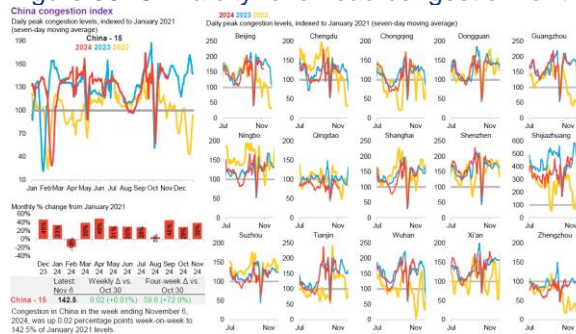
Libya oil + condensate to hit 1.5 mmb/d by yr-end

Oil: Baidu China city-level congestion remains stable WoW

On Wednesday, BloombergNEF posted its China Road Traffic Indicators Weekly Nov 7 report, which includes the Baidu city-level road congestion for the week ended Nov 6. BloombergNEF reported Baidu city-level road congestion was flat WoW at 142.5% of Jan 2021 levels. November MTD saw average daily peak congestion down -5.7% YoY when compared to November 2023. Note that this report was formerly titled Road Traffic indicators, and is now China Road Traffic Indicators, but the content of the report is unchanged. BloombergNEF's report was titled "Congestion level holds steady". Below are the BloombergNEF key figures.

China city-level road congestion stable

Figure 38: China city-level road congestion for the week ended November 6, 2024



Source: Bloomberg

Figure 39: China city-level road congestion for the week ended November 6, 2024

Indexed to January 2021 = 100													Indexed to the same month in previous year = 100													
	Nov 23	Dec 23	Jan 24	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Nov 23	Dec 23	Jan 24	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
China-15	146	145	133	81	120	130	129	127	104	144	128	136	155	187	151	55	100	114	110	96	104	87	94	99	94	94
Beijing	167	161	145	73	151	169	143	141	146	123	171	147	160	214	276	135	42	92	113	103	93	106	90	95	92	92
Chengdu	123	116	120	68	134	140	125	119	126	98	135	113	121	131	124	144	51	106	107	115	116	85	104	93	93	
Chongqing	122	116	111	80	112	138	122	129	119	75	119	119	127	395	228	136	64	101	125	125	112	113	85	94	107	104
Dongguan	141	144	121	62	129	138	130	138	126	103	141	123	138	102	156	268	44	99	127	120	108	101	96	94	90	90
Guangzhou	178	181	161	76	171	195	174	170	162	158	179	159	167	317	307	199	45	99	127	127	107	107	105	98	99	99
Ningbo	146	142	127	79	144	146	120	128	121	94	140	119	125	101	127	203	59	115	140	121	112	106	81	110	101	101
Qingdao	99	103	118	81	71	78	72	75	91	80	87	79	76	124	195	176	42	94	97	98	87	95	76	82	85	77
Shanghai	155	160	115	79	146	162	130	132	119	93	151	121	143	93	172	156	54	98	117	105	101	98	76	93	95	92
Shenzhen	169	170	149	69	160	164	172	163	162	155	184	159	169	97	156	188	41	96	120	132	99	113	106	102	105	100
Shijiazhuang	491	461	494	350	400	390	311	329	334	308	364	356	396	469	258	156	69	93	85	81	77	89	70	75	104	104
Suzhou	127	136	118	79	134	137	113	112	105	96	115	106	118	88	107	171	60	111	130	117	97	99	86	86	93	93
Tianjin	169	190	133	85	160	165	145	132	106	98	186	150	150	137	244	136	60	114	121	119	100	96	86	107	100	89
Wuhan	159	159	167	105	174	171	146	144	141	117	168	154	161	192	187	151	55	94	100	97	85	86	88	107	101	101
Xi'an	156	155	152	98	141	147	129	123	135	107	145	136	140	139	152	132	86	110	112	105	91	110	97	96	101	101
Zhengzhou	97	108	110	65	95	96	80	78	66	66	91	83	93	284	164	119	75	98	102	90	82	98	72	86	103	103

Source: BloombergNEF calculations based on Baidu data. Note: Data updated to November 6, 2024. Values for the latest month are month-to-date. The China-15 congestion level is calculated by taking the weighted average of the congestion levels in the 15 cities and their vehicle registration numbers.

Source: Bloomberg

Oil: China oil imports 11.1 mmb/d in September, down -4.3% MoM and down -0.5% YoY

On Wednesday, Bloomberg released a report with data from China's General Administration for Customs (GACC) on the summary data of China's oil and natural gas imports for

China oil imports September

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September. China's imports of crude oil in September were 45.5 million tons, or 11.1 mmb/d, a -4.3% decrease from 11.6 mmb/d in August, and down -0.5% YoY from 11.2 mmb/d in September 2023. Our Supplemental Documents package includes Bloomberg report.

Oil: Kpler tanker tracking shows Iran oil exports to China to hit record ~2 mmb/d in Oct

China has been the home for Iran oil exports. Here is what we wrote in last week's (Nov 3, 2024) Energy Tidbits memo. "As we noted in last week's (Oct 27, 2024) Energy Tidbits memo, official China customs data still shows China importing zero barrels of oil from Iran and that we keep seeing Iranian oil being rebranded as Malaysian oil. It looks like Iran oil into China should hit a record ~2 mmb/d in October. On Monday, Bloomberg reported on Kpler tanker tracking data that showed "China's imports of Iranian oil are poised to reach a record of ~2m b/d this month, according to data from Kpler. * That figure would top the previous peak of 1.75m b/d set in August, according to Kpler figures, which extend back to January 2013 ** The daily total in September 2024 was 1.57m b/d." Bloomberg also reported Kpler floating storage of Iran oil "Separately, Iranian oil in floating storage off Singapore and Malaysia fell to less than 1m bbl in mid-Oct. down from 9.4m bbl in mid-April, according to data from Muyu Xu, senior crude oil analyst at Kpler. Since then, the figure rebounded to ~6.6m bbl in the week to Oct. 27, she added."

China imports 2 mmb/d of Iran oil

Figure 40: Kpler tanker tracking data Iran oil into China



Source: Bloomberg

Kpler data fits Iran oil is being rebranded as Malaysian oil into China

The Kpler tanker tracking data noted above estimated China imported 1.57 mmb/d of Iran oil in Sept. That is almost exactly what the China customs data reported for oil imports from Malaysia for Sept. Here is what we wrote in our Oct 27, 2024 Energy Tidbits memo on China oil imports from Malaysia in Sept. "Last Sunday night, we tweeted [\[LINK\]](#) "Iran #Oil keeps getting rebranded as Malaysia oil. China customs official data is zero oil imports from Iran since June 2022. BUT China oil imports from Malaysia in Sept was 1.50 mmb/d vs OPEC Secondary Sources total Malaysia production of 0.348 mmb/d. #OOTT. Bloomberg had just posted the China customs data of crude oil imports by country for Sept. We checked Iran and there was no changes to China customs not showing any oil imports from Iran since June 2022. But then we looked as usual at Malaysia and the China customs data shows China crude oil imports from Malaysia were 1.50 mmb/d in Sept, which followed 1.77 mmb/d in Aug, 1.47 mmb/d in July and 1.44 mmb/d in June. Our tweet also included

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the OPEC Monthly Oil Market Report October 2024, which included Secondary Sources estimate that Malaysia only produced 0.348 mmb/d in Sept ie. China is importing oil from Malaysia that is equal to over four times Malaysia total country production. Below is the Bloomberg graph of China oil imports from Malaysia that was attached to our tweet.”

Figure 41: China crude oil imports from Malaysia



Source: Bloomberg

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

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

Oil: Vitrol sees peak oil demand is now out 10 years

As we noted in last week’s (Nov 3, 2024) Energy Tidbits memo, we are expecting to see more analysts and agencies revised their peak oil demand forecasts higher and later. On Thursday, we tweeted [\[LINK\]](#) “Peak oil demand keeps getting pushed out. “What we’re saying today is that peak oil demand is about 10 years away. The unfortunate thing is, we said five years ago that peak oil demand is 10 years away,” Vitrol CEO Hardy. Fits 🐦 10/24 tweet, moving peak oil demand higher & later will be the craze for 2025 outlooks. Thx @TheNationalNews John Benny. #OOTT.” Vitrol CEO Russell Hardy spoke at ADIPEC 2024

**Vitrol, peak oil
demand out 10
yrs**

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in Abu Dhabi. Hardy sees peak oil demand being 10 years away. But what was representative of most peak oil demand forecasts is his comment that peak oil demand being 10 years away is the same thing that was said 5 years ago ie. people just keep pushing out peak oil demand forecasts. The National reported “, *Russell Hardy highlighted the difficulty in accurately predicting peak oil demand, particularly due to uncertainties surrounding consumption growth rates in developing countries. “What we’re saying today is that peak oil demand is about 10 years away. The unfortunate thing is, we said five years ago that peak oil demand is 10 years away,” Mr Hardy said. The pace of the shift from the combustion engine to other forms of transport in Organisation for Economic Co-operation and Development (OECD) countries will be the “most important driver of all of this”, he said. “We’re reasonably confident demand growth in the non-OECD area is going to outstrip the demand shrinkage in the OECD,” Mr Hardy added.*” Our Supplemental Documents package includes The National report. [LINK](#)

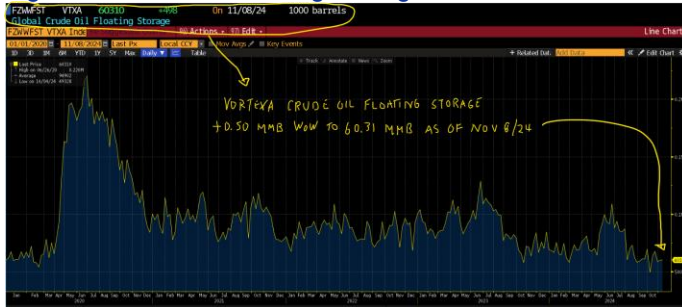
Oil: Vortexa crude oil floating storage est 60.31 mmb at Nov 8, +0.50 mmb WoW

Vortexa floating storage

We are referencing the Vortexa crude oil floating storage data posted on the Bloomberg terminal as of 9am MT yesterday. Note that these estimates get revised over the course of the week and the revisions can go back months. We do not check daily for the revisions, so our comments on the new estimates are compared to the prior week’s Vortexa estimates posted on Bloomberg on Nov 2 at 9am MT. (i) Yesterday, we tweeted [LINK](#) “Vortexa crude #Oil floating storage. +0.50 mmb WoW to 60.31 mmb at Nov 8. Nov 1 revised +10.74 mmb, Oct 25 revised +3.65 mmb but prior 5 wks had small +/- revisions. 7-wk moving average 61.24 mmb but prior 4-wk moving averages were only times <60 mmb since Covid. Thx @vortexa @business #OOTT.” (ii) As of 9am MT Nov 9, Bloomberg posted Vortexa crude oil floating storage estimate for Nov 8 at 60.31 mmb, which was +0.50 mmb WoW vs revised up big Nov 1 of 59.81 mmb. Note Nov 1 at 59.81 mmb was revised +10.74 mmb vs 49.07 mmb originally posted at 9am on Nov 2. (iii) The 7-wk moving average of 61.24 mmb is still low post-Covid as there have only been four times that the 7-wk moving average were below 60 mmb were the prior four weeks. (iv) Revisions. Other than Nov 1 revised +10.74 mmb and Oct 25 revised +3.65 mmb, the prior five weeks’ revisions were small. Here are the revisions for the past seven weeks compared to the estimates originally posted on Bloomberg at 9am MT on Nov 2. Nov 1 revised +10.74 mmb. Oct 25 revised +3.65 mmb. Oct 18 revised -1.64 mmb. Oct 11 revised +0.10 mmb. Oct 4 revised -0.30 mmb. Sept 27 revised -0.60 mmb. Sept 20 revised +0.56 mmb. (v) There is a wide range of floating storage estimates for the past seven weeks, but a simple rolling average for the last seven weeks is 61.24 mmb vs last week’s then seven-week rolling average of 59.57 mmb. The 7-week is back over 60 mmb after the prior four weeks 7-week moving average were the only times since Covid being below 60 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) Nov 8 estimate of 60.31 mmb is -68.35 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) Nov 8 estimate of 60.31 mmb is -3.22 mmb YoY vs Nov 10, 2023 at 63.52 mmb. Below are the last several weeks of estimates posted on Bloomberg as of 9am on Nov 9, Nov 2, and Oct 26.

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Figure 42: Vortexa Floating Storage Jan 1, 2000 – Nov 8, 2024, posted Nov 9 at 9am MT



Source: Bloomberg, Vortexa

Figure 43: Vortexa Estimates Posted 9am MT on Nov 9, Nov 2, and Oct 26

Posted Nov 9, 9am MT						Nov 2, 9am MT						Oct 26, 9am MT					
FZWFST VTXA Indx						FZWFST VTXA Indx						FZWFST VTXA Indx					
ID	3D	1M	6M	YTD	1Y	ID	3D	1M	6M	YTD	1Y	ID	3D	1M	6M	YTD	1Y
Date						Date						Date					
Fr 11/08/2024						Fr 11/01/2024						Fr 10/25/2024					
Last Px						Last Px						Last Px					
60310						49065						53326					
Fr 11/01/2024						Fr 10/25/2024						Fr 10/18/2024					
59812						54909						64731					
Fr 10/25/2024						Fr 10/18/2024						Fr 10/11/2024					
58561						69263						62271					
Fr 10/18/2024						Fr 10/11/2024						Fr 10/04/2024					
67616						63415						48181					
Fr 10/11/2024						Fr 10/04/2024						Fr 09/27/2024					
63524						49630						67534					
Fr 10/04/2024						Fr 09/27/2024						Fr 09/20/2024					
49328						70159						60569					
Fr 09/27/2024						Fr 09/20/2024						Fr 09/13/2024					
69556						60566						61326					
Fr 09/20/2024						Fr 09/13/2024						Fr 09/06/2024					
61131						60928						60235					
Fr 09/13/2024						Fr 09/06/2024						Fr 08/30/2024					
61071						59278						58281					
Fr 09/06/2024						Fr 08/30/2024						Fr 08/23/2024					
59407						58594						64015					
Fr 08/30/2024						Fr 08/23/2024						Fr 08/16/2024					
58038						61621						75076					
Fr 08/23/2024						Fr 08/16/2024						Fr 08/09/2024					
61786						73061											

Source: Bloomberg, Vortexa

Source: Bloomberg, Vortexa

Oil: Vortexa crude oil floating storage WoW changes by regions

Bloomberg posts the Vortexa crude oil floating storage in key regions, but not all regions of the world. The regions covered are Asia, North Sea, Europe, Middle East, West Africa and US Gulf Coast. We then back into the "Other" for rest of world. (i) As noted above, last week's Nov 1 was revised +10.74 mmbb. The major revision was Asia +6.91 and then Middle East +1.61 mmb. (ii) Total floating storage at Nov 8 of 60.31 mmb was +0.50 mmb vs the revised up by +10.74 mmb Nov 1 of 59.81 mmb. The major WoW changes were Asia +5.05 mmb WoW, North Sea -3.79 mmb WoW, West Africa +3.00 mmb WoW, and Middle East -2.98 mmb WoW. (iii) Nov 8 estimate of 60.31 mmb is -68.35 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 -41.17 mmb and Other -19.96 mmb. (iv) Below is the table we created of the WoW changes by region posted on Bloomberg at of 9am MT yesterday. Our table also includes the "Original Posted" regional data for Nov 1 that was posted on Bloomberg at 9am MT on Nov 2.

**Vortexa floating
storage by
region**

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Figure 44: Vortexa crude oil floating by region

Region	Nov 8/24	Nov 1/24	WoW	Original Posted Nov 1/24	Recent Peak Jun 23/23	Nov 8 vs Jun 23/23
Asia	32.12	27.07	5.05	20.16	73.29	-41.17
North Sea	0.12	3.91	-3.79	3.19	4.71	-4.59
Europe	2.29	2.61	-0.32	2.72	5.63	-3.34
Middle East	7.35	10.33	-2.98	8.72	6.76	0.59
West Africa	8.76	5.76	3.00	5.51	7.62	1.14
US Gulf Coast	0.00	0.63	-0.63	0.64	1.02	-1.02
Other	9.67	9.50	0.17	8.13	29.63	-19.96
Global Total	60.31	59.81	0.50	49.07	128.66	-68.35

Vortexa crude oil floating storage posted on Bloomberg 9am MT on Nov 9

Source: Vortexa, Bloomberg

Source: Bloomberg, Vortexa

Oil: Global oil & product stocks deficit flips to surplus: +1.500 mmb from -12.700 mmb

On Tuesday, BloombergNEF posted its “Oil Price Indicators” weekly, which provides good charts depicting near-term global oil demand and supply indicators. (i) Note BloombergNEF uses different periods to determine the surplus/deficit, sometimes using a four-year average for 2017-2019 + 2022-2023, and other times using a five-year average 2017-2019 + 2022-2023. In both cases they do not include 2020 and 2021 in the averages. (ii) The global stockpile for crude oil and products deficit flipped to a surplus of +1.500 mmb for the week ending October 18, from a deficit of -12.700 mmb for the week ended October 11. (iii) Total crude inventories (incl. floating) saw a build of +1.6% WoW to 615.500 mmb, while the stockpiles deficit narrowed, from a deficit of -11.700 mmb to a deficit of -10.700 mmb. (iv) Land crude oil inventories increased +0.8% WoW to 547.700 mmb, widening their deficit from -16.000 mmb to -18.600 mmb against the five-year average (2017-2019 + 2022-23). (v) The gas oil, and middle distillate stocks decreased -0.9% WoW to 223.900 mmb, with the deficit against the four-year average narrowing to -1.700 mmb from -3.200 mmb. Jet fuel consumption by international departures in the week starting October 29, is set to increase by +0.077 mmb/d WoW, while consumption by domestic passenger departures is forecast to decrease by -0.029 mmb/d WoW. Below is a snapshot of aggregate global stockpiles.

**Bloomberg
Weekly Oil
Indicators**

Figure 45: Aggregate Global Oil and Product Stockpiles



Source: BloombergNEF

Oil: Europe airports daily traffic 7-day moving average is -2.9% below pre-Covid

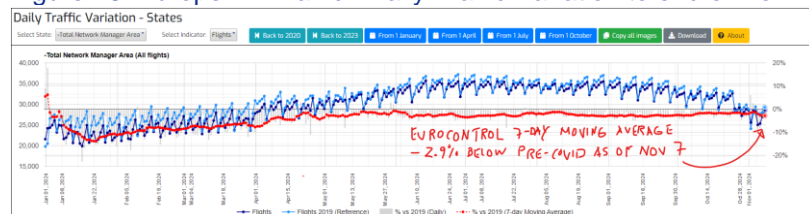
Yesterday, we tweeted [\[LINK\]](#) “Daily Europe air traffic close but still stuck below pre-Covid. 7-day moving average as of: Nov 7: -2.9% below pre-Covid. Oct 31: -2.0%. Oct 24: -1.6%. Oct 17: -1.9%. Oct 10: -1.7%. Oct 3: -2.9%. Sept 26: -2.9%. Sept 19: -2.8% Sept 12: -3.0%.”

**Europe airports
daily traffic**

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Sept 5: -2.8%. Thx @eurocontrol #Oil #OOTT." Other than over Christmas, European daily traffic at airports has been stuck just a little bit below pre-Covid. The 7-day moving average has got close to pre-Covid including -0.8% below pre-Covid as of May 30, but the 7-day moving average is now -2.9% below pre-Covid as of Nov 7, which followed -2.0% as of Oct 31, -1.6% as of Oct 24, -1.9% as of Oct 17, -1.7% as of Oct 10, -2.9% as of Oct 3, -2.9% as of Sept 26, -2.8% as of Sept 19, -3.0% as of Sept 12, and -2.8% as of Sept 5. Please note that we try to pull the data early Saturday mornings for a consistent weekly comparison. Eurocontrol updates this data daily and it is found at [\[LINK\]](#).

Figure 46: Europe Air Traffic: Daily Traffic Variation to end of Nov 7



Source: Eurocontrol

Oil: Ryanair CEO, UK's adding taxes on air fare will hurt UK growth

We always try to listen to Ryanair CEO Michael O'Leary when we see he will be on TV as he always gives direct, or in this case blunt, comments on air travel. And given Ryanair's dominant position in European air travel, his comments are based on the numbers. O'Leary was blunt that the new "bonkers" UK Labour Govt with its "idiot Chancellor's" first measure to increase travel taxes, "you got to be insane to do that" means adding air tax will be negative to UK air travel and, for Ryanair, it means they will shift air flights to other countries. On Monday, we tweeted [\[LINK\]](#) "Taxation 101 from @Ryanair EO O'Leary to UK Chancellor. "I mean the UK has no chance of growing if this idiot Chancellor thinks that the way forward is going to be increasing tax on air travel. You want to grow, scrap air travel taxes..." "the first thing they do on an island on the peripheral of Europe is "we're going to put up travel taxes. You can't grow putting up travel taxes". See 5:20 min mark, his delivery is even better. [\[LINK\]](#) #OOTT @FerroTV @annmarie @lisaabramowicz1." Our Supplemental Documents package includes the transcript we made of O'Leary's comments on Bloomberg Surveillance.

**Ryanair warns
UK on air taxes**

Oil & Natural Gas: Q3 is hitting Cdn natural gas producers more than Q2

Q3 reporting should be finished this week for Cdn oil and gas companies and, no surprise, one of the key themes is the weak AECO gas price in Q3/24. This should not surprise anyone as it was one of the known themes for Cdn oil and gas producers will be that Q3 will show lower oil and gas prices than for Q2 reporting, in particular for natural gas prices. Below is our table that shows the final prices to the end of Q3/24. The big negative vs Q2 is AECO averaged \$0.66 in Q3/24 vs \$1.12 in Q2/24 and \$2.23 in Q1/24. The issue for analysts will be twofold. Reflecting the actuals in their model and what price forecast to use in their valuations. Below is our table of oil and gas prices.

**AECO Q3/24
\$0.66**

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Figure 47: Oil & natural gas prices

Period	Brent	WTI	EDPAR	WCS	HH	AECO
Q1/19	US\$ 62.90	US\$ 54.72	US\$ 50.55	US\$ 44.11	US\$ 2.92	C\$ 2.42
Q2/19	US\$ 69.19	US\$ 59.93	US\$ 54.39	US\$ 47.34	US\$ 2.56	C\$ 1.05
Q3/19	US\$ 62.23	US\$ 56.41	US\$ 52.35	US\$ 43.84	US\$ 2.38	C\$ 0.96
Q4/19	US\$ 64.19	US\$ 56.98	US\$ 50.75	US\$ 37.94	US\$ 2.39	C\$ 2.34
Q1/20	US\$ 51.63	US\$ 46.10	US\$ 39.04	US\$ 28.10	US\$ 1.92	C\$ 1.93
Q2/20	US\$ 29.71	US\$ 27.97	US\$ 22.25	US\$ 18.39	US\$ 1.70	C\$ 1.90
Q3/20	US\$ 44.38	US\$ 40.88	US\$ 36.84	US\$ 31.09	US\$ 1.96	C\$ 2.14
Q4/20	US\$ 45.17	US\$ 42.80	US\$ 38.03	US\$ 31.36	US\$ 2.47	C\$ 2.52
Q1/21	US\$ 61.15	US\$ 57.91	US\$ 54.39	US\$ 46.06	US\$ 3.39	C\$ 2.97
Q2/21	US\$ 68.05	US\$ 66.16	US\$ 62.17	US\$ 53.31	US\$ 2.91	C\$ 2.93
Q3/21	US\$ 73.24	US\$ 70.59	US\$ 66.94	US\$ 57.70	US\$ 4.31	C\$ 3.40
Q4/21	US\$ 79.04	US\$ 77.29	US\$ 73.79	US\$ 60.91	US\$ 4.71	C\$ 4.48
Q1/22	US\$ 101.80	US\$ 94.93	US\$ 93.84	US\$ 82.29	US\$ 4.63	C\$ 4.53
Q2/22	US\$ 113.86	US\$ 108.85	US\$ 107.12	US\$ 93.39	US\$ 7.47	C\$ 6.89
Q3/22	US\$ 100.62	US\$ 91.81	US\$ 89.95	US\$ 71.19	US\$ 7.96	C\$ 4.16
Q4/22	US\$ 88.64	US\$ 82.61	US\$ 79.71	US\$ 54.91	US\$ 5.54	C\$ 5.01
Q1/23	US\$ 81.17	US\$ 76.10	US\$ 73.75	US\$ 56.94	US\$ 2.66	C\$ 3.08
Q2/23	US\$ 78.30	US\$ 73.61	US\$ 70.56	US\$ 60.29	US\$ 2.16	C\$ 2.30
Q3/23	US\$ 86.70	US\$ 82.19	US\$ 79.76	US\$ 66.16	US\$ 2.59	C\$ 2.48
Q4/23	US\$ 84.22	US\$ 78.46	US\$ 71.01	US\$ 55.67	US\$ 2.74	C\$ 2.19
Q1/24	US\$ 83.04	US\$ 76.99	US\$ 68.71	US\$ 60.03	US\$ 2.31	C\$ 2.23
Q2/24	US\$ 84.84	US\$ 80.80	US\$ 72.80	US\$ 68.28	US\$ 2.07	C\$ 1.12
Q3/24	US\$ 80.32	US\$ 75.52	US\$ 68.11	US\$ 62.20	US\$ 2.11	C\$ 0.66

Source: Bloomberg

Source: Bloomberg, SAF Group

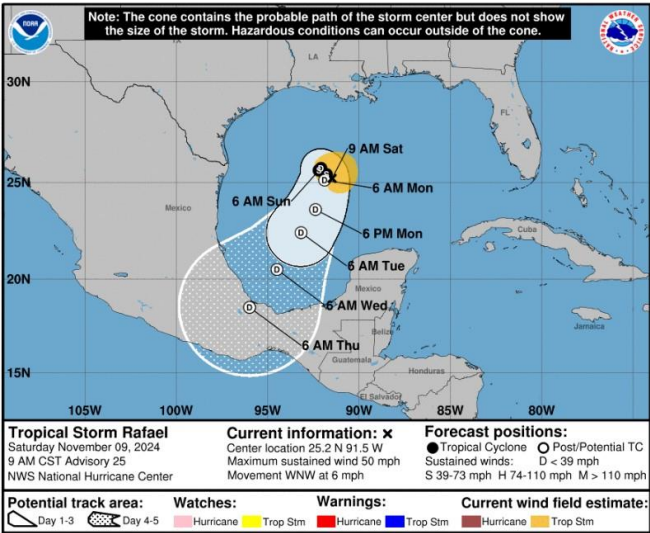
Oil & Natural Gas: Tropical Storm Rafael turned south away from GoM oil and gas

It looks like three won't be a Nov hurricane to make landfall in the US this year as the projected path for Tropical Storm/Hurricane Rafael was projected to go towards Houston/New Orleans and the projected path turned south and as of yesterday was heading due south to Mexico. Yesterday, we tweeted [\[LINK\]](#) "Tropical Storm Rafael projected to move south in GoM away from offshore #Oil #NatGas. Shut-in offshore GoM is 490,241 b/d oil, 0.313 bcf/d NatGas. but given projected path, shut-in should start to be restored tomorrow. Thx @NHC_Atlantic @BSEEGov #OOTT." The BSEE had just reported that the shut-in offshore GoM production was 490,241 b/d of oil and 0.313 bcf/d of natural gas. But given the projected path away from the offshore GoM production, we would expect to see the production start to be restored tomorrow. The one area that might see shut-in will be Pemex offshore production that could be in the way of Rafael. Hopefully for Pemex, Rafael dies down in strength as current projected. Below is NHC's projected path and the BSEE's shut-in statistics as of 11:30am CT yesterday.

**Tropical Storm
Rafael turns
south**

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Figure 48: Tropical Storm Rafael projected path as of 9am CT yesterday



Source: National Hurricane Center

Figure 49: Shut-in Offshore Gulf of Mexico oil and gas production, 11:30am CT, Nov 9

	Total	Percentage of GOM
Platforms Evacuated	41	11.05%
Rigs Evacuated	2	33.3%
DP Rigs Moved-off	7	33.3%
Total Shut-in Percentage of GOM Production		
Oil, BOPD Shut-in	490,241 (BOPD)	28.01%
Gas, MMCFD Shut-in	313 (MMCFD)	16.83%

SHUT-IN 11/09/24
490,241 BOPD
0.313 BCFD

BSEE will continue to update the evacuation and shut-in statistics at 1p.m. CDT each day as appropriate. This survey is reflective of 19 companies' reports as of 11:30 a.m. CDT today.

Source: BSEE

Energy Transition: Trump promises should benefit oil & gas in Day 1 executive orders

All markets are, and will continue to be, focused on what will Trump and what looks to be a Republican majority Senate and House will mean and that includes on fossil fuels and clean energy. In his victory speech, Trump made a clear promise “I will govern by a simple motto. Promises made, promises kept. We’re going to keep our promises.” Our initial tweets on how Trump will impact oil and gas and coal are focused on those items he can deal without needing any congress approvals ie. that can be done by executive orders. Earlier, we highlighted our long standing view that Trump’s biggest near-term potential on oil markets will be if he goes back to his prior playbook on enforcing sanctions on Iran and Venezuela oil. Below we focus on the next two promised Day 1 executive orders that will be positive for oil, natural gas and coal.

Trump says will deliver on promises made

Energy Transition: Trump pulled US out of Paris, Biden had US rejoin on his Day 1 COP29, the United Nations Climate Change Conference ,starts tomorrow and runs Nov 11-22 in Baku, Azerbaijan. The expectations were modest but that was before Trump’s win.

Trump says will deliver on promises made

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And we can only imagine that the delegates from the western countries will be doing everything they can to get as much as they can in the last COP before Trump. Don't forget Trump pulled the US out of the Paris climate accord and Biden, on Day 1, had the US rejoin the Paris climate accord.

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

Even prior to Trump's election, we noted our expectation for analysts and agencies to revise peak oil demand forecasts to higher peak oil levels and peak oil at a later date. (i) On Wednesday, we tweeted [\[LINK\]](#) "Peak Oil Demand! Ending Biden's EVs mandate is a clearly stated Trump Day 1 executive order priority. Would fit @IEA's "stated energy policies" criteria ie. should give them the excuse to push out their peak oil demand by 2030. 05/11/24: "On Day 1, I will immediately terminate Joe Biden's insane electric vehicle mandate. And there will be no ban on gas cars and gas trucks in the Garden State. There will no ban anywhere in the USA on gas." Trump. #OOTT Thx @cspan." Then on Friday, we tweeted Trump's victory speech comments. [\[LINK\]](#) "Higher & later Peak #Oil Demand forecasts. "I will govern by a simple motto. Promises made, promises kept. We're going to keep our promises." Trump victory speech. Ending Biden's EV mandate is a clearly stated Trump Day 1 executive order priority. #OOTT." (ii) Our tweets included the transcript we made of Trump's May 11, 2024 highlighting his clearly stated plan for a Day 1 executive order to get rid of Biden's EV mandate. SAF Group created transcript of comments by Donald Trump at a campaign speech in Wildwood, New Jersey on May 11, 2024. Video courtesy of c-span [\[LINK\]](#). At 28:06 min mark. Trump "But unfortunately, the Democrats in New Jersey have embraced Joe Biden's radical pro-China plan plan to eliminate gas-powered cars and trucks. Can you believe it? And force everyone into ultra-expensive electric vehicles that don't go far. I always say, they have a couple of problems – they're too expensive, they're going to be made in China, and they don't go far. Other than that, I think they're wonderful. On Day 1, I will immediately terminate Joe Biden's insane electric vehicle mandate. And there will be no ban on gas cars and gas trucks in the Garden State. There will no ban anywhere in the United States of America on gas. You can buy electric if you want, you can buy gas, you can buy whatever you want, that's the way it should be." (iii) The reality of analysts and agencies is that they are always opportunistically looking for a reason why they have to revise their forecasts and Trump's EV views will give them that opportunity. (iv) This will also work for the IEA as Trump's clearly stated intention should qualify for the criteria for their stated energy policies forecast. We have been expecting the IEA to revise their peak oil demand forecast and they can now have an excuse to do so.

Trump to get rid of Biden EV mandate

10/24/24: Will moving peak oil demand higher & later be the craze in 2025 outlooks:

Here is what we wrote in our Oct 27, 2024 Energy Tidbits on will moving peak oil demand higher and further out be the craze in 2025 outlooks. "WoodMac's Delayed Transition Scenario see peak oil demand in 2033 at 114 mmbd. Even if the IEA reinforced its view that peak oil demand will happen by 2030, we haven't changed our longstanding expectation for peak oil demand by 2030 forecasters to push back the timing of peak oil demand and that means they also then have to increase how much oil is consumed at that pushed out peak oil demand date. (i) We raise this issue as we expect to see any increase peak oil demand forecasts are most likely to come out in the next two months. The other timing reality is that it is the end of

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October. And major research shops and agencies will soon be posting their 2025 outlooks, which will be based on a recap of 2024. So that puts the time window for these type of changes to peak oil demand will be over the next two months or so. (ii) On Thursday, we [tweeted \[LINK\]](#) "Will moving peak #Oil demand higher & later be the craze in 2025 outlooks? Wood Mackenzie "energy transition scenario" raises peak oil demand from 108 mmbd in 2030 to 114 mmbd in 2033. Vs base case, this scenario assumes slower penetration rates on EVs, green hydrogen, etc. Sounds like what is happening in 2024? #Oil #NatGas #Coal will be needed for longer. #OOTT." (iii) On Thursday, Wood Mackenzie distributed its new Delayed Transition Scenario that started "The energy transition isn't moving anything like fast enough. Achieving global net zero by 2050 looks increasingly in doubt. To reflect the uncertainty, we added a Delayed Energy Transition Scenario to our existing range of potential outcomes which is quite positive for fossil fuels. With slower displacement by EVs, oil demand continues to increase year-on-year, reaching a peak of 114 million b/d in 2033 (compared with a 108-million b/d peak in 2030 in the base case). Gas demand carries on growing until 2045. There are significant implications for the development of new supply, price and the strategic positioning of the industry at large." Wood Mackenzie clear states this is a scenario and not their base case. But they are clearly showing how this "scenario" would have a huge impact on oil demand over the next eight years. (iv) Our tweet highlighted how the assumptions for this delayed energy transition scenario sound like what is happening today. They are really the items we track and why we have been saying for years that peak oil demand will be pushed back and at higher oil demand levels. Wood Mackenzie writes "On the other hand, it'll take longer for low-carbon technologies to be scaled. The penetration rate of nascent technologies that require government support, such as EVs, green hydrogen and CCUS, lag the base case by five years. Renewables, already competitive with alternative sources of power generation, will continue to grow, albeit at a slower pace." Wood Mackenzie's conclusion for this delayed transition scenario is to push back peak oil demand from 108 mmb/d in 2030 to 114 mmb/d in 2033. And Natural gas demand growing until 2045. We can't help feel this is the set up scenario for Wood Mackenzie to change its official forecast for peak oil demand in the coming weeks but not until after COP29 on Nov 11-22. COP29 will likely be a catalyst with the argument that governments aren't accelerating or are backing off energy transition policy. (v) When we see this "scenario, it feels like it will be the first of many to come where major forecasters finally reflect all the items we have been following for the past year on how all the major energy transition items are nowhere near meeting the aspirations embedded in the Net Zero assumptions. We feel that the data points in 2023/24 are just too many for peak oil demand by 2030 people to ignore. (vi) And if other major forecasters do the same, this should get more people to believe in stronger oil for longer. Below is Wood Mackenzie's comparison on their Base Case vs Delayed Transition Scenario. Our Supplemental Documents package includes the Wood Mackenzie send-out."

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Figure 50: Wood Mackenzie Delayed Transition Scenario vs Base Case



Source: Bloomberg

Energy Transition: IEA's STEPS is not a forecast, it provides a "sense of prevailing direction of travelbased on ... latest policy settings"

As noted above, we see the Trump clear view to eliminate Biden's EV mandate will provide a legitimate excuse for the IEA move to a higher peak oil demand level and for peak oil demand to be sometime after 20230. Here is what we wrote in our Oct 20, 2024 Energy Tidbits memo on the IEA's forecast for peak oil demand by 2030. "On Thursday, the IEA posted its almost 400-pg World Energy Outlook 2024, which is their outlook for energy to 2050. No one can deny there is a lot of great data/information in the report. However, our biggest concern is that people look at the first 20 pages and don't read the IEA's explanation of their numbers and key assumptions. As readers know, we tend to start from the back with assumptions and explanations and read to the front. So our number one concern is that almost all readers and reporters take the IEA's numbers to 2050 as a forecast whereas the IEA clearly says it is not a forecast but scenarios. Almost everyone uses the Stated Energy Policies Scenario (STEPS) as the IEA forecast whereas the IEA explains it is scenario based on stated energy policies. And if you get to pg 78 and 79, it isn't just approved energy policies and regulations, the IEA also includes "targets and announcements". We don't know what targets are included but it could be targets that might be in a speech to the throne or Biden's target for carbon-free electricity by a certain date. So what the IEA scenarios represent is not a forecast but numbers to show what will happen under announced government targets. It's really numbers to support what the western governments aspire to do and not a forecast of what is happening on the ground. We have highlighted before on the IEA reports. So, when the IEA states when they will see peak oil and peak natural gas demand, it's not a forecast. The IEA is not hiding what they do, they don't call STEPS a forecast rather, on page 78, they clearly state "Stated Policies Scenario (STEPS): This scenario provides a sense of the prevailing direction of travel for the energy sector based on a detailed reading of the latest policy settings in countries around the world. It accounts for energy, climate and related industrial policies that are in place or that have been announced." That seems pretty clear. We encourage people to read the assumptions and explanations.."

IEA WEO 2024 peak oil demand is BEVs displace 6 mmb/d of ICE demand

Her is another item from our Oct 20, 2024 Energy Tidbits memo on the IEA's peak oil demand forecast. "Our primary concern for the IEA's continued call for a peak in oil demand by 2030 is back to its view that STEPS is not a forecast but a scenario based on stated government policies and targets. It's only one example of a single govt policy built into the EIA's BEV assumptions but one that we are writing about later in the memo on the UK BEVs disappointing sales. On pg 351, WEO 2024 notes

IEA's World
Energy Outlook
2024

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“STEPS: United Kingdom 80% of new cars and 70% of new vans to be zero emission vehicles by 2030, increasing to 100% by 2035.” UK has BEV to be 22% of new car sales in 2024 and they are nowhere near that. It’s just one example. It is the same concern we raised in their Global Electric Vehicles Outlook (GEVO) 2024 in April that assumes BEVs displace 6 mmb/d of gasoline demand by 2030. WEO 2024 includes that same 6 mmb/d assumption and writes “EVs currently have a share of around 20% in new car sales worldwide, and this rises towards 50% by 2030 in the STEPS (a level already being achieved in China this year), by which time EVs displace around 6 mb/d of oil demand”. The IEA doesn’t specifically say it is the same 6 mmb/d from its GEVO 2024 but it just happens to be the same numbers. The BEVs displacement of 6 mmb/d of oil for ICE is the biggest problem we have with the IEA’s continued call for peak oil demand by 2030.”

Figure 51: IEA WEO 2024 peak oil demand by 2030

Table 3.1 ▶ Global liquids demand and supply by scenario (mb/d)

	STEPS				APS			NZE		
	2023	2030	2035	2050	2030	2035	2050	2030	2035	2050
Road transport	42.7	43.3	40.2	34.8	40.5	34.1	16.8	31.9	20.1	2.3
Aviation and shipping	11.6	13.0	13.5	14.5	11.0	10.1	7.5	9.3	7.0	1.8
Industry and petrochemicals	20.0	23.3	24.6	25.3	21.4	20.9	17.5	19.7	18.2	13.1
Buildings and power	11.4	9.0	7.7	6.1	8.1	6.1	3.6	6.6	3.6	0.4
Other sectors	13.3	13.1	13.1	12.5	11.8	10.9	8.4	10.8	8.9	5.3
World oil demand	99.1	101.7	99.1	93.1	92.8	82.0	53.7	78.3	57.8	23.0
Liquid biofuels	2.3	2.9	3.2	4.1	4.9	6.3	7.0	6.0	6.8	5.9
Low-emissions hydrogen-based fuels	0.0	0.0	0.1	0.6	0.3	1.4	4.6	0.7	2.0	5.6
World liquids demand	101.4	104.7	102.4	97.9	98.0	89.7	65.4	85.0	66.6	34.5

Source: IEA

IEA GEVO 2024 specifically says this is NOT a prediction ie. not a forecast.

We reiterate the IEA does not hide that its outlook are not forecasts or predictions. Rather they are scenarios based on stated government policies and objectives. Here is what we wrote in our Apr 28, 2024 Energy Tidbits memo on the IEA’s Global Electric Vehicles Outlook that had its key conclusion that EVs would displace 6 mmb/d of oil by 2030. *“This NOT a forecast or prediction and the IEA explicitly say so. Rather this is an outlook based on a SCENARIO based on stated govt policies AND objectives. And the IEA specifically says these scenarios do not make predictions about the future!. This is the same concept as GEVO 2023. But they also say these scenarios are to inform decision-making by govt. So not a forecast, but a scenario. Pg 102. They use “A scenario-based approach is used to explore the outlook for electric mobility, based on recent market trends, policy drivers and technology developments. The purpose of the scenarios is to assess plausible futures for global electric vehicle (EV) markets and their potential implications. The scenarios do not make predictions about the future. Rather, they aim to provide insights to inform decision-making by governments, companies and other stakeholders about the future of EVs.” (i) GEVO 2024. 6 mmb/d in 2030 and 12 mmb/d by 2035. Pg 150/151 “Globally, the projected EV fleet displaces 6 million barrels per day (mb/d) of diesel and gasoline in 2030, a sixfold increase on*

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displacement in 2023. By 2035, even less oil is needed for road transport, with displacement reaching 11 mb/d in the STEPS” (ii) GEVO 2024 is displacing 6 million barrels per day vs GEVO 2023 of “nearly 6 mb/d in 2030”. GEVO 2023 “nearly 6 mb/d” was actually ~5.5 mbd. Pg 131 “Oil displacement increases from 0.7 mb/d in 2022 to nearly 6 mb/d in 2030 if pledges supporting electromobility in road transport around the world are fulfilled.”

IEA assumes a new BEV basically displaces the miles driven by an ICE

Here is our key concern with the assumptions in the IEA’s GEVO 2024 assuming EVs displace 6 mmb/d of oil for ICE by 2030. Here is what we wrote in our Apr 28, 2024 Energy Tidbits memo on GEVO 2024. *“IEA assumes a new EV displaces the miles driven by an ICE ie. when a new EV is bought, for their scenario, it’s like an ICE is junked. This is the big assumption that we went on last year saying made no sense and is the key reason why the math is for oil being displaced. If you buy this assumption, then you can buy the math. This is the same assumption but they must know it is crazy because they don’t even put in the text. In the GEVO 2023, this assumption was in a shaded highlighted box as if this is important But we have to believe others besides other criticized this assumption so GEVO 2024 put it in a long small font note at the bottom of graph. Last year, they at least wrote it out in the general text. And you gotta love the way they write. They don’t raise any questions on this particular assumption and try to imply it’s conservative. They specifically say “the accuracy of this assumption is uncertain” but then immediately follow “There is some evidence to suggest that EVs are driven further than their ICE counterparts, for example”. Note this run-on sentence is new and was not included in GEVO 2023. It’s hard to see due to the font size in the footnote, but here is what the long footnote says “Notes: STEPS = Stated Policy Scenario; APS = Announced Pledges Scenario; NZE = Net Zero Emissions by 2050 Scenario; RoW = Rest of the world; LDV = light-duty vehicle. Oil displacement is based on internal combustion engine (ICE) vehicle fuel consumption to cover the same mileage as the EV fleet. Oil displacement is calculated by assuming that the distance (total kilometres) travelled by EVs by segment each year would have been otherwise travelled by ICE vehicles or hybrid electric vehicles (HEVs). In the case of PHEVs – where the powertrain uses both oil-based fuel and electricity, only the distance covered by electricity is included. This method of estimation assumes that EVs replace ICE or hybrid vehicles of the same segment, and that these vehicles follow the same driving behaviour. The accuracy of this assumption is uncertain. There is some evidence to suggest that EVs are driven further than their ICE counterparts, for example.”*

Energy Transition: Trump stated Day 1 executive order to end offshore windmills

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

**Trump to end
offshore
windmills**

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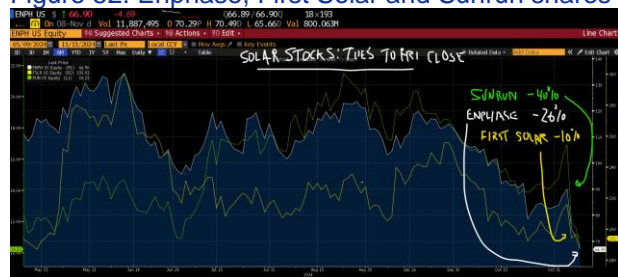
tweeted [\[LINK\]](#) "Offshore wind to be Trump Day 1 executive order priority. 05/11/24: "You won't have to worry about Gov Murphy's 157 windmills They ruin the environment We are going to make sure that that ends on Day 1. I'm going to write it out in an executive order. It's going to end on Day 1." 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."

Energy Transition: Solar stocks are down post Trump win

We don't recall Trump ever being specific on an anti-solar power attack vs his consistent anti-windmills comments. And his election campaign energy strategy "Agenda47: America Must Have the #1 Lowest Cost Energy and Electricity on Earth" Sept 7, 2023 [\[LINK\]](#) had no specific mention of solar. Rather Trump's expected move to pull back from subsidies and priorities to clean energy. Early Wed morning, we tweeted [\[LINK\]](#) "More #NatGas generation will be needed for 2020s. Any wobble/delays for US solar deployment ramp will create a need for more #NatGas generation to fill the gap. Solar stocks hit hard in pre market. Enphase -13.0%. First Solar -14.3%. Sunrun -19.1% #OOTT." Those were in the pre-market on Wed at 4:45am MT. The losses were larger by the Friday close. First Solar was down 10% from \$215.89 on Tues close to \$193.93 on Friday close. Enphase was down 26% from \$89.94 on Tues close to \$66.90 on Friday close. Sunrun was down 40% from \$16.91 on Tues close to \$10.23 on Friday close.

Solar stocks hit post Trump win

Figure 52: Enphase, First Solar and Sunrun shares post Trump win



Source: Bloomberg

Energy Transition: Germany reminds wind generation varies within seasons

There was a good reminder of the intermittency of wind generation this week in Germany. Last week's (Nov 3, 2024) Energy Tidbits memo highlighted that Germany is now in its seasonal winter peak for wind generation. But this week, we saw a good reminder that within

Germany wind generation

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the seasonal peak wind generation period, there can be huge variations in wind generation. In this case, Germany wind generation hit yearly lows in the seasonally high period. so, even though this is the seasonally high wind generation period, Germany hit its lowest wind generation over the past year. On Wednesday, we tweeted [LINK](#) “Here's why Germany still needs #NatGas & #coal Wind generation is intermittent but also very unpredictable. Germany wind is normally strong in Nov as it peaks in winter, troughs in summer. But wind generation is now below summer trough. #OOTT. Thx @business @BloombergNEF European Energy Exchange.” Our tweet included the below Bloomberg chart of Germany wind generation.

Figure 53: Germany wind generation Nov 6, 2023 – Nov 6, 2024

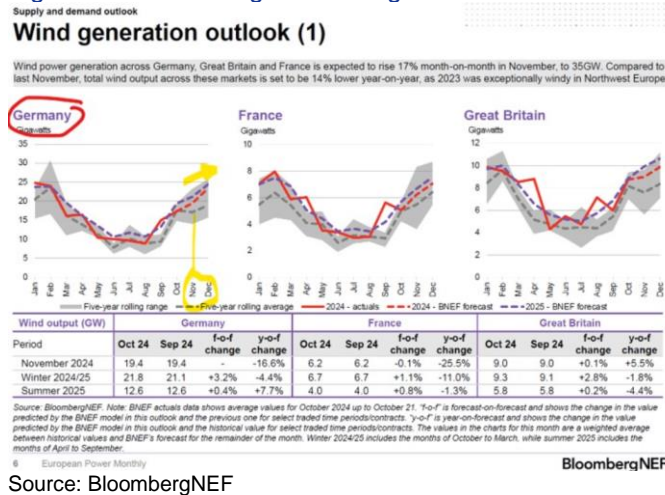


Source: Bloomberg, European Energy Exchange

Europe wind generation seasonally peaks in the winter

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

Figure 54: BloombergNEF wind generation outlook



Source: BloombergNEF

Energy Transition: CEG's customers want energy they can rely on every hr every day

Constellation Energy has been responsible for the big increase in investor's buying nuclear and uranium with its recent Microsoft deal to restart Three Mile Island nuclear reactor #2. CEG held its Q3 call on Monday and management highlighted that its AI data center customers want 24/7 power. CEG may be talking its book as it is a nuclear power supplier but they made a point of emphasizing that their customers want clean energy to provide 24/7 power (ie. nuclear. But the unspoken reality is that the first requirement for any AI data center is having 24/7 reliable power. So nuclear is the ideal but if it's 24/7 power, that eliminates solar and wind and means natural gas and coal. Battery energy storage isn't yet long duration send out to pair with wind or solar to provide 24/7 but perhaps there is some combination of all three that might do it. But they will have to convince customers that the combined of all three can provide power every hour every day and not just some days. We have yet to see any announcements of any AI data center deals relying only on a combination of solar, wind and battery storage without any backup fossil fuels. On Monday, we tweeted [LINK](#) "Data center #1 need is 24/7 power and the ideal is the 24/7 is nuclear. "our customers are looking for clean emission -free energy that they can rely on in every hour of every day" Constellation CEO ie. can't be wind/solar for baseload. #NatGas #Coal are needed for data center growth. #OOTT." In the Q3 release, CEG wrote "The importance of AI and the data economy to America's economic competitiveness and national security can't be overstated, and Constellation will do our part to meet the moment. Our customers are looking for clean, emissions-free energy that they can rely on in every hour of every day, and nothing exemplifies that imperative more than our 20-year agreement with Microsoft to restart the Crane Clean Energy Center," said Joe Dominguez, president and CEO, Constellation. "There is no more important commodity in the world today than clean energy that is there when you need it. We continue to see opportunities to add clean energy to the grid by extending the life and increasing the output of our nuclear fleet to meet the nation's growing needs in a way that creates jobs, benefits grid reliability and protects the environment."

**Fossil fuels
power Dominion's
data centers**

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Energy Transition: AI Jaber data centers more than double by 2030, again by 2040

It has been amazing to watch how everyone, in last six months, has jumped on the AI data center growth as the energy theme to 2030 and beyond. This was reinforced globally as the global energy gathering, ADIPEC 2024, was this week in Abu Dhabi and the keynote address was by Dr. Sultan Al Jaber, Managing Director and CEO of ADNOC on Tuesday. His keynote highlighted how rapid and massive growth in AI data center electricity demand has emerged over the past 18 months. He sees AI data center electricity demand more than doubling to 2030 and doubling again by 2040. And this will require capital investment of at least \$1.5 trillion per year. Per year!. Our position on AI data center growth hasn't changed – yes, it will take any intermittent wind and solar and every short duration send-out battery storage that it can. But it needs reliable, available, affordable 24/7 baseload power and that means it will need all the natural gas and coal that can be supplied. Here is the our SAF Group created transcript of comments by Dr. Sultan Al Jaber, Managing Director and CEO of ADNOC, at ADIPEC 2024 on Nov 5, 2024. [\[LINK\]](#) Items in “*italics*” are SAF Group created transcript. At 4:40 min mark, Dr. Sultan Al Jaber “*But the exponential growth of A.I. is also creating a power surge, that no one anticipated 18 months ago- and that's when ChatGPT took off. A single prompt on ChatGPT needs ten times more energy than a Google search. And as A.I. expands it will rely on a massive scaleup of data centers for it's huge and fast-growing computational needs. Over the next six years data centers will more than double, requiring at least 150 gigawatts of installed capacity by 2030 and double that again by 2040. No single source of energy is going to be enough to meet this demand. We need to integrate renewable energy, nuclear energy, and gas in the most cost, and carbon efficient way. And we need everyone who can provide solutions working closely and more collaboratively together. And colleagues, that's why only yesterday, here in Abu Dhabi, we brought together some of the worlds leading minds in A.I., energy, investment, and finance, and climate. This engagement reinforced how interconnected the megatrends are and helped to identify the solutions needed to ensure socio-economic growth. Here are some of the key takeaways: we need more infrastructure that is fit for purpose and fit for the future. We need investment in the power sector to grow to at least \$1.5 trillion per year. We need enabling policies and regulations to accelerate and protect those investments, and we need to leverage A.I.'s potential to optimize energy sources and predict peaks and dips in demand and enhance battery storage. In short, we need an integrated response that brings together expertise from all sectors.*”

**ADNOC CEO AI
Jaber on data
center growth**

“A single prompt on ChatGPT needs 10x more energy than a Google search”

Al Jaber had the best line from ADIPEC 2024 to make it clear to people how much more electricity is needed by AI. On Thursday, we tweeted [\[LINK\]](#) ““A single prompt on ChatGPT needs ten times more energy than a Google search”. @ADNOCGroup Dr. Sultan Al Jaber at 4:58 min mark. Example of massive increase in electricity consumption by AI data centers. Lot more throughout his keynote! Thx @jamesvgingerich #OOTT #NatGas.” His full quote was “*But the exponential growth of A.I. is also creating a power surge, that no one anticipated 18 months ago- and that's when ChatGPT took off. A single prompt on ChatGPT needs ten times more energy than a Google search.*”

Energy Transition: Fossil fuels provide 63.7% of Dominion's power for data centers

We remind that AI data center energy demand growth is big for natural gas and coal for the

**Fossil fuels
power Dominion's
data centers**

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coming decade or until nuclear power generation can be added and added consistently in scale. And that despite how much the leading energy providers to AI data centers highlight renewables, it is fossil fuels that are providing most of the power for AI data centers. Here is what we wrote in last week's (Nov 3, 2024) Energy Tidbits memo. *"Bullish indicator for natural gas and coal from Dominion Energy, the global leader in providing power to data centers, from their Oct 15 filed 2024 Integrated Resource Plan. Dominion held its Q3 call on Friday. We flipped thru their Q3 slides and didn't see the words natural gas or coal, yet we know from our prior work. They also didn't mention natural gas or coal in their prepared comments and only did so when asked in the Q&A. So we went to their Oct 15 filed 2024 Integrated Resource Plan that shows the 2023 capacity by fuel and 2023 actual energy mix by fuel. And, similar to what we highlighted on their 2022 capacity and actual energy mix in our March 4, 2024 Energy Tidbits memo, Dominion's actual power supplied is primarily dependent on fossil fuels and then nuclear. And renewables were 10.9% of Dominion's power capacity in 2023 but only delivered 5.0% of the actual power. Reminder that capacity is what Dominion notes is "potentially available" and energy mix is the "sources of energy actually delivered." And Dominion noted that its power purchases were comprised of "existing contracts with renewable energy and fossil based PPAs". In their charts/tables, they specifically note Renewable purchases but then just put the rest in "Other Purchases", which must be the Fossil based PPAs. So even though they don't mention natural gas or coal Yesterday, we tweeted [\[LINK\]](#) "Numbers don't lie! Dominion's huge data center growth in 2020s/2030s is bullish for #NatGas #Coal. Fossil fuels provided 63.7% of \$D's power in 2023. 2024 IRP: 2023 capacity vs % of actual energy supplied: Renewables incl purchases: 10.9% vs 5.0%. Nuclear: 16.6% vs 29.2%. Fossil Fuels incl purchases: 63.4% vs 63.7%. Pumped storage: 9% vs 3%. #OOTT." Even though Dominion doesn't want to mention fossil fuels, fossil fuels provided 63.7% of Dominion's total power. It is disappointing to see the machinations companies will go to avoid mentioning fossil fuels and, in Dominion's case, rounding up numbers to make renewables look a little better. Below is the table we created from Dominion's 2023 Integrated Resource Plan. Our column for actual energy mix adds up to 100.9% and that is because Dominion only provided rounded numbers for renewables instead of giving one decimal. So renewables are a rounded 8.0% but should have been 7.1% if Dominion had give one decimal like all other numbers. Our Supplemental Documents package includes the excerpts from the IRP that we attached to our tweet and that are the source of data for our table."*

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Figure 55: Dominion Energy 2023 Capacity & Energy Mix by Fuel Type

Dominion Energy 2024 Integrated Resource Plan Oct 15, 2024				
Fuel Source	Net Summer Capacity MW	% of Capacity	% of Actual Energy Mix	Actual vs capacity
Nuclear	3,348	16.6%	29.2%	12.6%
Natural Gas	8,533	42.4%	36.0%	-6.4%
Pumped Storage	1,808	9.0%	3.0%	-6.0%
Coal	2,666	13.2%	5.0%	-8.2%
Oil	400	2.0%	0.0%	-2.0%
Renewable - solar, wind, hydro biomass	1,087	5.4%	3.0%	-2.4%
Energy Storage	20	0.1%	0.0%	-0.1%
Renewable Purchases	1,109	5.5%	2.0%	-3.5%
Other Purchases (Assume Fossil Fuels)	1,160	5.8%	22.7%	16.9%
	20,131	100.0%	100.9%	0.9%
1. The Energy Mix only provided rounded numbers for Renewables, Renewable Purchases and Pumped Storage				
2. Capacity represents "potentially available contribution of each type of generating resource"				
3. Power purchase agreements are "with renewable energy and fossil based PPAs"				
Source: Dominion Energy 2024 Integrated Resource Plan				
Prepared by: SAF Group https://safgroup.ca/insights/energy-tidbits/				
Source: Dominion Energy				

Energy Transition: BYD's PHEVs continue to far outsell its BEVs

We think it has been overlooked how China's NEV (New Energy Vehicles) are driven by PHEVs and not BEVs. Most just reference China's NEV sales. Last week's (Nov 3, 2024) Energy Tidbits highlighted how PHEV sales have overtaken BEV sales in 2024 in China. On Monday, China's BYD posted its October sales and it included a split of NEV into BEV, PHEV, etc. BYD is now outselling Tesla and it is because BYD sells PHEVs. BYD's PHEV sales are +129.3% YoY to 310,912 in Oct and +62.2% YoY to 1,877,734 in YTD Oct 31. Vs BYD's BEV sales, which were +14.6% YoY in Oct to 189,614, and +12.0% YoY to 1,359,193 in YTD Oct 31. On Monday we tweeted [\[LINK\]](#) "PHEVs keep taking market share from BEVs. China NEVs New Energy Vehicles incl BEV and PHEV. PHEV are 60% of BYD NEV sales. Oct/YTD Oct 31: BEV: 189,614 + 14.6% YoY. 1,359,193, +12.0% YoY. PHEV: 310,912, +129.3% YoY. 1,877,734, +62.2% YoY. PHEVs are really just more fuel efficient ICE vehicles. See 📌 09/04 tweet. Volvo says its PHEVs kms driven are 50/50 ICE vs electric mode. #OOTT." Our tweet included the below table we made of BYD's Oct sales numbers. Our Supplemental Documents package includes the BYD Oct sales data.

BYD PHEV vs BEV sales

Figure 56: BYD Oct car sales splits

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

Source: BYD Production and Sales Volumes for October 2024, posted Nov 1, 2024

Prepared by SAF Group

Source: BYD

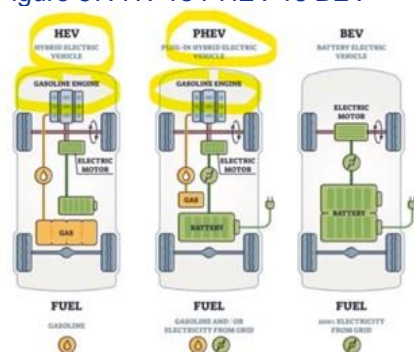
HEVs & PHEVs are really just more fuel efficient ICE vehicles

As we noted in last week's (Nov 3, 2024) Energy Tidbits memo, we have yet seen any good estimates for how much Chinese PHEVs are driven in gasoline vs electricity model. We noted 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

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one can deny an HEV will burn less gasoline or diesel than its ICE counterpart. However, we still find many don't understand that HEVs and even PHEVs are really just more fuel-efficient ICE vehicles and, in particular, for PHEVs that are generally lumped in with EVs for an electrified car group. HEVs and PHEVs run on gasoline or diesel for likely at least half of the time for PHEVs and probably 90% for HEVs. On Sept 4, we tweeted [\[LINK\]](#) "HEV/PHEV 101 - They are really just more fuel efficient ICE. Ford: HEV F150 does 23 mpg vs ICE150 at 19 mpg. Volvo: PHEVs km driven are split 1/2 using battery, 1/2 using petrol/diesel. #OOTT." Our tweet referenced Ford and Volvo data on HEVs and PHEVs. On Ford F150 Hybrid vs ICE mpg. Our tweet included the EPA rated mileage for the Ford F150 ICE vs Hybrid. The EPA rates the Hybrid fuel efficiency as being only 4 mpg more than the ICE. That increased fuel efficiency would be reduced if it was a full apples-to-apples comparison. The ICE has a much larger towing capacity. The F150 ICE 3.5L cyl F-150 does 19 MPG with a tow capacity of 13,500 lbs. The F150 HEV 3.5L 6 cyl F-150 does 23 MPG with a tow capacity of 11,200 lbs. On Volvo PHEVs, most just lump PHEVs in with EVs because both are electrified. But the reality is that a lot of PHEV is driven in ICE mode. As noted earlier, Volvo backed off its fully electric plans and its press release noted "Volvo Cars' most recent data shows that around half of the kilometres covered by the latest plug-in hybrid Volvo cars are driven on pure electric power." So based on the "most recent data", Volvo PHEVs are driven around 50/50 between km driven in battery mode vs ICE mode. Given the press release was Volvo having to back away from its electrified goals, we have to believe the "around half" driven by PHEV is likely below half. We also believe that Volvo has likely picked the best time period for PHEVs driving in battery mode. We would assume the most recent data is referring to some spring/early summer period and it does not include winter months where the PHEVs will be driven more in their ICE mode.

Figure 57: HV vs PHEV vs BEV



Source: Engineering Infrastructure

Energy Transition: RBN, hydrogen using natural gas infrastructure is a difficult task

We have been consistent for years that it is very hard to see how hydrogen is anywhere the aspirations from western governments. And our concerns go back to basics on how for years, people talked (and they still do) that hydrogen is a power source and not that it is an energy

**Hydrogen using
natural gas infra
is a difficult task**

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carrier and an expensive one at that. (i) On Friday, we tweeted [\[LINK\]](#) “Hydrogen 101. Great step thru on the issues for the simplistic view that #Hydrogen can just be layered into, or on top of, existing #NatGas supply chain with some modest modifications. Don't forget hydrogen is not an energy source, it's a carrier. Energy gets lost in conversion of #NatGas to hydrogen. See 01/22/22 tweet [\[LINK\]](#). Another great @RBNEnergy post. #OOTT.” (ii) On Thursday, RBN energy posted a blog “Hard to Handle - Hydrogen's Unique Properties Make Using Natural Gas Infrastructure a Difficult Task” [\[LINK\]](#). It's a good blog that notes the differences between hydrogen and natural gas and then steps thru each part of the natural gas delivery infrastructure and why hydrogen won't really work or only work at a big loss in energy or big cost. The bottom line is that a new hydrogen delivery system will be needed. Whereas, energy transition forecasts assume hydrogen is layered into or on top of the natural gas supply delivery infrastructure. (iii) One of the overlooked and not really talked about risks to hydrogen is “But while a lot has been said about the many potential uses of hydrogen, including co-firing it with natural gas in power generation or even as a 100% replacement, those discussions sometimes overlook a fundamental hurdle: hydrogen is notoriously combustible and a challenge to move and store safely.” (iv) The RBN blog focuses on integrating hydrogen into the natural gas infrastructure. Our only suggestion would have been to go back to the fundamentals of t square one, they didn't start with the fundamentals of hydrogen. Hydrogen is not an energy source, it is an energy carrier. There are energy losses in converting natural gas or renewable to hydrogen. We recommend adding the RBN Energy blog to reference libraries. Our Supplemental Documents package includes the RBN Energy hydrogen blog.

Energy loss in converting natural gas to hydrogen to ammonia

Here is what we wrote in our Apr 7, 2024 Energy Tidbits memo on JERA's hope to have ammonia replace 20% of coal power. “Another of the overlooked parts of the JERA ammonia replacing 20% of coal is that there are energy losses in converting natural gas to hydrogen to ammonia works and ammonia that burns clean. We did not put that in our tweet. We have been fortunate that, for the most part, the comments we get on our tweets on Twitter/X are meant for constructive dialogue or for pointing out other items to consider on a tweet. A good example was on the JERA, when a Twitter follower replied “Stacked losses/inefficiencies are what kill so many energy storage concepts, few understand this”. If this was a follower with a real name, we would have sent a direct message to make sure we understood his point. But we interpreted it as a reminder that there is a loss of energy take a joule of natural gas to make it into a lesser amount of hydrogen to make that into a lesser amount of ammonia. The end result is to start with so much energy from natural gas and end up with a lesser % of that starting point by the time JERA uses the ammonia to replace coal. The US Dept of Energy Alternative Fuels Data Center website's “Hydrogen Basics” reminds of this energy loss in converting natural gas to hydrogen and it also reminds that the losses are more when converting wind and solar to hydrogen. [\[LINK\]](#) The DOE AFDC doesn't say how much energy is lost. But we found a paper “Energy and the Hydrogen Economy” [\[LINK\]](#), not authored by any DOE people, that is posted on the AFDC website that suggests 10% loss for natural gas to hydrogen. Note this is not a DOE authored paper. But they suggest 10% losses, which seems reasonable. That is just the energy loss in converting natural gas to hydrogen and doesn't include the loss converting from hydrogen to ammonia.

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The bottom line is that there is a loss of energy in the process to use ammonia for power generation instead of using the starting natural gas for power generation. Our Supplemental Documents package includes the DOE Hydrogen Basics and the excerpt from the Energy and the Hydrogen Economy paper.”

EIA reminds hydrogen is an energy carrier, not an energy source

On the above noted JERA ammonia plan, on Apr 1, 2024, we tweeted [\[LINK\]](#) “More Ammonia = More #NatGas. JERA tests 20% Ammonia substitution at Coal thermal power plant. Says Ammonia is means of transporting Hydrogen. BUT recall 📌 01/21/22, hydrogen must be produced from another substance. JERA forgot to highlight the hydrogen is coming from #NatGas #OOTT.” JERA made a big announcement and forgot to mention the ammonia will come from hydrogen that comes from natural gas. Our Apr 1, 2024 tweet on the JERA ammonia demonstration project included our Jan 21, 2022 tweet that reminded a Hydrogen 101 basic – Hydrogen is not an energy source. We continue to see many overlook that hydrogen is not an energy source and forget or omit that hydrogen is an energy carrier that is produced from an energy source like natural gas. Here is what we wrote in our Jan 23, 2022 Energy Tidbits memo on this Hydrogen 101 basic. “On Friday, we tweeted [\[LINK\]](#) ““takes more energy to produce #hydrogen (by separating it from other elements in molecules) than hydrogen 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. [\[LINK\]](#)

Capital Markets: UN FAO Food Price Index up MoM in October, +5.5% YoY

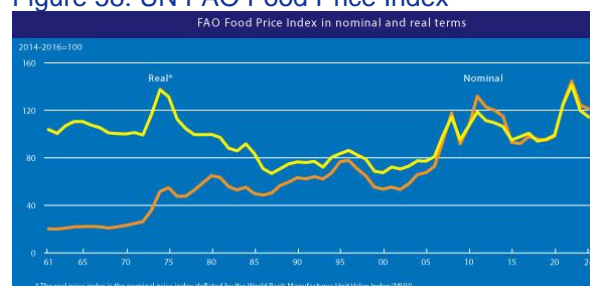
The UN Food Price Index is a monthly food commodities measure and not an index of consumer food prices or food prices in grocery stores. However, increases or decreases in food commodity prices should, in theory, eventually work their way into grocery prices. The

**UN food price
index up MoM**

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UN Food Price index has been gradually decreasing since the middle of 2023, however, October pushed the index to the highest level since April 2023. On Friday, the UN posted its monthly update of its FAO Food Price Index titled “*Higher quotations across a range of commodities push the FAO Food Price Index to its highest level in 18 months*” [\[LINK\]](#). Note that the index is calculated on a Real Price basis. The FFPI averaged 127.4 points in October, up +2% from the revised September figures, and is up +5.5% YoY. All FFPI reported categories saw increases in October. The Vegetable Oil Index was up +7.3% MoM, and up +27.3% YoY, and marked the highest level since in 2 years. The increase was driven by increasing quotations for, rapeseed, and sunflower oil, as well as prospects of subdued supply. The Dairy Price Index was up +1.9% MoM and up +21.4% YoY. The Cereal Price Index was up +0.8% MoM which is -8.3% YoY. The Meat Price Index was down -0.3% MoM and up +7.5% YoY. The Sugar Price Index was up +2.6% MoM and down -18.6% YoY.

Figure 58: UN FAO Food Price Index



Source: UN FAO

Capital Markets: German coalition govt collapses, Scholz targets March election

On Tuesday, the German coalition govt collapsed when Chancellor Scholz (Social Democrats, SPD) got rid of Finance Minister Christian Lindner (Liberals, FDP). Scholz was broadly quoted as saying Lindner broke his trust too many times. Scholz said he would call for a non-confidence vote in Jan, which, if it passed, would set up a mid-March federal election. On Wednesday, we tweeted [\[LINK\]](#) “*Big challenges for whatever German govt emerges next Mar. See 📉 Nov 4 tweet outlook remains bleak for DE Industry on Germany Manufacturing PMI. Chancellor Scholz to call non-confidence vote for Jan 15 with likely election in Mar 2025. FM Lindner dismissed. [LINK] #OOTT.*” We have no idea what type of govt will emerge although most are expecting the right to do very well. Our tweet was really just a reminder that there will be an economic challenge for the next German govt given how poorly industry is doing in Germany. Our tweet included the following Nov 4 tweet on Germany Manufacturing PMI for Oct on how the outlook remains bleak..

German
coalition govt

Capital Markets: Germany manufacturing PMI increases, but outlook remains bleak

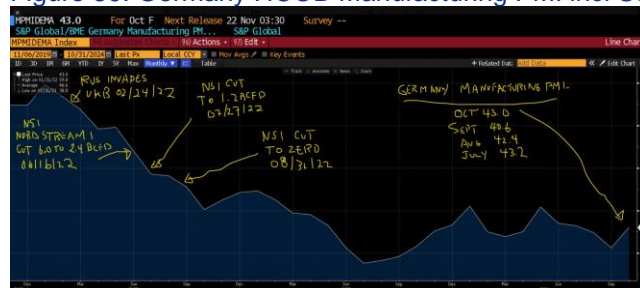
Germany manufacturing/industry started its big slide before Russia invaded Ukraine when Europe natural gas prices spiked and went into a steady big decline as cheap Russian natural gas via pipeline was cut to zero in 2022 following Russia’s invasion of Ukraine. Cutting off cheap Russian natural gas has been the big hit to Germany’s heavy industry. On Monday, we tweeted [\[LINK\]](#) “*“Outlook remains bleak” for German industry. Manufacturing PMI: Oct 43.0 Sept 40.6 Aug 42.4 July 43.2 “However, as long as structural problems persist in Germany, the outlook remains bleak. This is because companies continue to contend with*

Germany
manufacturing
PMI ticks up

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the lack of certainty for investment, high energy costs as well as strong competition and weak demand from China.” @HCOB_Economics Give Germany credit, cutting off cheap RUS pipeline #NatGas 📢 to support UKR has been a big negative to industry and economy. #OOTT @SPGlobal.” On Tuesday, the HCOB Manufacturing PMI for Germany showed an expansion in October, following contractions in the past 3-months. The manufacturing PMI came in at 43.0 for October, up from 40.6 in September. Despite the increase in October, the figures remain significantly below 50.0, which is the neutral mark. September was the lowest level in 12-months. We recognize there is more to manufacturing than energy prices, but German manufacturing no longer has a competitive advantage by having cheap Russian pipeline natural gas. Junior Economist at Hamburg Commercial Bank, Jona Feldhusen, noted this point, saying “However, as long as structural problems persist in Germany, the outlook remains bleak. This is because companies continue to contend with the lack of certainty for investment, high energy costs as well as strong competition and weak demand from China.” Below is the Bloomberg graph of HCOB Manufacturing PMI and we noted the key events of Russia cheap natural gas pipeline gas being cut off and that looks like a correlation to lower German manufacturing PMI. Our Supplemental Documents package includes excerpts from the HCOB Manufacturing PMI.

Figure 59: Germany HCOB Manufacturing PMI incl Sept & Russian natural gas events



Source: Bloomberg

Rebuilding Ukraine should be a big boost to German industry

We don't believe any of the European countries really want to see a Russia Ukraine deal that ends up being a big loss for Ukraine after almost three years of fighting. But we also believe that many of the European countries want an end to the war so they don't have to keep funding the defense with no end in sight. And the countries may not want to say it, but an end to the war should benefit countries like Germany. Earlier in the memo, we noted the benefit to Germany if a deal allows a return of cheap Russian pipeline natural gas. We have been highlighting how Germany economy is hammered and in great part driven by the end of cheap Russian pipeline natural gas. Germany would also benefit if it restarted Russian oil flows via pipeline. And perhaps the biggest boost to Germany will be in rebuilding Ukraine. The amount of billions that will be spent on rebuilding Ukraine infrastructure has to benefit Germany industry and manufacturing.

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Demographics: Canada sees record low birth rates in 2023

Note that the Statistics Canada estimated Canada birth rate of 1.26 in 2023 is well less than the UN estimated 2022 birth rate of 1.57 for Canada. Statistics Canada published their report which examines birth patterns, and fertility rates in 2023 [\[LINK\]](#). The report noted that the number of live births in Canada in 2023 was relatively flat but down small YoY at 351,477; however, it is important to note that 2022 saw a notable decline, of -5% YoY. Coming in flat from 2022's lower figures, 2023 has continued the trend of declining births which started in 2017. The report also notes that fertility rates in Canada reached an all time-low in 2023, of expected live births of 1.26 children per woman. This has grouped Canada into the "lowest-low" fertility bracket of countries, joining South Korea, Japan, Spain, and Italy. Statistics Canada said "Canada's [fertility rate] has been generally declining for over 15 years and reached a new low in 2023 of 1.26 children per woman. This decline from 2022 to 2023 mostly reflects an increase in the number of women of childbearing age in 2023, as the number of births was similar in both years. Canada has now joined the group of "lowest-low" fertility countries, including South Korea, Spain, Italy and Japan, with 1.3 children per woman or less. In comparison, the total fertility rate for the United States was 1.62 per woman in 2023".

Record low birth rate in Canada

Global average birth rate driven by developing countries is 2.3 children/woman

Here is what we wrote in last week's (Nov 3, 2024) Energy Tidbits memo on global birth rates. Note that the UN estimated birth rate for Canada at 1.57 is well above Statistics Canada birth rates. Here is what we wrote last week. "All population forecasts call for increasing global population but that is really only because of developing growth rates in developing countries, in particular in Africa. The UN World Population Review 2024 [\[LINK\]](#) referenced World Bank data for 2022, which estimates the global average in 2022 was 2.3 children per woman. But averages are deceiving. The developed countries most often highlighted for low birth rates in Asia are Taiwan at 1.09 and South Korea at 1.11. China is down to 1.5 and even India is only 2.1. Low birth rates in Europe are Italy at 1.24 and Spain at 1.29. In North America, Canada is at 1.57 and US at 1.84. But then on the high end are developing countries Niger at 6.73, Angola at 5.76, DR Congo at 5.56, Mali at 5.45 and Benin at 5.39. Africa is driving world population growth, not Asia."

Demographics: 52% of those Cdns who want kids have waited longer driven by costs

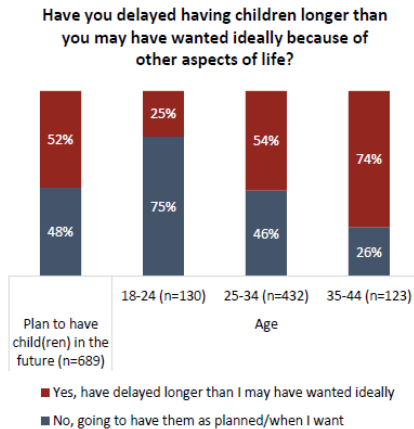
On Oct 8, The Angus Reid Institute released a the results of their survey of 1,300 Canadians under 50 "Birth rate crisis? Half of those who want children have waited longer than they'd like, due largely to cost" [\[LINK\]](#). The survey included 1,300 Canadian under 50, and found that the top reasons for the delay in plans to have children are finances and job market uncertainty, current lack of partner, cost of childcare, and the housing cost crisis. Angus Reid wrote "[We] asked 1,300 Canadian adults younger than 50 if they plan to have children, and if not, why? Among this group, one in-five are definitely (21%) going to have at least one child, while one-in three (32%) say they may still do so. Within these two groups of potential parents, fully half say that they have delayed having kids longer than they ideally would have wanted. This rises to three-quarters (74%) among 35- to 44- year-olds. The top reasons driving delays are both societal and personal. For many, the search for the right partner has just not borne fruit (40%). For others, however, uncertainty surrounding their finances and the job market (41%) the cost of childcare (33%) and the housing affordability crisis (31%) are all

High costs impacts Cdn birth rates

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drivers of the decision to wait.” Our Supplemental documents package includes excerpts from the Angus Reid report.

Figure 60: Those who want children, and whether it has been delayed



Demographics: Will Americans follow thru and emigrate to Canada post Trump?

Everyone should remember that, post Trump's first win, there were many well-celebrated comments from financial people and celebrities saying they would be moving to Canada. I only know of one person who followed thru on that as any others I was aware had the reality check of moving to a higher tax environment. But following Trump's win this week, there were many media reports on the huge jump in Americans researching how to emigrate to Canada. We suspect that wealthy people know what they may have looked at eight years ago in that a move to Canada will hit their wealth. Rather it didn't get the publicity, but I heard of more people moving to the UK or other countries with better tax environment for wealthy. So I am skeptical that many wealthy Americans will move to Canada. But, it isn't that expensive to move to Canada and Arrive (a platform operated by RBC) estimates [LINK](#) the cost of Cdn \$33k for the estimated immigration costs.

**Will Americans
come to Canada
post Trump**

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

Last month, I went over 11,000 followers on Twitter/X. I really appreciate the support and, more importantly, some excellent insights and items to look at from Twitter followers. It helps me do a better job. For new followers to our Twitter, we are trying to tweet on breaking news or early views on energy items, most of which are followed up in detail in the Energy Tidbits memo or in separate blogs. Our Twitter handle is @Energy_Tidbits and can be followed at [LINK](#). We wanted to use Energy Tidbits in our name since I have been writing Energy Tidbits memos for over 20 consecutive years. Please take a look thru our tweets and you can see we aren't just retweeting other tweets. Rather we are trying to use Twitter for early views on energy items. Our Supplemental Documents package includes our tweets this week.

**@Energy_Tidbits
on Twitter**

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Misc Facts and Figures.

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

Wine of the week: 2003 Chateau Gruaud Larose

In August, I started the wine of the week when I realized I had to get to opening up some wines bought 20 to 30 years ago that included some that, unfortunately, were getting past their prime. One of the negatives of the change in life from Covid was a huge absence of entertaining at home, which means there has been a big shortfall in wine drinking at our home. So am now making sure what, when I bought them 15-25 years ago, were some good wines and make sure bottles get opened especially as many are 20 to 40 years old. On Friday, I tweeted out the wine of the week, which was a 2003 Chateau Gruaud Larose, a second growth (Deuxiemes Crus) from Saint Julien appellation. I decanted it for a couple hours and it was still drinking well. It's a nice Bordeaux but not as great as some others. But I don't feel any need to rush to drink the last few bottles.

Figure 61: 2003 Chateau Gruaud Larose



Source: SAF Group

NCAA new hockey scholarship eligibility rules is a big plus for Cdn teenagers

There was great news this week for young Canadian hockey players when the NCAA changed their eligibility for hockey scholarships. One of the challenges for teenage hockey players was figuring out at the age of 16 or so if they thought they could make the NHL as the best route to the NHL has always been thru junior A hockey in Canada. And going back over decades, it was almost impossible for Cdn teenagers to play Junior A hockey and take the very limited room/board money as it would make them ineligible for a hockey scholarship. That changed this week with the NCAA now allowing junior A hockey scholarships. So maybe some 16 yr old goes Junior A and then decides when he is 18 that he wants to go US college route, he can now get a full-ride hockey scholarship. Our Supplemental Documents package includes the new NCAA rules. [\[LINK\]](#)

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Fast food at Japanese football (soccer) match

Normally the pictures of the fast food and the food deals at sports events don't look appetizing and/or are at some crazy high price. But this week, we saw an Oct 28 post of food of a Japanese football (soccer) match that looked pretty good and at really low price. FootyScran tweeted [\[LINK\]](#) "*Chicken box at Japanese cup semi final Vissel Kobe vs Kyoto Sanga (@J_League_En) JP 1200¥ (£6).*" Below is the Chicken Box.

Figure 62 Chicken Box at Noevir Stadium Kobe (Japan)



Source: Footy Scran