SAF GROUP

Energy Tidbits

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Libya Oil Production Down by ~700,000 b/d on Wed, but Some Might be Restored for Domestic Refineries and Power Plants

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 1999 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. Forced shutdowns took off ~700,000 b/d of Libya oil production by Wednesday but some may be being restored to full domestic demand from refineries and power plants. [click here]

2. Vortexa's 1st Aug 30 floating storage estimate is 51.78 mmb, lowest since Covid. Last 5 weeks revised up but, even still, last 5 weeks average 64.35 mmb, a solid trend as only 18 weeks <70 since Covid. [click here]

3. Russia stops disclosing refinery fuels production post Ukraine hitting its largest, Omsk, refinery. [click here]

4. Liberals impose surtax and remove $5,000 point-of-sale rebate on all Chinese-made EVs including Shanghai-made Teslas. [click here]

5. LNG Canada expects to introduce natural gas to its liquefaction setting stage for start of "commissioning" LNG cargoes in the coming months, well ahead of planned "commercial" cargoes in mid 2025. [click here]

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

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

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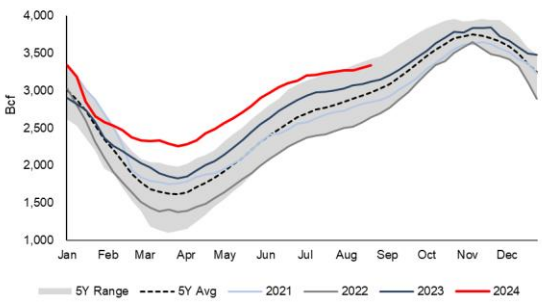
Natural Gas: Really hot summer = less risk US gas storage gets filled early

Less risk for US gas storage to be filled early

HH continues to be weak with US natural gas storage at or near the high end of the 5-yr range. The hot June, July & start to Aug in the Lower 48 helped to narrow the YoY gas storage surplus from looking like a strong probability to storage being filled early to a lesser but still potential probability to do so. The YoY gas storage surplus has dropped from +444 bcf YoY on May 3 to +228 bcf YoY. There may very well be items such as hurricane interruptions, a big spike up in natural gas for data centers, etc. that can change the outlook either up or down, but the really hot June, July, and August has lessened the risk to storage being filled early. As noted below, US natural gas storage is now +228 bcf YoY, which is up WoW from +221 bcf YoY last week. And, as noted below, storage could be a lot worse.

Figure 1: US Natural Gas Storage



Source: EIA

Natural Gas: Storage would be way worse if EQT, Coterra etc. didn't curtail production

Storage could be worse

The big holdback to Henry Hub prices this summer, despite the hot June and July, was that higher YoY storage would have been way worse if producers didn't shut-in production or hold back on planned completions. On Aug 20, 2024, we tweeted [LINK] "*Risk continues HH #NatGas is stuck in show-me state until Nov & theoretical start to winter withdraw from gas storage season. Hold back remains 👇@NOAA Nov/Dec still looking warmer than normal. Especially with EQT ~0.5 bcf/d and Coterra 0.275 bcf/d shut-in production. #OOTT.*" We reminded that gas storage would be a lot worse than it is if key producers hadn't shut-in natural gas production due to low prices. We highlighted US natural gas production leader, EQT, and their Q2 report disclosure of continuing to shut-in production due to prices, which is about 90 bcf for H2/24. Note for our tweet, we wrote ~0.5 bcf/d, which is the 90 bcf over the last six months but we would assume EQT is assuming it could restore the natural gas before Dec 31. Our tweet also noted Coterra's announced shut-in of 0.275 bcf/d for H2/24.

Natural Gas: +35 bcf build in US gas storage; now +228 bcf YoY

+35 bcf build in US gas storage

For the week ending August 23, the EIA reported a +35 bcf build. Total storage is now 3.334 tcf, representing a surplus of +228 bcf YoY compared to a surplus of +221 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. This week's data shows that storage is now -86 bcf below the 5-yr maximum of 3.420 bcf. Total storage is now +361 bcf above the 5-year average, below last week's +369 bcf surplus. Below is the EIA's storage table from its

Weekly Natural Gas Storage report [LINK] and a table showing the US gas storage over the last 8 weeks.

Figure 2: US Natural Gas Storage

Region	Stocks billion cubic feet (Bcf) 08/23/24	08/16/24	net change	implied flow	Year ago (08/23/23) Bcf	% change	5-year average (2019-23) Bcf	% change
East	754	735	19	19	745	1.2	696	8.3
Midwest	909	888	21	21	847	7.3	816	11.4
Mountain	266	263	3	3	211	26.1	188	41.5
Pacific	287	288	-1	-1	246	16.7	263	9.1
South Central	1,119	1,125	-6	-6	1,056	6.0	1,010	10.8
Salt	272	280	-8	-8	252	7.9	238	14.3
Nonsalt	847	845	2	2	804	5.3	772	9.7
Total	3,334	3,299	35	35	3,106	7.3	2,973	12.1

Source: EIA

Figure 3: Previous US Natural Gas Storage

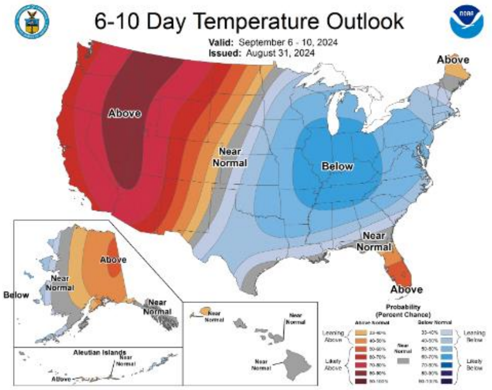
Previous 8 weeks (Bcf)				
Week Ended	Gas in Storage	Weekly Change	Y/Y Diff	Diff to 5 yr Avg
Jul-05	3,199	65	283	504
Jul-12	3,209	10	250	465
Jul-19	3,231	22	249	456
Jul-26	3,249	18	252	441
Aug-02	3,270	21	248	424
Aug-09	3,264	-6	209	375
Aug-16	3,299	35	221	369
Aug-23	3,334	35	228	361

Source: EIA, SAF

Natural Gas: NOAA forecasts cool in E/12, hot in W1/2 of Lower 48 for Sept 6-14

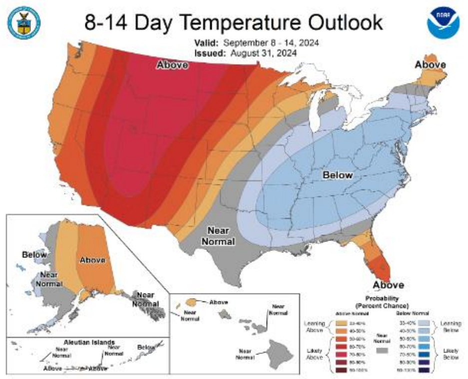
HH prices closed at $2.13 on Friday and our concern is that HH stays stuck around this level or a little weaker until the start of the winter unless there are some supply interruption as storage is still +228 bcf YoY and would be worse if producers like EQT and Coterra haven't been shutting in natural gas production due to low prices. Yesterday, we tweeted [LINK] "*Updated @NOAA 6-10 & 8-14 day temperature outlook covers Sept 6-14. Below normal temp for more populous E1/2 of US ie. leave the windows open temp. Much warmer than normal in W1/2 ie. low 30'sC for LA. Overall, likely negative to #NatGas given storage +228 bcf YoY. #OOTT.*" Below are NOAA's updated, as of yesterday, 6-10 day and 8-14 day temperature outlook maps covering Sept 6-14.

Figure 4: NOAA 6-10 day temperature outlook for Sept 6-10



Source: NOAA

Figure 5: NOAA 8-14 day temperature outlook for Sept 8-14



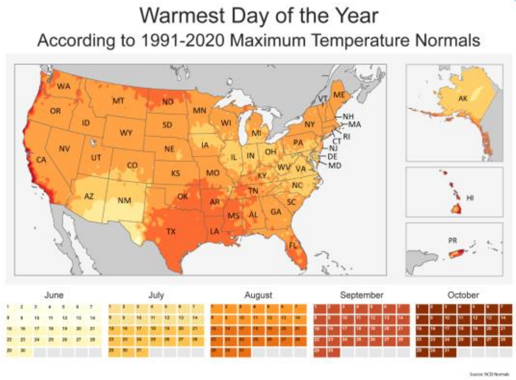
Source: NOAA

Natural Gas: Past NOAA's normal warmest day of the year for the Lower 48S

Normal warmest day of the year across the US

It's September, which means it is past the warmest day of the year for the Lower 48 and so hot weather relative to normal isn't as hot for temperatures as during July and August. So when NOAA posts its temperature outlook map and it shows well above normal temperatures for late September, it doesn't have the air conditioning demand impact as a well above normal temperature in July or August. Our July 2, 2023 Energy Tidbits included the below map from NOAA's post "*When to expect the Warmest Day o the Year*" [LINK]. We checked the link and it still works.

Figure 6: NOAA Warmest Day of the Year



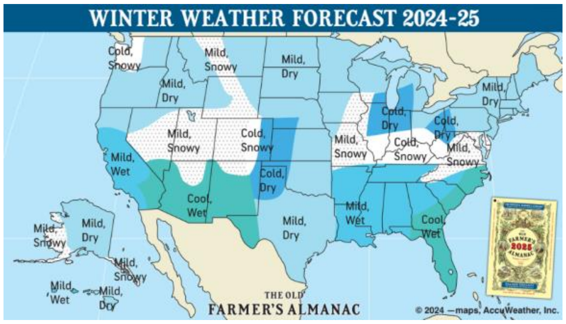
Source: NOAA

Natural Gas: Old Farmer's Almanac forecasts a "Calmer, Gentler" US winter 2024-2025

Old Farmer's Almanac warmer than normal winter

This week, the Old Farmer's Almanac released its Winter Forecast for 2024–2025 in the US [LINK]. Our normal comment at this time of year is that it's still early so long-term winter forecasts don't have much of an impact on natural gas markets going into Labor Day. And that forecasts out a few months are far from 100% success. Please be careful in looking at the map as it doesn't necessarily reflect what you might think ie. blue doesn't necessarily mean colder than normal. The Old Farmer's Almanac *wrote "This winter, temperatures will be up and snowfall down throughout most of the United States……While there will still be plenty of chilly temperatures and snow for most slopes, the high heating costs associated with the season shouldn't hit so hard. We're predicting a temperate, uneventful winter—potentially a welcome reprieve from the extremes of recent years. There will be exceptions, of course. Winter rainstorms will leave Florida, the Deep South, and southern California soaked. Meanwhile, heavy snowfall is expected in central and southern Appalachia, the western Ohio Valley, and the Rockies—calling all skiers and sledders!".* For the Atlantic Corridor (Boston down thru NYC, Baltimore to Richmond).Old Farmer's Almanac wrote "*Not bad! Temperatures will be average to slightly above average during winter (though 2% colder than average during February). The region will also experience shots of cold in mid-December, early and late January, and late February*." For the Lower Great Lakes (ie. Illinois, Michigan, Ohio, western NY), Old Farmer's Almanac wrote "*Winter will be warmer than normal in the east and colder than normal in the west. The coldest periods are expected in early and late November, in early December, and from late January into early February*." Our Supplemental Documents package includes the Old Farmer's Almanac winter forecast for the US.

Figure 7: Old Farmer's Almanac 2023-24 US Winter Outlook

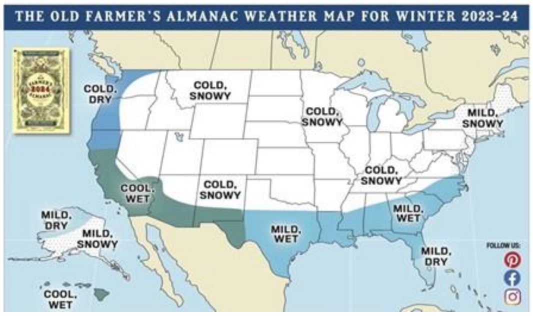


Source: Old Farmer's Almanac

Last year's Old Farmer's Almanac forecast was a 180 degree miss

Last year's Old Farmer's Almanac forecast is a good example that winter forecasts are far from 100% as they forecast a cold winter. And it turns out the Dec/Jan/Feb 2023/24 was the hottest on record in the US. A year ago, our Sept 3, 2023 Energy Tidbits included Old Farmer's Almanac 2023-24 winter outlook. Here is part of what we then wrote "*On Tuesday, the Old Farmer's Almanac released its Winter Forecast 2023–2024. [LINK] The Old Farmer's Almanac is forecasting "A winter wonderland! The 2024 Old Farmer's Almanac predicts snow, seasonable cold, and all of winter's delights! This winter's forecast is sure to excite snow bunnies and sweater lovers alike, promising a whole lot of cold and snow across North America! Snowfall will be above normal across most snow-prone areas (except for the Pacific Northwest). Get prepared for oodles of fluffy white throughout the season! Keep a shovel at the ready early, especially in the Northeast and Midwest, where snow will arrive beginning in November with storms, showers, and flurries continuing through the start of spring. Along with above-normal snow, we'll see normal to colder-than-normal temperatures in areas that typically receive snow. Expect just the right amount of chill in the air for an afternoon of adventurous snow sports or enjoying a big ol' mug of hot cocoa by a crackling fire. Only snowy New England and the Atlantic Corridor will enjoy winter temperatures which are milder than what's typical for their regions."*

Figure 8: Old Farmer's Almanac 2023-24 Winter Outlook



Source: Old Farmer's Almanac

Old Farmer's Almanac uses solar science, weather patterns and meteorology
Here is what the Old Farmer's Almanac say on how they predict the weather. It looks like no change to last year's methodology. "*By tradition, The Old Farmer's Almanac employs three scientific disciplines to make long-range predictions: solar science, the study of sunspots and other solar activity; climatology, the study of prevailing weather patterns; and meteorology, the study of the atmosphere. We predict weather trends and events by comparing solar patterns and historical weather conditions with current solar activity. Our forecasts emphasize temperature and precipitation deviations from averages, or normals. These are based on 30-year statistical averages prepared by government meteorological agencies. Read more about how we predict the weather*."

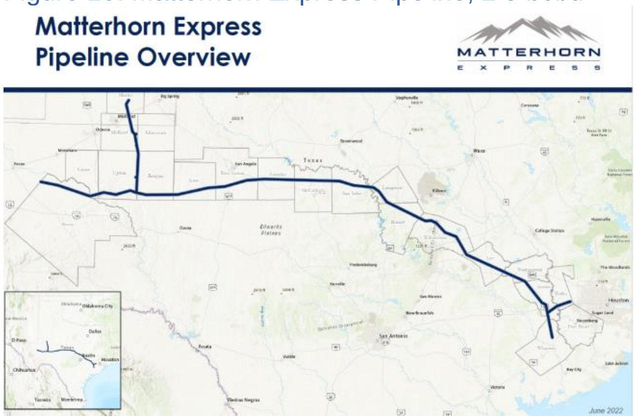
Natural Gas: Matterhorn 2.5 bcf/d pipeline should get Waha spot prices above zero
We have been highlighting how Waha (Permian) spot natural gas prices have been negative and that is impacting Permian oil rig levels given all Permian "oil" wells produce natural gas and NGLs. It looks like the negative Waha prices should be getting some relief in a few weeks. On Friday, we tweeted [LINK] "*Another week of negative Waha (Permian) spot #NatGas prices, closed at -$5.16. Help can't come soon enough. EnLink CEO 2.5 bcfd Matterhorn Express expected in-service around mid-Sept Should get Waha back to normal & small Permian players back to drilling. @DallasFed #OOTT."* Waha spot natural gas prices crashed on Friday to close at -$5.16. Our tweet noted that the 2.5 bcf/d Matterhorn Express pipeline is supposed to start up around mid-September. That should provide the relief for Waha natural gas prices to get out of negative. Below is the Waha spot natural gas price as of Friday close and the Whitewater Midstream (operator) Matterhorn Express pipeline map. Our Supplemental Documents package includes the Matterhorn Express pipeline project sheet.

Waha spot prices still negative

Figure 9: Waha Natural Gas Prices to Aug 30 close

Source: Bloomberg

Figure 10: Matterhorn Express Pipeline, 2.5 bcf/d



Source: Matterhorn Express

Natural Gas: US June natural gas production up MoM to 103.0 bcf/d in June

US gas production 103.0 bcf/d in June

On Friday, the EIA released its Natural Gas Monthly [LINK], which includes its estimated "actuals" for June dry gas production. Key items to note are as follows: (i) June was 103.0 bcf/d, which followed May's revised 101.6 bcf/d, rising above the previous two consecutive months which were below 102 bcf/d, a level not seen since Jan 2023. (ii) June at 103.0 bcf/d is -0.3 bcf/d YoY, and down -3.5 bcf/d since Dec 2023. (iii) May's data was revised up small, from 101.3 bcf/d to 101.6 bcf/d. (iv) June's production of 103.0 bcf/d was +1.4 bcf/d MoM and -0.3 bcf/d YoY from June 2023 of 103.3 bcf/d. The EIA does not provide any commentary. Our Supplemental Documents package includes the EIA Natural Gas Monthly.

Figure 11: US dry natural gas production

bcf/d	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Jan	65.3	66.8	73.4	73.6	70.6	78.7	89.3	97.4	92.6	96.2	101.9	103.6
Feb	65.4	68.4	73.8	74.6	71.5	80.4	89.9	95.5	85.8	96.0	102.0	106.0
March	65.3	68.9	74.1	73.8	73.2	81.3	90.3	95.3	93.6	97.6	102.9	102.7
Apr	66.1	70.5	75.2	73.7	73.3	81.2	90.7	95.0	94.3	98.3	102.6	101.7
May	65.9	70.2	74.1	72.9	73.3	82.1	91.4	87.9	94.2	99.1	103.6	101.6
June	65.8	70.5	74.0	72.2	74.0	82.5	91.7	90.4	93.9	99.3	103.3	103.0
July	67.1	72.0	74.2	72.8	74.7	84.2	92.2	90.3	94.8	100.4	103.4	
Aug	66.9	72.4	74.3	72.2	74.7	85.9	94.4	90.4	95.0	100.9	104.5	
Sept	66.8	72.4	74.7	71.7	76.0	87.3	94.8	91.3	95.7	102.4	104.5	
Oct	67.0	73.1	74.2	71.4	77.3	88.4	95.6	89.7	97.2	102.2	104.3	
Nov	67.7	72.6	73.9	72.0	79.8	89.9	97.2	92.5	98.3	102.2	105.9	
Dec	66.5	73.2	73.9	71.2	80.4	89.5	97.1	93.1	99.1	100.2	106.5	
Average	66.3	70.9	74.2	72.7	74.9	84.3	92.9	92.4	94.5	99.6	103.8	103.1

Source: EIA

Natural Gas: US natural gas pipeline exports to Mexico flat MoM, flat YoY

US to Mexico June natural gas exports

On Thursday, August 22, the Department of Energy (DOE) posted its Natural Gas Imports and Exports Monthly [LINK], which includes its estimate for June natural gas exports via pipeline to Mexico. Natural gas exports to Mexico were flat at 6.8 bcf/d in June from 6.8 bcf/d in May and were flat YoY from 6.8 bcf/d in June 2023. This is just below the all-time high for pipeline exports of 6.9 bcf/d in August 2023. US natural gas pipeline exports to Mexico are now in line with Q3/23 exports of ~6.8 bcf/d. The DOE doesn't provide a split but for pipeline vs LNG or CNG exports to Mexico but we believe essentially 100% of the exports are via pipeline, without any CNG/LNG in the mix. Please note that we will note if we ever believe there are any notable CNG/LNG exports to Mexico. Below is a summary of natural gas via pipeline exports to Mexico from the US. Our Supplemental Documents package includes excerpts from the DOE US Natural Gas Imports and Exports Monthly.

Figure 12: US Natural Gas Pipeline Exports to Mexico

bcf/d	2017	2018	2019	2020	2021	2022	2023	2024
Jan	3.9	4.4	4.9	5.2	5.6	5.7	5.4	6.0
Feb	4.0	4.5	4.8	5.2	4.9	5.5	5.5	5.8
March	4.2	4.3	4.8	5.4	5.9	5.5	5.7	5.9
Apr	3.7	4.4	4.7	4.6	6.1	5.9	5.6	6.3
May	4.0	4.4	5.0	4.7	6.2	6.0	6.2	6.8
June	4.5	4.6	5.2	5.4	6.6	6.1	6.8	6.8
July	4.4	4.9	5.4	5.8	6.4	6.1	6.7	
Aug	4.4	5.0	5.4	6.0	6.2	5.8	6.9	
Sept	4.2	5.0	5.4	6.1	6.0	5.6	6.7	
Oct	4.2	4.9	5.5	6.0	6.0	5.5	6.5	
Nov	4.5	4.7	5.3	5.5	5.5	5.4	6.0	
Dec	4.4	4.5	4.9	5.3	5.4	5.1	5.6	
Average	4.2	4.6	5.1	5.4	5.9	5.7	6.1	6.3

Source: DOE, SAF

Natural Gas: US LNG exports flat MoM at 11.9 bcf/d in June

US June LNG exports

The DOE normally posts the US LNG export data before the more commonly referenced US LNG exports from the EIA's Natural Gas Monthly, and in this case, on Thursday, August 22, whereas the EIA data was released on Friday Aug 30. The EIA is a group within the DOE so the data for LNG exports is either identical or just a rounding issue. :Last Sunday, we tweeted [LINK]: "*US #LNG exports for June released by @ENERGY in #NatGas Imports & Exports Monthly. No real surprises. LNG exports in June 2024 of 11.9 bcf/d, flat MoM on a bcf/d basis. Note DOE says -3.1% MoM but that is on bcf/mth. Data is week earlier than more referenced EIA #NatGas Monthly report. #OOTT"* US LNG exports were flat MoM in June from 11.9 bcf/d in May, and up +1.0 bcf/d YoY from 10.9 bcf/d in June 2023. US LNG exports averaged 11.9 bcf/d per month over 2023, which is +1.3 bcf/d compared to 2022. The top five countries destinations were South Korea 1.4 bcf/d, Netherlands 1.2 bcf/d, India 1.0 bcf/d, Japan 0.9 bcf/d and China 0.7 bcf/d. The DOE did not comment on the MoM or YoY changes.

Figure 13: US Monthly LNG Exports

(bcf/d)	2019	2020	2021	2022	2023	2024
Jan	4.1	8.1	9.8	11.4	10.9	12.8
Feb	3.7	7.8	7.4	11.3	11.7	12.4
March	4.2	7.9	10.4	11.7	11.8	11.9
Apr	4.2	7.0	10.2	11.0	12.5	10.1
May	4.7	5.9	10.2	11.3	11.8	11.9
June	4.7	3.6	9.0	10.0	10.9	11.9
July	5.1	3.1	9.7	9.7	11.3	
Aug	4.5	3.6	9.6	9.7	11.4	
Sept	5.3	5.0	9.5	9.8	11.7	
Oct	5.7	7.2	9.6	10.0	12.4	
Nov	6.4	9.4	10.2	10.1	12.9	
Dec	7.1	9.8	11.1	11.0	13.6	
Average	5.0	6.5	9.7	10.6	11.9	11.8

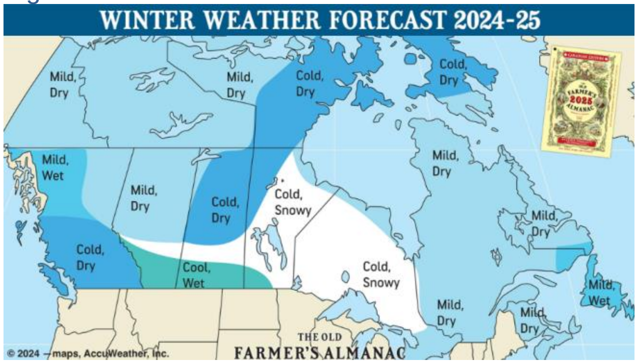
Source: EIA, DOE

Natural Gas: Old Farmer's Almanac forecasts Canadian "Winter With a Heart of Cold"

US June LNG exports

This week, the Old Farmer's Almanac released its Winter Forecast for 2024–2025 in Canada [LINK]. As mentioned above, forecasts out a few months are far from 100% success. The Old Farmer's Almanac *wrote "Temperate' is on tap for most of the country this winter, but let it snow in Ontario!...A winter of big freezes and heavy snowfall will be centered in Ontario and eastern Manitoba, while most of the rest of the country will get some relief and reprieve from snow shoveling and super-cold temperatures. While Saskatchewan will be (mostly) spared the mountains of snow arriving to the east, the area should brace for below-average temperatures throughout the season. This chilling forecast is also true for the southern sections of British Columbia and Alberta. The most southerly portions of Alberta and Saskatchewan will also be soaked this winter, with a few snowstorms interspersed with other types of precipitation."* Our Supplemental Documents package includes the Old Farmer's Almanac winter forecast for Canada.

Figure 14: Old Farmer's Almanac 2023-24 Canadian Winter Outlook



Source: Old Farmer's Almanac

Natural Gas: LNG Canada start introducing natural gas to LNG facilities

LNG Canada starts taking natural gas

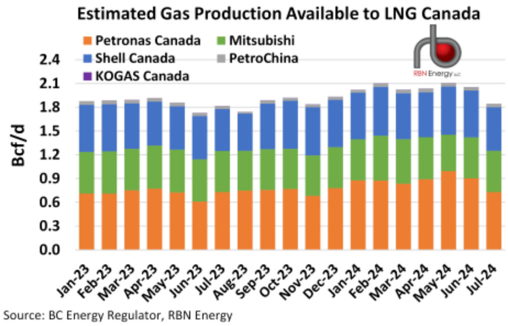
On Thursday, LNG Canada announced [LINK] "*This week, LNG Canada expects to introduce natural gas to its Kitimat facility for the first time. Once natural gas is received from the Coastal GasLink pipeline and all safety checks are satisfied, a small flare pilot will be activated at our vapour flare tower, followed by low-level flaring that will occur over several weeks prior to more visible flaring. All activities will be closely monitored with advance notifications provided to provincial regulatory authorities, local governments and First Nations. The introduction of natural gas and flaring activities mark a pivotal step in LNG Canada's safe start-up program as we prepare to ship our first cargoes of made-in-B.C. LNG by the middle of 2025*." Note that the first cargoes referred to by LNG Canada are the first commercial LNG cargoes. Prior to the first "commercial" LNG cargoes, LNG Canada will be delivering "commissioning" LNG cargoes. No one knows how long the commissioning phase will take but, for now, LNG Canada keeps its stated timeline for commercial cargoes by the middle of 2025. But the reminder is that LNG Canada will be shipping commissioning LNG cargoes but we would assume they are before year end.

Natural Gas: LNG Canada partners have available supply right around 1.8 bcf/d

LNG Canada partners available natural gas supply

There was a good blog from RBN's Martin King this week on LNG Canada Partners "available" natural gas production levels. LNG Canada Phase 1 is a send-out capacity of 1.8 bcf/d of LNG. On Tuesday, RBN posted "*Summer Blues - LNG Canada Partners' Gas Production Pulls Back Further on Summer Maintenance"* [LINK]. King noted the "estimated gas production available to LNG Canada", which is their combined access to natural gas supply. King notes that he includes "*0.15 Bcf/d gas supply commitment from ARC Resources to Shell Canada as part of Shell's estimated total production."* We don't know how much of their natural gas production is physically tied in to be delivered to LNG Canada facilities, but the key is they have enough available natural gas supply that either can be delivered or can be swapped. King wrote "*RBN estimates that combined natural gas production of the equity partners in LNG Canada fell 0.21 Bcf/d in July to 1.84 Bcf/d (combined height of the rightmost colored bars in chart below), 0.03 Bcf/d higher than a year ago and is the lowest for combined output since November 2023. July marked a second consecutive month of declines, likely reflecting summer gas plant and wellhead maintenance and is roughly similar in magnitude to the back-to-back monthly declines seen in May and June 2023. This is the first time that production has fallen below 2 Bcf/d since December 2023."* Our Supplemental Documents package includes the RBN blog.

Figure 15: Estimated Gas Production Available to LNG Canada



Source: RBN Energy

Natural Gas: QatarEnergy signs 0.39 bcf/d 15-year LT LNG supply contract with KPC

QatarEnergy signs 15yr LNG supply deal

On Monday, QatarEnergy announced that they signed a 0.39 bcf/d 15-year LNG supply deal with Kuwait Petroleum Corporation for the delivery of LNG to the state of Kuwait [LINK]. The contracted LNG volumes will be delivered to Kuwait's Al-Zour LNG Terminal via QatarEnergy's conventional tankers beginning in January 2025. The minister of Energy in Qatar, His Excellency Minister Al-Kaabi, and said: *"I am pleased to be in Kuwait, a country that is dear to our hearts, and to build a new long-term partnership between KPC and QatarEnergy, that constitutes a central element in supporting Kuwait's sustainability goals particularly in the electricity generation sector".* Our Supplemental Documents package includes the QatarEnergy announcement.

Natural Gas: Mexico Pacific signs 0.09 bcf/d 20-year LT LNG deal with POSCO

Mexico Pacific signs 20yr LNG supply deal

On Wednesday, Mexico Pacific announced that they signed a 0.09 bcf/d 20-year LNG supply deal with POSCO International for the delivery of LNG on a free-on-board basis. The start date was not published in the press release, so, we are estimating it to begin in 2027 [LINK]. The Chief Marketing Officer of Mexico Pacific, Sungbok Park, said: *"We are delighted to welcome POSCO International as a foundation customer, further validating the strategic value of west coast North American LNG for Korea, one of the world's largest LNG importing markets".* The long-term LNG deal between Korea and Mexico further promotes the robust trade relationship between the two countries. Our Supplemental Documents package includes the Mexico Pacific announcement.

There have been 25.22 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 25.22 bcf/d of long-term LNG deals since July 1, 2021. 63% 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 ha)as been particularly active in this space, accounting for 45% of all Asian LNG buyers in long term contracts since July 1, 2021. Below is our updated table of Asian and Europe LNG buyers new long-term supply deals since July 1, 2021.

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

Long-Term LNG Buyer Deals Since July 1, 2021							
Date	Buyer	Seller	Country Buyer / Seller	Volume (bcf/d)	Duration Years	Start	End
Asian LNG Deals							
Jul 7, 2021	CNOOC	Petronas	China / Canada	0.30	10.0	2022	2032
Jul 9, 2021	CPC	QatarEnergy	Taiwan / Qatar	0.16	15.0	2022	2037
Jul 9, 2021	Guangzhou Gas	BP	China / US	0.13	12.0	2022	2034
Jul 12, 2021	Korea Gas	QatarEnergy	Korea / Qatar	0.25	20.0	2025	2045
Sep 29, 2021	CNOOC	QatarEnergy	China / Qatar	0.50	15.0	2022	2037
Oct 7, 2021	Shenzhen	BP	China / US	0.04	10.0	2023	2032
Oct 11, 2021	ENN	Cheniere	China / US	0.12	13.0	2022	2035
Nov 4, 2021	Unipec	Venture Global LNG	China / US	0.46	20.0	2023	2043
Nov 4, 2021	Sinopec	Venture Global LNG	China / US	0.53	20.0	2023	2043
Nov 5, 2021	Sinochem	Cheniere	China / US	0.12	17.5	2022	2040
Nov 22, 2021	Foran	Cheniere	China / US	0.04	20.0	2023	2043
Dec 6, 2021	Guangdong Energy	QatarEnergy	China / Qatar	0.13	10.0	2024	2034
Dec 8, 2021	S&T International	QatarEnergy	China / Qatar	0.13	15.0	2022	2037
Dec 10, 2021	Suntien Green Energy	QatarEnergy	China / Qatar	0.13	15.0	2022	2037
Dec 15, 2021	SPIC Guangdong	BP	China / US	0.03	10.0	2023	2033
Dec 20, 2021	CNOOC Gas & Power	Venture Global LNG	China / US	0.26	20.0	2023	2043
Dec 29, 2021	Foran	BP	China / US	0.01	10.0	2023	2032
Jan 11, 2022	ENN	Novatek	China / Russia	0.08	11.0	2024	2035
Jan 11, 2022	Zhejiang Energy	Novatek	China / Russia	0.13	15.0	2024	2039
Feb 4, 2022	CNPC	Gazprom	China / Russia	0.98	30.0	2023	2053
Mar 24, 2022	Guangdong Energy	NextDecade	China / US	0.20	20.0	2026	2046
Mar 29, 2022	ENN	Energy Transfer	China / US	0.36	20.0	2026	2046
Apr 1, 2022	Guangzhou Gas	Mexico Pacific Ltd	China / Mexico	0.26	20.0	n.a.	n.a.
Apr 6, 2022	ENN	NextDecade	China / US	0.26	20.0	2026	2026
Apr 22, 2022	Kogas	BP	Korea / US	0.20	18.0	2025	2043
May 2, 2022	Gunvor Singapore Pte	Energy Transfer LNG	Singapore / US	0.26	20.0	2026	2046
May 3, 2022	SK Gas Trading LLC	Energy Transfer LNG	Korea / US	0.05	18.0	2026	2042
May 10, 2022	Exxon Asia Pacific	Venture Global LNG	Singapore / US	0.26	n.a.	n.a.	n.a.
May 11, 2022	Petronas LNG	Venture Global LNG	Malaysia / US	0.13	20.0	n.a.	n.a.
May 24, 2022	Hanwha Energy	TotalEnergies	Korea / France	0.08	15.0	2024	2039
May 25, 2022	POSCO International	Cheniere	Korea / US	0.05	20.0	2026	2036
June 5, 2022	China Gas Holdings	Energy Transfer	China / US	0.09	25.0	2026	2051
Jul 5, 2022	China Gas Holdings	NextDecade	China / US	0.13	20.0	2027	2047
Jul 20, 2022	PetroChina	Cheniere	China / US	0.24	24.0	2026	2050
Jul 26, 2022	PTT Global	Cheniere	Thailand / US	0.13	20.0	2026	2046
Jul 27, 2022	Exxon Asia Pacific	NextDecade	Singapore / US	0.13	20.0	2026	2046
Sep 2, 2022	Woodside Singapore	Commonwealth	Singapore / US	0.33	20.0	2026	2046
Nov 21, 2022	Sinopec	QatarEnergy	China / Qatar	0.53	27.0	2026	2053
Dec 26, 2022	INPEX	Venture Global LNG	Japan / US	0.13	20.0	n.a.	n.a.
Dec 27, 2022	JERA	Oman LNG	Japan / Oman	0.11	10.0	2025	2035
Jan 19, 2023	ITOCHU	NextDecade	Japan / US	0.13	15.0	n.a.	n.a.
Feb 7, 2023	Exxon Asia Pacific	Mexico Pacific Ltd	Singapore / Mexico	0.26	20.0	n.a.	n.a.
Feb 23, 2023	China Gas Holdings	Venture Global LNG	China / US	0.26	20.0	n.a.	n.a.
Mar 6, 2023	Gunvor Singapore Pte	Chesapeake Energy	Singapore / US	0.26	15.0	2027	2042
Apr 28, 2023	JERA	Venture Global LNG	Japan / US	0.13	20.0	n.a.	n.a.
May 16, 2023	KOSPO	Cheniere	Korea / US	0.05	19.0	2027	2046
Jun 1, 2023	Bangladesh Oil	QatarEnergy	Bangladesh / Qatar	0.24	15.0	2026	2031
Jun 21, 2023	Petro Bangle	Oman	Bangledesh / Oman	0.20	10.0	2026	2036
Jun 21, 2023	CNPC	QatarEnergy	China / Qatar	0.53	27.0	2027	2054
Jun 26, 2023	ENN LNG	Cheniere	Singapore / US	0.24	20.0	2026	2046
Jul 5, 2023	Zhejiang Energy	Mexico Pacific Ltd	China / Mexico	0.13	20.0	2027	2047
Aug 8, 2023	LNG Japan	Woodside	Japan / Australia	0.12	10.0	2026	2036
Sep 7, 2023	Petrochina	ADNOC	China / UAE	n.a.	n.a.	n.a.	n.a.
Nov 2, 2023	Foran	Cheniere	China / US	0.12	20.0	n.a.	n.a.
Nov 4, 2023	Sinopec	QatarEnergy	China / Qatar	0.39	27.0	2026	2053
Nov 27, 2023	Gunvor Singapore Pte	Delfin Midstream	Singapore / US	0.10	15.0	n.a.	n.a.
Dec 20, 2023	ENN	ADNOC	Singapore / UAE	0.13	15.0	2028	2043
Jan 5, 2024	GAIL	Vitol	India / Singapore	0.13	10.0	2026	2036
Jan 8, 2024	Shell	Ksi Lisims LNG	Singapore / Canada	0.26	20.0	2027	2047
Jan 16, 2024	ExxonMobil	Mexico Pacific Ltd	Singapore / Mexico	0.16	20.0	2024	2044
Jan 29, 2024	Excelerate	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	Petronet LNG	QatarEnergy	India / Qatar	0.99	20.0	2028	2048
Feb 19,2024	Deepak Fertilisers	Equinor	India / Norway	0.09	15.0	2026	2041
Feb 28, 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	Hokkaido	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 6, 2024	Osaka Gas	ADNOC	Japan / UAE	0.11	10.0	2028	2038
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
Total Asian LNG Buyers New Long Term Contracts Since Jul/21				**15.98**			

Long-Term LNG Buyer Deals Since July 1, 2021							
Date	Buyer	Seller	Country Buyer / Seller	Volume (bcf/d)	Duration Years	Start	End
Non-Asian LNG Deals							
Jul 28, 2021	PGNiG	Venture Global LNG	Poland / US	0.26	20.0	2023	2043
Nov 12, 2021	Engie	Cheniere	France / US	0.11	20.0	2021	2041
Mar 7, 2022	Shell	Venture Global LNG	US / US	0.26	20.0	2024	2044
Mar 16, 2022	NFE	Venture Global LNG	US / US	0.13	20.0	2023	2043
Mar 16, 2022	NFE	Venture Global LNG	US / US	0.13	20.0	2023	2043
May 2, 2022	Engie	NextDecade	France / US	0.23	15.0	2026	2041
May 17, 2022	PGNiG	Sempra Infrastructure	Poland / US	0.40	20.0	n.a.	n.a.
May 25, 2022	RWE Supply & Trading	Sempra Infrastructure	Germany / US	0.30	15.0	n.a.	n.a.
Jun 9, 2022	Equinor	Cheniere	Norway / US	0.23	15.0	2026	2041
Jun 21, 2022	EnBW	Venture Global LNG	Germany / US	0.20	20.0	2026	2046
Jun 22, 2022	INEOS Energy	Sempra Infrastructure	UK / US	0.21	20.0	2027	2047
Jun 22, 2022	Chevron	Venture Global LNG	US / US	0.26	20.0	n.a.	n.a.
Jun 22, 2022	Chevron	Cheniere	US / US	0.26	15.0	2027	2042
Jul 12, 2022	Shell	Mexico Pacific Ltd	US / Mexico	0.34	20.0	2026	2046
Jul 13, 2022	Vitol	Delfin Midstream	US / US	0.07	15.0	n.a.	n.a.
Aug 9, 2022	Centrica	Delfin Midstream	UK / US	0.13	15.0	2026	2041
Aug 24, 2022	Shell	Energy Transfer	US / US	0.28	20.0	2026	2046
Oct 6, 2022	EnBW	Venture Global LNG	Germany / US	0.26	20.0	2022	2042
Dec 6, 2022	ENGIE	Sempra Infrastructure	France / US	0.12	15.0	n.a.	n.a.
Dec 20, 2022	Galp	NextDecade	Portugal / US	0.13	20.0	n.a.	n.a.
Dec 20, 2022	Shell	Oman LNG	UK/Oman	0.11	10.0	2025	2035
Jan 25, 2023	PKN ORLEN	Sempra Infrastructure	EU//US	0.13	20.0	2027	2047
Jan 30, 2023	BOTAS	Oman	Turkey / Oman	0.13	10.0	2025	2035
Mar 27, 2023	Shell	Mexico Pacific Ltd	UK / Mexico	0.15	20.0	2026	2046
Apr 24, 2023	Hartree Partners LP	Delfin Midstream	US / US	0.08	20.0	n.a.	n.a.
Jun 21, 2023	Equinor	Cheniere	Norway / US	0.23	15.0	2027	2042
Jun 22, 2023	SEFE	Venture Global LNG	EU//US	0.30	20.0	2026	2046
Jul 14, 2023	ONEE (Morocco)	Shell	Africa/US	0.05	12.0	2024	2036
Jul 18, 2023	IOCL	Adnoc	India/UAE	0.16	14.0	2026	2040
Jul 28, 2023	OMV	BP	Austira/UK	0.13	10.0	2026	2036
Aug 4, 2023	ConocoPhillips	Mexico Pacific Ltd	US/Mexico	0.29	20.0	2025	2045
Aug 22, 2023	BASF	Cheniere	Germany / US	0.10	17.0	2026	2043
Aug 30, 2023	Shell	Oman LNG	US / Oman	0.11	10.0	2025	2035
Oct 11, 2023	TotalEnergies	QatarEnergy	France / Qatar	0.46	27.0	2026	2053
Oct 18, 2023	Shell	QatarEnergy	Netherlands / Qata	0.46	27.0	2026	2053
Oct 23, 2023	ENI	QatarEnergy	Italy / Qatar	0.13	27.0	2026	2053
Oct 31, 2023	Vitol	Chesapeake Energy	Sweden / US	0.13	15.0	2028	2043
Nov 29, 2023	OMV	Cheniere	Netherlands / US	0.11	15.0	2029	2044
Dec 5, 2023	Woodside Energy	Mexico Pacific Ltd	Australia / Mexico	0.17	20.0	2024	2044
Mar 18, 2024	SEFE	ADNOC	Germany / UAE	0.13	20.0	2024	2044
Apr 17, 2024	Shell	Oman LNG	US / Oman	0.21	10.0	2025	2035
Apr 22, 2024	TotalEnergies	Oman LNG	France / Oman	0.11	10.0	2025	2035
May 8, 2024	EnBW	ADNOC	Germany / UAE	0.08	15.0	2028	2043
June 13, 2024	Saudi Aramco	NextDecade	Saudi Arabia / US	0.16	20.0	2028	2048
June 26, 2024	Saudi Aramco	Sempra Infrastructure	Saudi Arabia / US	0.66	20.0	2029	2049
July 23, 2024	Fluxys	ConocoPhillips	Belgium / US	0.10	18.0	2027	2045
Aug 5 2024	Galp	Cheniere	Portugal / US	0.07	20.0	2030	2050
Total Non-Asian LNG Buyers New Long Term Contracts Since Jul/21				**9.24**			

Total New Long Term LNG Contracts since Jul/21	**25.22**
*Excludes Asian short term/spot deals	
*on Dec 20, 2021 CNOOC agreed to buy an additional 0.13 bcf/d from Venture Global for an undisclosed shorter period	
Source: Bloomberg, Company Reports	
Prepared by SAF Group https://safgroup.ca/news-insights/	

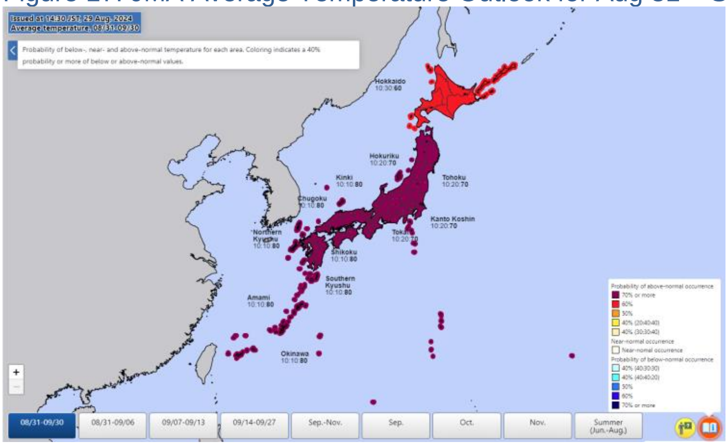
Source: SAF

Natural Gas: Japan expects hot temperatures to continue in Sept

JMA temperature forecast for the next 30 days

It's been a hot summer in Japan and the hot weather is expected to continue for the next 30 days for the month of September. But we remind that being really hot for September is not as hot as being really hot in August. On Thursday, the Japan Meteorological Agency updated its forecast for the next 30 days, Aug 31 thru Sept 30, in Japan [LINK]. There is no JMA commentary on the forecast. JMA is calling for well above normal temperatures for the rest of August and the first three weeks of September, with a +70% probability of above normal temperature occurrence everywhere except for Hokkaido, which has a 60% probability of above normal temperature occurrence. We checked AccuWeather and they are forecasting daily highs in of 25-30C for the next 30 days. That isn't normally a temperature that drives a lot of electricity demand as Japanese offices and houses tend to have air conditioning turned way way higher than in North America. Below is the JMA temperature forecast for the next 30 days.

Figure 17: JMA Average Temperature Outlook for Aug 31 – Sept 30



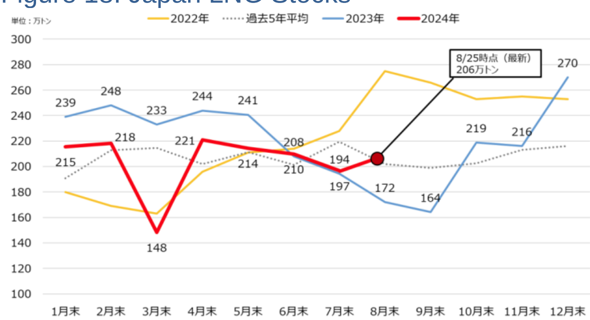
Source: Japan Meteorological Agency

Natural Gas: Japan LNG stocks up WoW, up YoY

Japan LNG stocks up WoW

Japan's LNG stocks were up WoW, are up YoY and are up from the 5-year average. On Wednesdays, Japan's METI releases its weekly LNG stocks data [LINK]. LNG stocks on August 23 were 98.9 bcf, up 6.7% WoW from August 16 of 92.7 bcf, and up +19.8% from 82.6 bcf from a year ago. Stocks are up 2.0% from the 5-year average of 97.0 bcf. Below is the Japanese LNG stocks graph from the METI weekly report.

Figure 18: Japan LNG Stocks



Source: METI

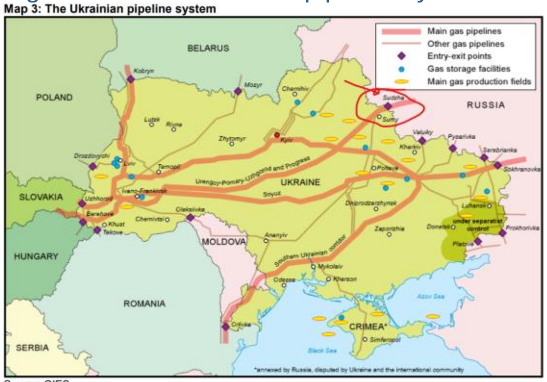
Natural Gas: Russia continues to ship NatGas despite Ukraine control of Sudzha

Ukraine captures key Russian gas infrastructure

It's now been 25 days 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. The latest confirmation we saw the Friday confirmation on Bloomberg 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.

Figure 19: The Ukrainian pipeline system

Map 3: The Ukrainian pipeline system



Source: OIES

Source: Oxford Institute for Energy Studies

Natural Gas: Russia Power of Siberia natural gas to China to hit 3.7 bcf/d in 2025

Russia increasing natural gas to China

No surprise, Russia continues to increase its natural gas pipeline exports to China via its Power of Siberia gas pipeline. Gazprom expects to hit Power of Siberia design capacity of 3.7 bcf/d in 2025. On Thursday, Gazprom CEO Alexey Miller's Telegram post [LINK] included his statement "*Our key partners are the largest consumers in the Asia-Pacific region. First of all, this is, of course, China. We are consistently increasing gas supplies via the Power of Siberia gas pipeline to the Chinese market. In eight months, we increased our supplies by 37% compared to the same period last year. In addition, this year, Gazprom has already updated daily records for supplies to China seven times. And next year, in 2025, we will bring the Power of Siberia gas pipeline to its design capacity, to our contract shelf of 38 billion cubic meters of gas. We are also implementing new projects. In particular, at the end of January 2027, gas will go to China along the "Far Eastern" route. The construction of the main gas pipeline is being carried out strictly on schedule," said Alexey Miller.*"

China prioritizes Russian pipeline gas as it is cheap

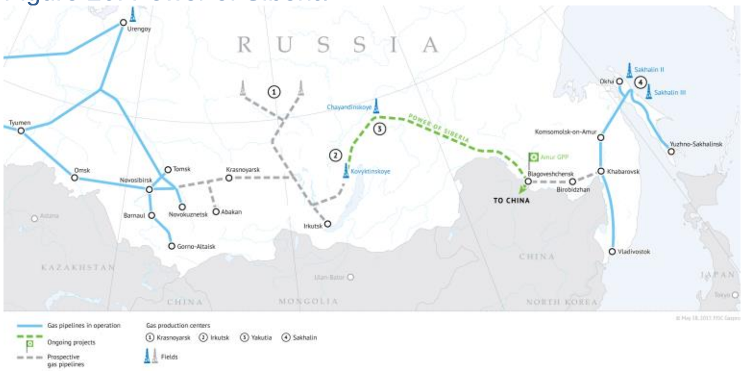
Here is what we wrote in our June 9, 2024 Energy Tidbits memo for why China prioritizes Russia pipeline natural gas – it's cheap. "*For years, we have warned that how Chinese natural gas pipeline imports from Russia would be prioritized over LNG imports due to the cheap cost of Russian pipeline gas. On Monday, we tweeted [LINK] "It's way cheaper! And why China prioritizes imports of RUS #NatGas via pipeline vs #LNG imports. 2019-21: China only paid $4.40/mmbtu for RUS pipeline gas vs RUS charged Europe ~$10/mmbtu. See 👇 @maxseddon @NastyaStognei*

@HenryJFoy @leahyjoseph report. #OOTT." The FT report "Russia-China gas pipeline deal stalls over Beijing's price demands" was focused on China wanting too low a natural gas price for the next expansion of Russian pipeline natural gas to China. But what jumped out at us was the reminder that China is currently getting cheap natural gas from Russia. FT wrote "China already pays Russia less for gas than to its other suppliers, with an average price of $4.4 per million British thermal units, compared with $10 for Myanmar and $5 for Uzbekistan, the CGEP researchers calculated from 2019-21 customs data. During the same years Russia exported gas to Europe at about $10 per million Btu, according to data published by the Russian central bank."   Our Supplemental Documents package includes the FT report."

Power of Siberia displacing LNG imports was expected

We first warned of the Power of Siberia displacing China LNG imports seven years ago in our July 4, 2017 blog "*Today's Qatar/Russia Gas Supply Announcements Add To The Challenge Facing BC LNG Post The New BC Govt*". We led off our July 4, 2017 blog "*Today's Qatar and Russia announcements are expected to add 7.6 bcf/d of natural gas/LNG supply in 2020 to 2024. Russia's Power of Siberia 3.6 bcf/d pipeline to China has a planed startup in Dec 2019, and Qatar's expanded development of the massive North Field is now planned to add 4 bcf/d in 2022 to 2024."* And then we warned on Power of Siberia will displace China LNG imports. "*Today, Gazprom announced the new Power of Siberia 3.6 bcf/d pipeline is on track for late 2019 deliveries to China. We believe a key focus for Russia will be to get global natural gas share where possible, especially if they can do via pipelines. Russia is the #1 natural gas pipeline exporter with 18.5 bcf/d or 29% of total global natural gas pipeline exports in 2016. Norway was #2 at 10.6 bcf/d.   Today, Gazprom announced [LINK] that Gazprom and CNPC signed a "Supplementary Agreement to the Sales and Purchase Agreement for Russian gas to be supplied via the eastern route, which had been inked by the parties on May 21, 2014" for deliveries to start in Dec 2019, or likely earlier. Gazprom also said "Our work is strictly on schedule, even ahead of schedule regarding Power of Siberia".   The Power of Siberia pipeline will have a capacity of 3.6 bcf/d.   Any project that brings in natural gas demand into China can displace LNG imports. The project is a transmission system to bring together multiple eastern Siberia gas fields to an export point to China.   This capacity is equal to 18% of Chinas 2016 natural gas consumption of 20.3 bcf/d. Below is the Power of Siberia pipeline from their website. [LINK] "*

Figure 20: Power of Siberia



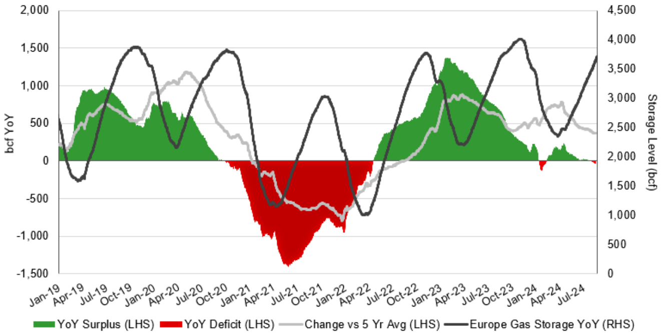
Source: Gazprom

Natural Gas: Europe storage up +1.8% WoW to 92.7% full, down -3.3% YoY

Europe gas storage

As expected, European natural gas storage has slowed down in filling up as LNG cargoes have been redirected for the past couple months away from NW Europe as it looked like Europe gas storage would be full early. But even still, it is now over 90% full. We remind that we don't necessarily expect Europe gas to get to 100% full. It's not like going to a gas station where you fill up your car to the limit. Rather, getting to mid 90%s would be considered full. This week, Europe storage was up +1.8% WoW to 92.1% vs 90.8% on August 22. Storage is now down -3.3% from last year's levels of 92.7% on Aug 29, 2023 but up huge vs the 5-year average of 70.26%. As noted above, Europe gas storage has now reached the low 90%'s, which is about where most will consider full ahead of winter. Below is our graph of European Gas Storage Level.

Figure 21: European Gas Storage Level



Source: Bloomberg, SAF

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

We have been breaking out Ukraine gas storage levels since the Mar/Apr Russian bombing of the Ukraine natural gas storage, which only impacted some above ground natural gas infrastructure. But it also reminded that 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 August

29th, natural gas in Ukraine storage was at 22.9% of its total capacity, up from 22.5% of its total capacity on August 22th. Last year, Ukraine storage started the winter on Nov 1, 2023 at 39.38%. Right now, Ukraine makes up ~7% of Europe's natural gas in storage and, at the beginning of winter 2023/24, it was ~10% of Europe's natural gas in storage. Below is a map of Ukraine's major gas storage facilities.

Figure 22: Ukraine Gas Storage Facilities as of July 2023

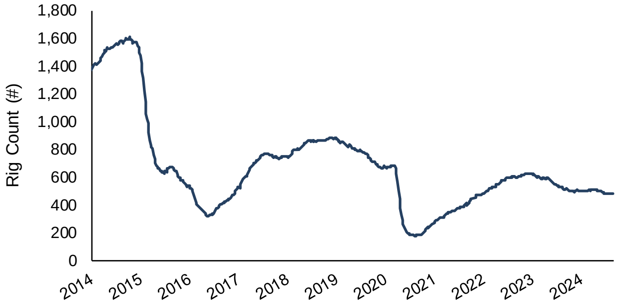
Source: Bruegel

Oil: US oil rigs flat WoW and down -29 rigs YoY to 483 rigs

US oil rigs down -29 YoY

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 US oil rigs were flat WoW at 483 oil rigs as of August 30th. US oil rigs went below 520 rigs on Aug 25, 2023 and has been around 490-510 rigs for the past several months, however, July 19th's 477 rigs marks the lowest oil rig count since December 2021. (iii) Note we are able to see the basin changes but not by type of rig. The major basin changes were Cana Woodford +1 rig WoW to 19 rigs, DJ Niobrara -1 rig WoW to 9 rigs, Eagle Ford +1 rig WoW to 48 rigs, Haynesville -1 rig WoW to 32 rigs, Marcellus -2 rigs Wow to 23 rigs, and Permian -1 rig WoW to 305 rigs. (iv) The overlooked US rig theme is the YoY declines. Total US rigs are -48 rigs YoY to 583 rigs including US oil rigs -29 oil rigs YoY to 483 oil rigs. And for the key basins, the Permian is -14 rigs YoY, Haynesville is -9 rigs YoY and Marcellus -7 rigs YoY. (v) US gas rigs were down -2 rigs this week to 95 gas rigs.

Figure 23: Baker Hughes Total US Oil Rigs



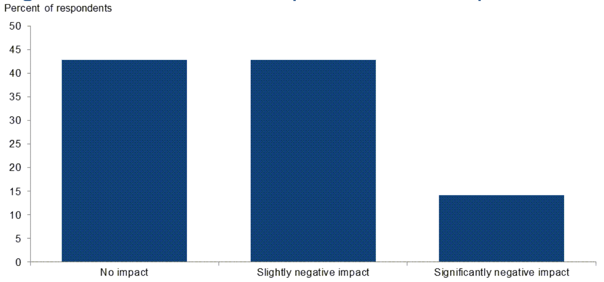
Source: Baker Hughes, SAF

Oil: Permian oil rigs to be impacted by Waha natgas prices staying low till mid Sept

Waha gas prices closed at -$5.16

Earlier in the memo, we highlighted the how Waha spot natural gas prices continue to be negative but there is a sign of a relief with the 2.5 bcf/d Matterhorn Express pipeline expected to start up in mid-Sept. Hopefully that brings Waha back to positive for some extended period. Waha spot can still move around big time as there will be other interruptions or hurricane impacts, but the norm should move away from negative prices. And that should be enough to get some of the smaller players back to looking at drilling in the Permian. The natural gas from the Permian is the associated natural gas that is produced from Permian oil wells. So if there is near term concerns on Waha natural gas prices, it will impact oil drilling from smaller Permian players. Our tweet on Friday on Waha prices included an excerpt from the Dallas Fed quarterly energy survey that was posted in July. [LINK] One of their special questions was "*What impact will low Waha Hub natural gas prices likely have on your firm's drilling and completion plans in the Permian for the rest of 2024?* " Dallas Fed summarized the responses "*The Waha Hub is a gathering location for natural gas in the Permian Basin that connects to major pipelines. Of the executives surveyed, 43 percent said low Waha Hub natural gas prices won't likely affect their firm's drilling and completion plans in the Permian for the rest of 2024. Meanwhile, 43 percent expect a slightly negative impact, and an additional 14 percent said the low Waha Hub prices will have a significantly negative impact on drilling and completion plans for the rest of this year in the Permian. Small E&P firms were more likely to expect negative impacts.*"

Figure 24: Percent of responses what impact low Waha prices on rest of 2024 drilling plans



NOTES: Executives from 28 exploration and production firms answered this question during the survey collection period, June 12–20, 2024. This question was posed only to executives who said their firm drilled or completed a horizontal well in the Permian Basin in the past two years.
SOURCE: Federal Reserve Bank of Dallas.

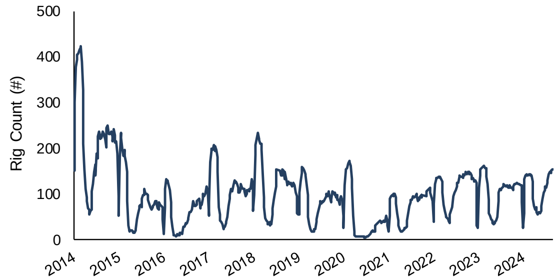
Source: Dallas Fed

Oil: Total Cdn rigs up +1 rig WoW On Friday,

Cdn rigs +1 WoW

As happens every year in Canada, rigs start a strong seasonal ramp up after Spring breakup. Spring break up is when melting snow leads to road access being limited/restricted in many parts of Alberta and BC and rigs dramatically decrease from peak winter drilling levels. Then after spring break-up (normally in early June), Cdn rigs start their steady ramp up. Total Cdn rigs declined from 231 at the beginning of March to 114 in early June. This week's rig count was up +1 rig WoW to 220 rigs. The wildfires and soft natural gas spot prices are likely slowing the rate of increasing rigs that we typically see as part the seasonal ramp up. Cdn oil rigs were flat WoW this week at 153 rigs and are up +38 rigs YoY. Gas rigs are up +1 rig WoW this week at 67 rigs and are down -5 rigs YoY, and miscellaneous rigs are flat WoW at 0 rigs total and are flat YoY. Baker Hughes did not update their old format report, so we weren't able to see the provincial breakouts.

Figure 25: Baker Hughes Total Cdn Oil Rigs



Source: Baker Hughes, SAF

Oil: US weekly oil production down -0.100 mmb/d WoW to 13.300 mmb/d

US weekly oil production

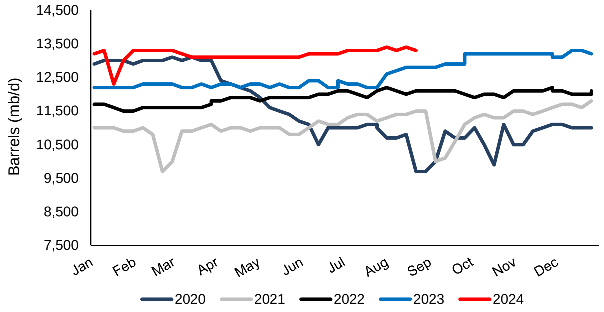
We don't place as much in the EIA weekly oil supply estimates as others do because we recognize the near impossibility for anyone to post an accurate estimate on a Wednesday for the totality of US oil production for the week ended the prior Friday. We have to give the EIA credit for putting out weekly 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. And 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 13.1 to 13.3 mmb/d with the weekly estimates in July all at 13.3 mmb/d. This week's estimate is down -0.100 mmb/d WoW to 13.3 mmb/d for the week ending Aug 23. On Tuesday August 6th, the EIA released its August STEO and the EIA provides the backup monthly estimates for US oil production and they are more or less in line with July at 13.33 mmb/d and Aug also at 13.33 mmb/d. This week, the EIA's production estimates were down -0.100 mmb/d to 13.300 mmb/d for the week ended August 23. Alaska was down -0.010 mmb/d WoW to 0.400 from 0.410 mmb/d last week. Below is a table of the EIA's weekly oil production estimates.

Figure 26: EIA's Estimated Weekly US Field Oil Production (mb/d)

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

Source: EIA

Figure 27: EIA's Estimated Weekly US Oil Production



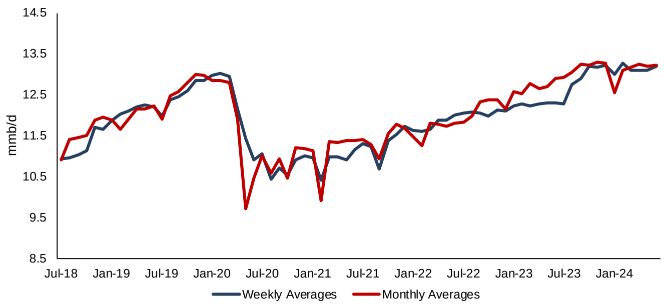
Source: EIA

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

EIA Form 914 June

On Friday, the EIA released its Form 914 data [LINK], which is the EIA's "actuals" for June US oil and natural gas production. (i) This month, the EIA revised May up by +11,000 b/d from 13,178 mmb/d to 13,189 mmb/d. As a result, the May actuals were +89,000 b/d vs the weekly supply estimates of 13,100 mmb/d. (ii) The EIA Form 914 reported June "actuals" at 13,214 mmb/d, which was +7,000 b/d above the weekly supply estimates of 13,207 mmb/d. (iii) June "actuals" of 13,214 mmb/d are +25,000 b/d MoM vs 13,189 mmb/d in May. And also +320,000 b/d YoY vs June 2023 of 12,894 mmb/d. Below is a chart of monthly actuals vs. weekly estimates. Our Supplemental Documents package includes an excerpt from the Form 914 figures.

Figure 28: EIA Form 914 US Oil Production vs Weekly Estimates



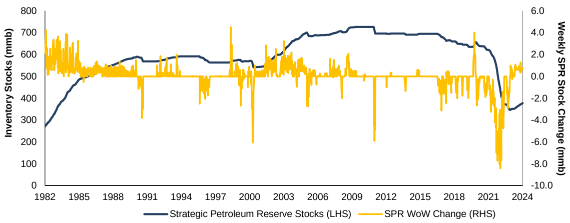
Source: EIA, SAF

Oil: US SPR less commercial reserve deficit narrows, now -47.275 mmb

US SPR reserves

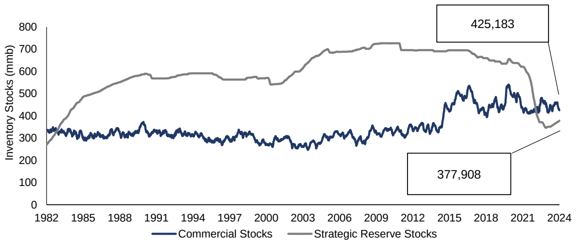
The US Strategic Petroleum Reserves (SPR) continues to be much lower than total US commercial crude oil reserves. The SPR went back below commercial for the first time since 1983 in the Sep 16, 2022 week. This week, we saw a build on the SPR side and a draw on the commercial side. The EIA's weekly oil data for August 23 [LINK] saw the SPR reserves increased +0.745 mmb WoW to 377.908 mmb, while commercial crude oil reserves decreased -0.846 mmb to 425.183 mmb. There is now a -47.275 mmb difference between SPR reserves and commercial crude oil reserves. The below graphs highlight the difference between commercial and SPR stockpiles, along with the weekly changes to SPR stockpiles.

Figure 29: Strategic Petroleum Reserve Stocks and SPR WoW Change



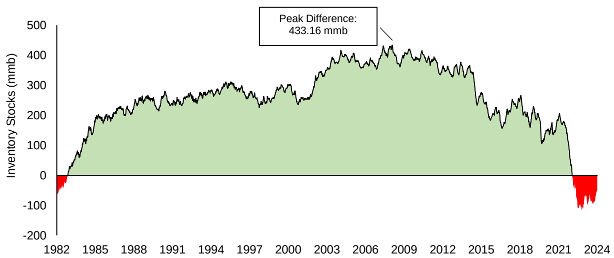
Source: EIA

Figure 30: US Oil Inventories: Commercial & SPR



Source: EIA

Figure 31: US Oil Inventories: SPR Less Commercial



Source: EIA

Oil: US national average gasoline price -$0.02 WoW to $3.34

US gasoline prices

Yesterday, we tweeted [LINK] "*US gasoline prices keep drifting lower as summer driving season is ending. AAA National average prices -$0.02 WoW to $3.34 on Aug 31, -$0.15 MoM and -$0.49 YoY. California at $4.64 on Aug 31, which was +$0.04 WoW, -$0.01 MoM and-$0.64 YoY. Thx @AAAnews #OOTT.*" Yesterday, AAA reported that US national average prices were $3.34 on Aug 31, which was -$0.02 WoW, -$0.15 MoM and -$0.49 YoY. Yesterday, AAA also reported California average gasoline prices were $4.64 on Aug 31, which was +$0.04 WoW, -$0.01 MoM and -$0.64 YoY.

Oil: Crack spreads -$0.04 WoW to $17.06, WTI -$1.28 WoW to $73.55

Crack spreads closed at $17.06

On Friday, we tweeted [LINK] "*321 crack spreads & WTI moved in opposite directions on Fri ie. WTI hit by factors other than cracks. 321 closed up today to $17.06 after low of $14.94 on*

Wed & $15.56 on Thurs. So only -$0.04 WoW. WTI -$1.28 WoW to $73.55 but was -$2.36 vs Thurs $75.91. Thx @business #OOTT." When we looked at the daily closes, we saw that crack spreads and WTI moved in opposite directions to close the week ie. something other than crack spreads impacted WTI. Crack spreads were -$0.04 WoW to $17.06 and WTI was -$1.28 WoW to $73.55. Crack spreads of $17.06 on Aug 30 followed $17.10 on Aug 23, $20.75 on Aug 16, $22.92 on Aug 9, $23.77 on Aug 2, $24.91 on July 26, $22.43 on July 19. $23.22 on July 12, $25.38 on July 5, $24.36 on June 28, $24.36 on June 21, $23.45 on June 14, $24.31 on June 7, and $24.04 on May 31. Crack spreads at $17.06 are more in line with the more normal pre-Covid ranges of $15-$20. And our tweet noted, there are other factors besides crack spreads that impact WTI, but crack spreads of $17.06 point to drifting WTI prices as they do not incentivize refineries to try to take more crude.

Crack spreads point to near term oil price moves, explaining 321 crack spread

As we saw to close the week, it was another reminder week that WTI prices are affected by factors other than 321 crack spreads. There are other global oil and market items that impact WTI. But, other factors aside, we have focused on crack spreads for since the 90s as they are an unchanged fundamental of refineries – big crack spreads provide incentives for refineries to buy more crude because there are big profit margins to be made. So if crack spreads are wide, it is normally a positive for short 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. The crack spread was $17.06 as of the Friday Aug 30, 2024 close.

Figure 32: Cushing Oil 321 Crack Spread & WTI Aug 30, 2014 to Aug 30, 2024

Source: Bloomberg

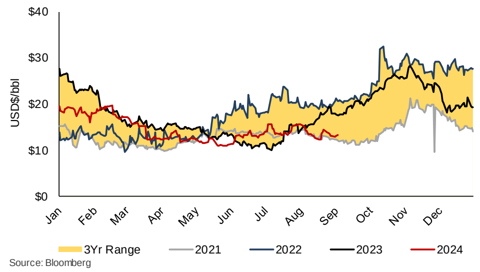
Oil: Cdn heavy oil differentials narrow $0.10 WoW to close at $13.40 on Aug 30

As a reminder, there is no work stoppage or rail strike in Canada as the parties were ordered back to work under their existing contract and to go to binding arbitration for a new contract. WCS less WTI differentials have been moving up and down and this week were down $0.10

WCS differential basically unchanged

WoW to close at $13.40. This was despite the continued shutdown at the Exxon Joliet refinery. The WCS less WTI spread narrowed $0.10 WoW to $13.40 on Aug 30. As we look ahead through August, we should start to see the real test of how much the startup of the 590,000 b/d TMX expansion will impact WCS less WTI differentials. Aug is normally when we normally see a widening of the WCS less WTI differentials. And we will see if TMX will lessen that widening. But even with the TMX startup, there will always be the unexpected impact on WCS less WTI differentials from 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 start to widen in Aug. The WCS less WTI differential closed on Aug 30 at $13.40 which was a narrowing of $0.10 WoW vs $13.50 on Aug 23.

Figure 33: WCS less WTI oil differentials to August 30 close



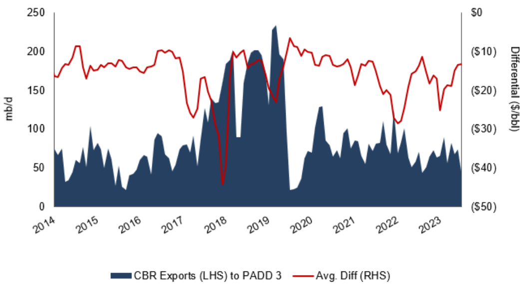
Source: Bloomberg

Oil: EIA reports total Cdn crude by rail imports +58,170 b/d MoM in June, PADD 3 up

EIA Cdn crude by rail imports

On Friday, the EIA posted its "*Movements of Crude Oil and Selected Products by Rail*" [LINK], which includes the EIA data on US imports of Cdn crude by rail. EIA estimates total US imports of Cdn crude by rail were 119,267 b/d in June, which was +58,170 b/d MoM from 61,097 b/d (revised) in May. The EIA estimates Cdn crude by rail into PADD 3 (Gulf Coast) was 89,467 b/d in June, which was +49,370 b/d MoM from 40,097 b/d (revised) in May. We have been highlighting how the EIA imports of oil by rail from Canada have been consistently less than the CER estimates of Cdn oil exports by crude to the US. But that did not happen in the June data. Rather the CER reported that 89,204 b/d of crude was exported by rail out of Canada during June vs the EIA estimates of 119,267 b/d of Cdn oil imported by rail in June. There is no explanation given. Normally, we would say that the reason for why the EIA reports lower numbers than the CER is that the difference is due to Canada crude by rail exports that go directly to US Gulf Coast ports for exports i.e. do not stay in the US. Below is our graph of Cdn CBR exports to the Gulf Coast and WCS differential over time.

Figure 34: US Imports of Canada CBR to US Gulf Coast vs WCS Differential



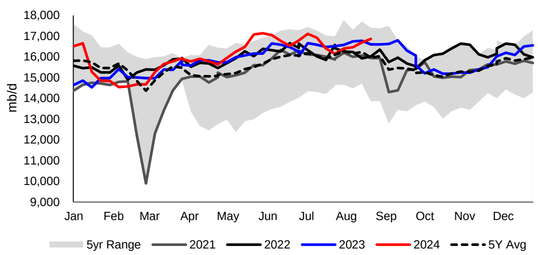
Source: EIA, Bloomberg

Oil: Refinery Inputs up +0.175 mmb/d WoW to 16.864 mmb/d

There are always unplanned refinery items that impact crude oil inputs into refineries. And there are always different timing for refinery turnarounds. But, as a general rule, August is normally when refineries start their fall turnarounds so we would expect to see oil input into refineries start to seasonally decline. On Wednesday, the EIA released its estimated crude oil input to refinery data for the week ended August 23 [LINK]. The EIA reported crude inputs to refineries were up +0.175 mmb/d this week to 16.864 mmb/d and are up +0.261 mmb/d YoY. There were some refineries returning to production. Refinery utilization was up +1.0% WoW to 93.3% and was flat YoY.

Refinery inputs +0.175 mmb/d WoW

Figure 35: US Refinery Crude Oil Inputs



Source: EIA, SAF

Oil: US net oil imports up +0.282 mmb/d WoW as oil exports down -0.374 mmb/d WoW

The EIA reported US "NET" imports were up +0.282 mmb/d to 2.889 mmb/d for the August 23 week. US imports were down -0.092 mmb/d to 6.560 mmb/d, while exports were down -0.374 mmb/d to 3.671 mmb/d. Top 10 was up +0.156 mmb/d. (i) Venezuela weekly imports. We know why the EIA doesn't have any data in the row for Venezuela weekly oil imports but we still don't know if the weekly oil imports are off or if Venezuela is included in the weekly oil imports in the Others number. But we do know the EIA monthly data shows Padd 3 imports from Venezuela were 224,000 b/d for May. Give the EIA credit for putting out weekly oil import estimates, but it's a reminder that we have to be careful about using the weekly oil import estimates. Rather we need to make sure we go to the monthly data for oil imports. (i) Canada was down -0.209 mmb/d to 3.874 mmb/d. We have to wonder if the WoW decline was due to the uncertainty on the CN and CPKC rail strikes/work stoppages. Weekly imports have been higher of late with the increased Cdn crude coming off TMX and hitting west coast

US net oil imports

US refineries. (ii) Saudi Arabia was up +0.104 mmb/d to 0.311 mmb/d. (iii) Mexico was up +0.452 mmb/d to 0.619 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. (iv) Colombia was flat -0.001 mmb/d to 0.212 mmb/d. (v) Iraq was down -0.013 mmb/d to 0.153 mmb/d. (vi) Ecuador was down -0.060 mmb/d to 0.103 mmb/d. (vii) Nigeria was down -0.157 mmb/d to 0.033 mmb/d.

Figure 36: US Weekly Preliminary Imports by Major Country

	Jul 5/24	Jul 12/24	Jul 19/24	Jul 26/24	Aug 2/24	Aug 9/24	Aug 16/24	Aug 23/24	WoW
Canada	3,611	4,418	4,364	4,033	3,478	3,785	4,083	3,874	-209
Saudi Arabia	275	394	221	144	353	183	207	311	104
Venezuela	0	0	0	0	0	0	0	0	0
Mexico	619	388	355	504	224	714	167	619	452
Colombia	237	79	314	207	215	71	213	212	-1
Iraq	317	220	150	178	143	194	166	153	-13
Ecuador	87	50	102	160	235	137	163	103	-60
Nigeria	315	164	197	113	170	109	190	33	-157
Brazil	251	331	271	71	267	428	177	302	125
Libya	0	0	0	144	115	2	86	1	-85
Top 10	5,712	6,044	5,974	5,554	5,200	5,623	5,452	5,608	156
Others	1,048	993	897	1,399	1,024	662	1,200	952	-248
Total US	**6,760**	**7,037**	**6,871**	**6,953**	**6,224**	**6,285**	**6,652**	**6,560**	**-92**

Source: EIA, SAF

Oil: Our reporting on Mexico monthly oil production will change next month

Changes to our Mexico oil reporting

Please note that, effective next month, we will be changing the way we report on the monthly Pemex oil production. For months other than the quarter-end (ie. July and Aug), we will include an estimate for the split of Pemex extra light + condensates based on the last reported quarter. Pemex does not provide that split in the monthly production data. However, in the investor quarterly package, they provide the split of light oil vs condensates average for the quarter. In the Q2/24 investor package, Pemex reported extra-light production of 140,000 b/d and condensate production of 279,000 b/d. So for the Aug data, we will add 140,000 b/d of "extra light" oil. And when the Q3/24 investor package is released, we will go back and change the extra light for July and Aug for the actuals. We haven't been including the condensate as it would be over reporting Mexico's oil and wouldn't tie to Mexico's oil commitment to OPEC+ targets. But we should be including the extra light as we believe this will be like other international extra-light at around 40 API, which is what we would call light oil in US and Canada. However, this methodology change will not change the overriding issue for Mexico – they haven't been able to get oil production back to any sustained growth.

Oil: Mexico oil production including partner volumes down MoM to 1.500 mmb/d

Pemex July oil production

As note above, we will be changing our Mexico oil production to include an estimate fpr light oil by adding 140,000 b/d. So next month our table will show July at 1.650 mmb/d and not the 1.500 mmb/d noted in this comment. On Friday, August 23, Pemex posted its July 2024 oil production data [LINK]. Pemex reported July oil production, including partners, was 1.500 mmb/d, which was down -3.2% YoY and down -1.2% MoM from 1.518 mmb/d in June. Mexico (Pemex) oil production has been stuck around 1.6 mmb/d for the last three years. Pemex has been unable to grow Mexico oil production, which means that any increase in Pemex Mexico refineries crude oil input will result in less Mexico oil for export including to the US Gulf Coast. And it also means that if Mexico has refinery issues in a month, there will be more Mexico oil for export in a month. Below is our table tracking Pemex oil production.

Figure 37: Pemex (Incl Partners) Mexico Oil Production

Oil Production (thousand b/d)	2016	2017	2018	2019	2020	2021	2022	2023	2024	24/23
Jan	2,259	2,020	1,909	1,623	1,724	1,651	1,649	1,628	1,545	-5.1%
Feb	2,214	2,016	1,876	1,701	1,729	1,669	1,619	1,619	1,538	-5.0%
Mar	2,217	2,018	1,846	1,691	1,745	1,697	1,620	1,636	1,532	-6.4%
Apr	2,177	2,012	1,868	1,675	1,703	1,693	1,586	1,656	1,485	-10.3%
May	2,174	2,020	1,850	1,663	1,633	1,688	1,588	1,661	1,524	-8.2%
June	2,178	2,008	1,828	1,671	1,605	1,698	1,570	1,610	1,518	-5.7%
July	2,157	1,986	1,823	1,671	1,595	1,701	1,583	1,550	1,500	-3.2%
Aug	2,144	1,930	1,798	1,683	1,632	1,657	1,604	1,552		
Sept	2,113	1,730	1,808	1,705	1,643	1,709	1,594	1,581		
Oct	2,103	1,902	1,747	1,655	1,627	1,692	1,592	1,560		
Nov	2,072	1,867	1,697	1,696	1,633	1,691	1,582	1,558		
Dec	2,035	1,873	1,710	1,706	1,650	1,694	1,561	1,545		

Source: Pemex, SAF

Pemex July oil exports

Oil: Mexico exports up +3.3% MoM to 0.779 mmb/d of oil in July

We should not have to change our methodology for reporting Mexico crude oil exports as it looks like the m onthly data is really close to the quarterly averages. The big picture theme for Pemex (Mexico) oil exports is unchanged – oil production is stuck around or below 1.6 mmb/d so any improvement in crude run rates at the existing Pemex oil refineries and the startup, albeit delayed, of the new 340,000 b/d Olmeca (Dos Bocas) refinery means there will be less oil for export. And Olmeca volumes are modestly increasing, which will lead to declining Mexico oil exports over H2/24. Last month, Pemex gave added color on Olmeca, which we note below. On Friday, August 23, Pemex posted its oil exports for July [LINK]. Pemex does not provide any commentary on the data but reported July oil exports were 0.779 mmb/d, which is +3.3% MoM and -26.0% YoY vs 1.052 mmb/d in July 2023. Below is our table of the Pemex oil export data.

Figure 38: Pemex Mexico Oil Exports

Oil Exports (thousand b/d)	2016	2017	2018	2019	2020	2021	2022	2023	2024	24/23
Jan	1,119	1,085	1,107	1,071	1,260	979	832	980	951	-3.0%
Feb	1,241	1,217	1,451	1,475	1,093	1,006	925	949	940	-0.9%
Mar	1,062	1,001	1,176	1,150	1,144	925	905	971	687	-29.2%
Apr	1,081	1,017	1,266	1,023	1,179	923	1,024	989	681	-31.1%
May	1,204	958	1,222	1,205	1,062	1,031	965	1,087	911	-16.2%
June	1,098	1,157	1,110	995	1,114	1,106	1,029	1,203	754	-37.3%
July	1,146	1,255	1,156	1,079	1,051	1,173	1,062	1,052	779	-26.0%
Aug	1,261	1,114	1,181	1,082	1,190	1,099	915	1,076		
Sept	1,425	1,159	1,206	995	1,023	983	1,022	1,119		
Oct	1,312	1,342	1,027	963	908	935	971	1,053		
Nov	1,273	1,388	1,135	1,114	1,171	1,025	893	883		
Dec	1,115	1,401	1,198	1,115	1,243	1,037	900	1,027		

Source: Pemex, SAF

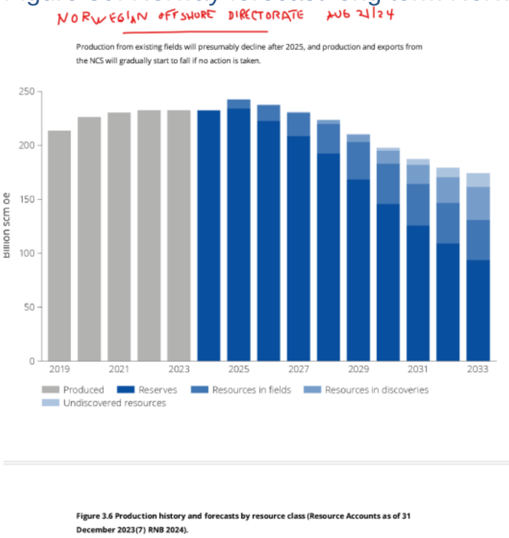
Giant Johan Sverdrup declilne

Oil: Equinor sees giant Johan Sverdrup oilfield production peak in late 2024/early 2025

It We have been highlighting the giant Johan Sverdrup oil field in Norway is expected to reach peak oil production in late 2024 or early 2025 as it will be why Norway's oil production will also peak alongside the Johan Sverdrup peak oil. When a giant oilfield starts to decline, it's normally leads to a basin decline. Equinor is the operator of the Johan Sverdrup oilfield. On Monday, Bloomberg reported "*Equinor Says Johan Sverdrup Output to Start Dropping Early 2025. Output at Equinor ASA's Johan Sverdrup oil field is likely to start to ramp down this year or early next, Executive Vice President of Production Kjetil Hove said Monday. * "Right now it's a greater probability that it will go off plateau next year, but it is still in that range," the executive said speaking at a press conference in Stavanger."* This timing is what we have been highlighted since the beginning of this year.

Norway still forecasts reaching peak oil production in 2025, then declining
Here is what we wrote in last week's (Aug 25, 2024) Energy Tidbits memo. "*Norway still forecasts reaching peak oil production in 2025, then declining. On Wednesday, Norway posted its "Resource report 2024", which is a report encouraging an increase in exploration. And it starts with their unchanged long-term oil production forecast from March that forecasts Norway' s peak oil production is in 2025 and then decline under current levels of exploration ie. include ongoing new field discoveries. Early Wednesday morning, we tweeted [LINK]: "Norway still forecasts peak #Oil production in 2025 & then decline. EVEN WITH "multiple discoveries are made and brought on stream, accompanied by investments aimed at increasing recovery from existing fields. Despite this, resource growth will not be sufficient to offset the overall gradual decline, due to diminishing production from the major, mature fields." See 👇 03/11/24 & 02/08/24 tweet, can't make up for giant Johan Sverdrup hitting peak oil in six mths. #OOTT" Norway is warning that, even with new discoveries and production enhancement, peak oil supply is in 2025. Norway wrote that even with ""multiple discoveries are made and brought on stream, accompanied by investments aimed at increasing recovery from existing fields. Despite this, resource growth will not be sufficient to offset the overall gradual decline, due to diminishing production from the major, mature fields." Despite this, resource growth will not be sufficient to offset the overall gradual decline, due to diminishing production from the major, mature fields." Norway is highlighting the reality that has been seen in other global basins that have a giant oil field – when the giant oilfield starts to decline, it normally points to decline in a country production. Andt hat is the case in Norway with the giant Joahn Sverdrup expected to start to decline in late 2024 or early 2025. Norway does says that a big increase in exploration and oil and gas spending could lead to some modest growth and push back in oil decline. Our Supplemental Documents package includes excerpts from the Norway resource report."*

Figure 39: Norway forecast long term Norway oil production



Source: Norwegian Offshore Directorate

07/14/24: Aker BP giant Johan Sverdrup oilfield to start decline late 24/early 25

Our tweet las week reminded that Norway's giant Johan Sverdrup oilfield is forecast to start to decline in late 2024 or early 2025 by the operators in the field. Here is what we we wrote in our July 14, 2024 Energy Tidbits memo. "*Norway produces ~1.7 mmb/d of oil but Norway forecasts its country production will begin to decline in 2025. This is driven by the start of decline from Norway's largest oilfield, Johan Sverdrup, in late 24/early 25. It's only math. If Norway's giant oilfield starts to decline, it likely means Norway's oil production begins to decline. On Friday, we tweeted [LINK] "Positive for #Oil in 2025. Norway produces ~1.7 mmb/d, on track to hit peak oil in 2025 & then decline therefrom. Why? Giant ~750,000 b/d Johan Sverdrup Aker field. Aker BP Q2. JS continues to produce at elevated plateau, drilling "will help to maintain this level until late 24 or early 25" ie. then moves into decline. In line with 👇03/12 tweet on Norway forecast for country to hit peak oil production in 2025 & then decline therefrom. #OOTT." Aker BP is a non-operating partner in Johan Sverdrup and held its Q2 call on Friday. Mgmt reiterated the Johan Sverdrup partners expectation that its elevated plateau of 750,000 b/d of oil can only be maintained until late 24/early 25, which means production declines therefrom. Mgmt also noted the fundamental reason for decline is no different than any other conventional oilfields – increasing water cut. Part of mgmt's comments were "At Johan Sverdrup. It's a pleasure to see just how it keeps on performing. This giant field with almost 3 billion barrels in initial reserves was originally designed for a gross oil capacity of 660,000 barrels per day. Last year this was increased to 755,000 barrels, if we also include natural gas, the field has a capacity to deliver close to 800,000 barrels of oil equivalents per day and the performance has been nothing but remarkable with high production efficiency, very low production cost of around $2 per barrel and with maybe the lowest emission intensity in the industry of less than l kilogram of CO2 per barrel. In the second quarter, Aker BP share of production from*

Johan Sverdrup increased to 241,000 barrels of oil equivalents per day. As we have previously discussed, water production has been increasing in some of the wells over the last year. This is as expected and something that the operator is managing but continuously optimizing production on a well by well basis. We are also adding new wells with four added in the first half of 2024 and the fifth well have been started up now in July. Another five wells are planned for the second half. As of today, Johan Sverdrup continues to produce at the elevated plateau and the ongoing drilling activity will help to maintain this level until late '24 or early '25":

Oil: Zelensky to present his peace plan to Biden, Harris and Trump in September.
No one is likely surprised by the timing of Zelensky's announcement that he would present a peace plan to Biden, as well as Harris and Trump. We continue to be of the view that Zelensky wants to try to reach some sort of resolve before Biden leaves office. On Tuesday, Zelensky said he plans to do in September when he will addressing the UN General Assembly in September. He said that due to the uncertainty on the upcoming US election, he plans to present to both Harris and Trump.

Zelensky to present peace plan

Oil: Zelensky want to force Russia to be ready for a "just peace".
Everyone has their own views but we have been of the view that Zelensky would likely try to push for some sort of deal with Russia before Biden leaves office as it is hard to see how the support will be as strong as under Biden even if Harris wins. Plus the reality is that three are increasing concerns that some western support is inevitably going to decline. Last Sunday night, Zelensky's Telegram post seemed to fit with this view. Last Sunday night, we tweeted [LINK] "*Zelensky "Kursk is part of a major military-political, military-diplomatic operation. Everything we are doing is only to force Russia to be ready for a just peace" If UKR can hold on to the Kursk bargaining chip, how many more chips are needed to force Putin to deal? #OOTT".* Zelensky speaks everyday but we don't recall seeing the "*just peace*" description before assuming that that is the correct Google Translate of Zelensky's post. Just peace is a vague term but is very different from they want all Ukraine territory back so it seemed like a big opening. And it fits with what everyone has believed on Kursk, it was a bargaining chip. But it takes two parties to get a deal and Putin is always a wild card. Our Supplemental Documents package includes the Zelensky Telegram post.

Zelensky now talking about a "just peace"

Is Ukraine positioning for a hopeful negotiation with RUS before Biden leaves?
Here is what we wrote in our Aug 18, 2024 Energy Tidbits memo on our thesis. "*Is Ukraine positioning for a hopeful negotiation with Russia before Biden leaves? Everyone has their views but we have to wonder if Ukraine's attacking with Russia and capturing the last Russian inlet station for natural gas to the last remaining pipeline flowing natural gas to central European countries isn't a bargaining chip in some hopeful negotiations with Russia before Biden leaves office? So the wildcard remains what will Putin do. We continue to believe Zelensky knows he has to press now or attack now inside of Russia as there is less than three months to the election so no one should be surprised to see Ukraine's recent offensive push. Ukraine has to take a "hope for the best, plan for the worst" in that there is expected to be less US support if Trump wins the presidency. For this wildcard is why no one should be surprised by the Ukraine push two weeks ago into Kursk We expect to see Ukraine continue to be aggressive and selectively on the offensive with Biden as President.*

We also expect to see more Ukraine drones/missile launched offensively at targets far within Russia. And then this also brings up the big question how does Putin escalate against Ukraine? The takeaway with the US election timing is increasing risk of a something bigger happening that could impact energy and markets."

Oil: Russia says peace talks are "*no longer relevant*"

Russia says peace talks are no longer relevant

No surprise, Russia came out and said no to any peace talks with Ukraine. On Thursday, TASS reported [LINK] Russia isn't going to have any peace talks with Ukraine given Ukraine's attack into Kursk. TASS reported "*Russia's readiness for peace talks with Ukraine was beyond doubt, but it was wrecked by Kiev's reckless move in the Kursk Region, Russian Foreign Minister Sergey Lavrov said at a news conference following talks with Senegalese Foreign Minister Yassine Fall. "We always remember that President [of Russia President Vladimir] Putin made the latest peace proposal in June, after all previous initiatives and agreements were ruined and sabotaged by the Kiev regime and its Western backers. Our readiness for talks was beyond anyone's doubt, although, of course, after the reckless move in the Kursk Region, any discussion of this subject is no longer relevant," he said."*

Oil: Russia stops disclosing fuel produced at refineries post hit on big Omsk refinery

Russia stops disclosing fuel production

It looks like Ukraine is have a significant impact on Russia's refining capacity because Russia isn't going to disclose data on fuel being produced at refineries. On Wednesday, the Moscow Times reported [LINK] "*The Russian authorities decided to put a stamp "secret" on a new portion of data on fuel production in the country after a series of emergencies at oil depots and refineries. Figures on the production of diesel fuel, fuel oil, as well as liquefied propane and butane in the country were removed from the Rosstat report on industrial production published on Wednesday. These data are no longer published "on the basis of the decision of the government of the Russian Federation," the agency said."* And "*The decision to classify the statistics took place two days after the explosion that thundered at the Omsk oil refinery - the largest in Russia."* Note this report was on Wednesday and as noted below, Ukraine hit a Moscow area refinery last night. Our Supplemental Documents package includes the Moscow Times report.

Ukraine reportedly knocks out 41% of Omsk's 425,000 b/d refining capacity

As noted above by the Moscow Times, Russia' stopped disclosure of how much fuel was being produced at Russia's refineries post Ukraine successful hit on Russia's Omsk refinery, the largest refinery in Russia. The Moscow Times reported "*As a result of the emergency at the refinery, which produces a tenth of gasoline and diesel in the country, the AVT-11 primary oil refining unit was stopped. As a result, the plant lost 41% of its capacity, a source familiar with the situation told Reuters. The cause of the incident, which led to the death of one of the workers, was not officially disclosed. Last year, the Omsk Refinery processed 21.28 million tons of oil and produced 5.07 million tons of gasoline (11.5% of production in the Russian Federation), 8.1 million tons of diesel fuel (9.2%) and 1.63 million tons of jet fuel (15%)."*

Ukraine hits Moscow refinery last night in its >150 drone attack on Russia

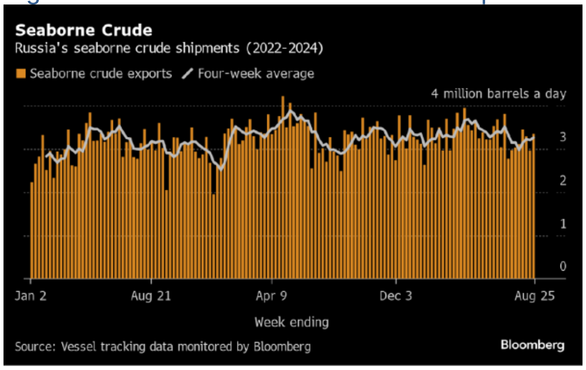
One of the overnight breaking news was a massive Ukraine drone attack on Russia that was over 150 drones and included a hit on a oil refinery in Moscow. Bloomberg reported "*Russia said it downed 158 Ukrainian drones across more than a dozen regions overnight, including the capital, where a UAV strike ignited a blaze at a major oil processor. A downed drone damaged what was described as a "technical building" at the Moscow Oil Refinery, Governor Sergei Sobyanin said on his Telegram channel."* If Russia describes it as a "technical building", it would suggest it is a part of the actual refinery operations and not some sort of administrative building.

Oil: Russia's seaborne crude oil exports hit two-month high

Russia's seaborne crude exports

This week, the four-week average for Russia's seaborne crude exports increased, interrupting the previous downhill trend we have been seeing and we assume it is due to the increasing Ukraine drone/missile attacks on Russian refineries that has clearly hit oil input into refineries ie. more oil for export. The four-week average is up to 3.26 mmb/d for the week to August 25, and the increase was driven by a recovery of shipments from its Sakhalin Island terminal in Asia. The four-week average has increased in 3 of the past four weeks. Bloomberg reported "*Russia's seaborne daily crude flows in the week to Aug. 25 rose by about 390,000 barrels to 3.35 million, the highest in three weeks. Though still relatively small, the increase in the weekly flow was the biggest since June."* Crude shipments so far this year are 40,000 b/d below 2023's average. Russia has pledged to compensate for overproduction against its April target, which was attributed to "technicalities of making significant output cuts". Russia made significant output cuts in May, June, and July however they were still above their promised targets. Our Supplemental Documents package includes the Bloomberg report.

Figure 40: Russia's Seaborne Crude Shipments



Source: Bloomberg

Russia oil exports to China down vs early April driven by lesser discounts

Russia oil shipments to China averaged 1.36 mmb/d for the first half of April. But they have been down since then with the reports that Russia had cut its discounts to China and that meant China was taking less Russian oil. Bloomberg's above report this week highlighted Russia oil shipments to China were down to 1.20 mmb/d for the week ending August 25, down from last week's 1.22 mmb/d for the August 18 week and down from 1.36 for the first half of April. The last six weeks average is now 1.15 mmb/d. We were warned 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 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 [LINK] 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 41: 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
July 21, 2024	1.05	1.83	0.00	0.00	0.00	2.88
July 28, 2024	1.09	1.58	0.00	0.04	0.00	2.71
August 4, 2024	1.18	1.60	0.00	0.10	0.00	2.88
August 11, 2024	1.16	1.62	0.00	0.17	0.00	2.96
August 18, 2024	1.22	1.50	0.03	0.20	0.00	2.94
August 25, 2024	1.20	1.62	0.03	0.24	0.00	3.08

Source: Vessel tracking data compiled by Bloomberg   Bloomberg

Source: Bloomberg

Oil: Oil was down on Friday with more talk of OPEC+ adding back the barrels on Oct 1
Brent oil was down -$1.14 on Friday to close at $78.80 and the market talk was all about how OPEC+ is likely to go ahead with it's scheduled gradual adding back, every month, the oil that has been off the market with voluntary cuts. Recall, Saudi Arabia started its voluntary 1 mmb/d cut in July 2023.

Is OPEC+ going to add back oil?

OPEC+ will have to wait until Q2/25 if it doesn't add back barrels on Oct 1, 2024
The comments heated up on Thursday and Friday of more thinking OPEC+ will decide to proceed with its scheduled Oct 1, 2024 start of the returning of the voluntary cuts to oil markets. Our view has been unchanged. 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

Can OPEC add back oil in 2024?

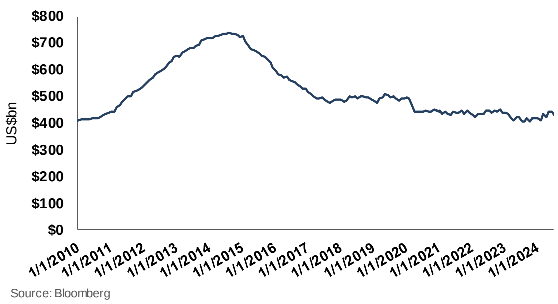
thing we think OPEC would do is start adding back oil in a declining demand period. OPEC's MOMR Aug forecasts Q1/25 oil demand at 104.91 mmb/d, which is down -0.66 mmb/d QoQ vs Q4/2 of 105.57 mmb/d. IEA"s OMR Aug forecasts Q1/25 oil demand tat 102.3 mmb/d, which is down -1.4 mmb/d QoQ vs Q4/24 of 103.7 mmb/d.

Saudi net foreign assets

Oil: Saudi nest egg, its net foreign assets were down -$15.3b MoM in July

There have been a number of major Saudi Arabia transactions raising outside capital so, no surprise, we have seen some months with big increases in Saudi net foreign assets, however this month is down big MoM. On Wednesday, the Saudi Central Bank (SAMA) released its Monthly Statistical Bulletin for the month of July [LINK]. Our long-stated view is that the #1 financial theme for Saudi Arabia in the 2020s will be their continued, and increasing, use of Other People's Money as they try to fund MBS's Vision 2030. It continues to play out as expected. We believe this has been obvious with how Saudi Arabia's net foreign assets dropped by ~35% or $231.3b over the last nine years (since March 2015). We are surprised that markets and oil watchers didn't seem to pay attention to the Saudi net foreign assets data i.e., what we call their nest egg to help them their push to MBS's Vision 2030. Recently we have been seeing much larger MoM changes, both up and down. There was a -$15.3b MoM decrease to Saudi Arabia's net foreign assets which are now $429.8 in July vs $445.1b in June. Last month's data reflected an increase of +$0.5b MoM in June. But the thesis and big picture remains, Saudi net foreign assets as of July 31 of $429.8b is a decline of ~42% or $307.2b over the last 10 years from its peak of $737.0b on Aug 31, 2014. That is an average of $2.6b per month for the last 120 months since the peak. Saudi Arabia is far from going broke but there has been a huge decline in the last 10 years. This net foreign asset depletion is why we have been highlighting that the primary financial theme for Saudi Arabia in the 2020s is getting Other People's Money (OPM) to fund as much of their Vision 2030 as possible. And no question, accessing OPM has helped to slow down and temporarily pause the decline in net foreign assets. Below is our graph of Saudi Arabia net foreign assets updated for the July data.

Figure 42: Saudi Arabia Net Foreign Assets



Source: Bloomberg

Houthis hit oil tanker

Oil: Houthis hit oil tanker carrying ~1 million barrels in the Red Sea

Last week's (Aug 25, 2024) Energy Tidbits memo highlighted the Houthis hitting the Greek-flagged Sounion oil tanker that was reportedly carrying a load of 1 million barrels. As of our 7am MT news cut off, it is still burning but the Houthis are reportedly going to allow tug boats to tow the tanker. One of the expected fall-outs was that Red Sea insurance premiums reportedly jumped up but are still less than in February. And, of course, the Houthis publicity campaign was at work and they released a video of the burning tanker that was picked up by all the global media. Below is a picture that was posted on Yahoo News.

Figure 43: Sounion oil tanker hit by Houthis

Source: Trafigura

Oil: Still no indication if/when Iran will hit Israel with its announced retaliation

Waiting for Iran's response

As of our 7am MT news cut off, it's the same story that Iran has yet to make its declared revenge attack on Israel. One timing issue might be that Iran President Pezeshkian is planning to travel to New York to the annual UN General Assembly meetings on Sept 10-24. Our initial thoughts were that Iran wouldn't hit Israel until Pezeshkian is back from the UN. However, who knows. After all recall what Iran said on Aug 21. Here is what we wrote in our Aug 25, 2024 Energy Tidbits memo. "*Iran says its response to Israel "occurs at a moment of maximum surprise" On Wednesday, IRNA (State media) reported [LINK] "Iran's Permanent Mission to the United Nations in New York has said that the Islamic Republic's response to Israel's assassination of Hamas chief Ismail Haniyeh will be carried out in a way to ensure that it "occurs at a moment of maximum surprise." "The timing of Iran's response will be meticulously orchestrated to ensure that it occurs at a moment of maximum surprise", the mission said on Wednesday when asked whether Tehran is withholding its response to Israel so the ongoing Gaza ceasefire talks can proceed. Ismail Haniyeh was martyred in an Israeli airstrike on his accommodation in the Iranian capital on July 31, a day after he attended the inaugural of Iran's new president Masoud Pezeshkian. Iran says Haniyeh was an official guest of the Islamic Republic, and that the Israeli attack was a violation of the country's sovereignty. "Iran's response must punish the aggressor for its act of terrorism and infringements upon Iran's national sovereignty", the mission said, adding that the response should serve as a deterrent as well. The Islamic Republic's response must "bolster Iran's deterrence capabilities to induce profound regret within the Israeli regime, thereby serving as a deterrent...Iran's response must be carefully calibrated to avoid any possible adverse impact that could potentially influence a prospective ceasefire" in Gaza."*

Oil: Reminder Netanyahu said it's not if but when Israel acts on Iran nuclear program

Netanyahu warned Congress on Iran nuclear

The reason why we have reminded on Iran's advancing nuclear capability is that we worry Israel uses any subsequent attack on Iran whenever Iran retaliates as an opportunity to hit Iran's nuclear facilities. As of our 7am MT news cut off, there is still the unknown of what will Iran do in retaliation. And then it opens up another wildcard, what will Netanyahu then do. We don't know if Netanyahu will use any subsequent counter attack as an opportunity to go after

Iran's nuclear program. Here is what we wrote in our July 28, 2024 Energy Tidbits memo on Netanyahu's warning to congress. "*We understand the focus was on Israel vs Hamas, but we are still surprised that Netanyahu's clear warning to Congress on Iran's nuclear program didn't get much attention. On Wednesday, we tweeted [LINK] "Netanyahu tells congress. it's not if but when Israel takes action vs Iran nuclear program! Overlooked geopolitical & #Oil wildcard/risk! 'And one more thing. When Israel acts to prevent Iran from developing nuclear weapons, nuclear weapons that could destroy Israel and threaten every American city, every city that you come from, we're not only protecting ourselves. We're protecting you." Netanyahu to congress. See 👇07/21 tweet. Blinken: Iran now 1 or 2 weeks from breakout capacity to produce nuclear material for a weapon. Thx @TimesofIsrael #OOTT." Netanyahu seemed clear it was a question of when they take action against Iran's nuclear program, not if. We don't think anyone knows how this would play out but it doesn't seem to be an issue on geopolitical risk or oil risk screens. As a reminder, the Biden Admin has been consistent that they won't let Iran develop a nuclear weapon. Israel's bar is lower as they won't let Iran have the potential to develop a nuclear weapon and reaching break out capability would appear to do so."*

07/19/24: US said Iran is 1 or 2 weeks from breakout to produce fissile material

We continue to be surprised that Iran's reported advancing nuclear capability doesn't get more attention. The reason why we were surprised US media and politicians didn't make more of Netanyahu's warning on Iran nuclear program is Blinken warned a month ago that Iran was 1 or 2 weeks from reaching breakout potential for nuclear capability. Here is what we wrote in last week's (July 21, 2024) Energy Tidbits memo. "*Earlier this morning, we tweeted [LINK] "Go Time for Israel? Overlooked major geopolitical and #Oil risk factor! Blinken: Iran now 1 or 2 weeks from breakout capacity to produce nuclear material for a weapon. If Israel won't let Iran reach breakout potential, when will it take action? #OOTT." An overlooked geopolitical risk item is Iran's nuclear advancement and when will Israel do something to prevent Iran from reaching breakout. It didn't get much attention but, on Friday, Secretary Antony Blinken spoke at the Aspen Security Forum Fireside Chat and he highlighted how close Iran is to having the capacity to produce fissile material for a nuclear weapon. Blinken said "Iran, because the nuclear agreement was thrown out, instead of being at least a year away from having the breakout capacity of producing fissile material for a nuclear weapon, is now probably one or two weeks away from doing that. Now, they haven't developed a weapon itself --." We weren't surprised by the progress but surprised by how he framed it as he made it sound like the US didn't really have a good plan to stop Iran rather they had an idea and they tested it. Blinken noted the mistake of the Trump administration in throwing out the JCPOA so Biden admin had to find a way to put Iran back in a box "so we were testing the proposition about whether we could at least create something that looked like that". The reason why we were surprised by his framing is that that was 3.5 years ago and he is effectively admitting by the progress that the "test" didn't work. And then he continued the administration line that "Second, we of course have been maximizing pressure on Iran across the board. We've imposed more than 600 sanctions on Iranian persons, entities of one kind or another. We haven't lifted a single sanction." As noted earlier in the memo, there may be sanctions but Iran has cranked up its oil revenues and* *exports because the Biden administration hasn't really enforced sanctions ie. sanctions need to be enforced to be effective."*

Oil: No sign of for resumption of Kurdistan oil exports via Turkey

Kurdistan oil still can't be exported

Yesterday, we tweeted [LINK] "*No visibility to resumption of ~400,000 b/d Kurdistan #Oil exports via Turkey. @RudawEnglish [LINK]. See 👇SAF transcript: @apikur_oil @MylesCaggins noted selling >200,000 b/d to local markets BUT only getting ~$30 vs $80 export price. Not just deal structure, Baghdad still not willing to honor the financial aspects/returns of IOC's Kurdistan investment. #OOTT.*" (i) Rudaw (Kurdistan news) had just posted comments by APIKUR's Myles Caggins saying still no resolve to resume Kurdistan oil exports via Turkey. Caggins said "*There is not currently an agreement for the restoration of oil flow through the Iraq pipeline, but this remains a priority for the APIKUR member companies.*" (ii) Caggins also reminded what the IOCs want – they just want the same financial aspects/returns. Rudaw reported Caggins said ""*want to have discussions about modifications of contracts, and any modification to those contracts must include a guarantee for past due payments, and also a guarantee for how future payments would happen."* (iii) Caggins wasn't as clear as he was in late July but there have held firm to their view that they still want the financial aspects/returns to their Kurdistan investment. It's why we included our transcript of Caggins comments in late July, when he said ": "*We are willing to make changes to our contracts only if the following conditions are met: Any change to the contract must have agreement from the international oil companies, and KRG, and Iraqi Ministry of Oil. Any changes to our contracts must keep the same fiscal terms. We want the same financial arrangements, so we can understand how much, we want the same amount of revenue and money that is coming in to our companies. And most importantly we need to have surety, we need certainty, we need guarantees of how and when our companies will get paid for past money that is owed to us and also future sales. We need guarantees of payment."* (iii) So far, Baghdad has been insisting on a changed contract structure but the big point is that Baghdad aren't prepared to give the IOCs in Kurdistan a deal that has the same financial aspects/returns as the IOCs got when they invested the oil and gas capital in Kurdistan. It's why we continue to see no near term solution to this unless someone backs off their demand. Our Supplemental Documents package includes the Rudaw report from yesterday and the transcript we made of Caggins comments in July.

Kurdistan producers selling oil for $30/b and not $80b

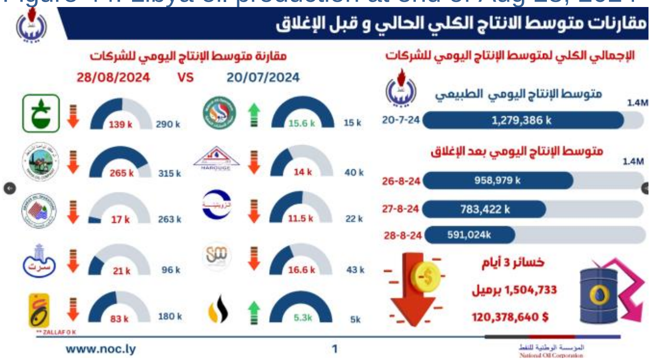
Our above tweet also included a transcript we made APIKUR's Myles Caggins speaking on Kurdistan 24 in late July 2024. Caggins noted how the IOCs in Kurdstan were getting $50 less per barrel on their oil sales Caggins said "*Our member oil companies are eager to resume the oil exports. Right now, we are relying on local sales of oil, which is around 200,000 – 220,000 barrels per day. But when we had the exports through the pipeline, the Kurdistan region was producing more than 400,000 barrels of oil every day. And the price for oil on the global market is around $80 and that is much higher than the local sale price, the local sale price for a barrel of oil is around $30.*

Oil: Libya oil production down ~700,000 b/d to 591,000 b/d

Libya oil production down ~700,000 b/d

Note we checked again this morning and, as of our 7am MT news cut off, the Libya NOC has not posted any new production updates vs its below Thursday update and it has not commented on the potential restart of some oilfields noted below. Early Monday morning, we tweeted [LINK] on the breaking news "*Breaking. Brent moving higher, now +$1.50 to $80.52. "Libya's eastern government announced the stoppage of all oil production and export after its Tripoli-based rival moved to replace the leadership of the central bank. The "force majeure" applies to all fields, terminals and oil facilities, authorities said Monday in a statement on Facebook" reports @S_Elwardany & Hatem Mohareb. Looks the 👇 Speaker Saleh wasn't kidding. #OOTT."* We then added that Libya was producing 1.270 mmbd in last reported Libya NOC production report on Aug 1. On Wednesday, we tweeted [LINK] "*LIbya #Oil production down ~700,000 b/d in Aug. Now producing <600,000 reports @S_Elwardany & Hatem Mohareb. Last Libya NOC update was Aug 1 at 1.27 mmb/d oil. Speaker of House Saleh wasn't kidding. #OOTT."* Finally, on Thursday, the Libya NOC gave a production update and we tweeted [LINK] "*Ouch! Libya #Oil production down 688,000 b/d to 591,024 b/d yesterday. See 👇 @NOC_Libya update by operating company. #OOTT."* As of our 7am MT news cut off, the Thursday Libya NOC is the latest production update.

Figure 44: Libya oil production at end of Aug 28, 2024



Source: Libya NOC

08/24/24: Libya's Speaker threatened oil shutdown over Central Bank change

No one should have been surprised by the shut down of oil production given Libya's Speaker of the House threatened such a move last Saturday. Last week's (Aug 25, 2025 Energy Tidbits memo was titled "*Libya Watch: UN Says Headed to Greater Domestic & Regional Instability, House Speaker Warns of Risk for Oil Shut-down*" and we wrote "Libya's Speaker of the House threatens oil shutdown over Central Bank leadership. We have a 7am MT news cut off for our memo. Prior to the Sharara shut-down, Libya oil production was approaching 1.3 mmb/d There was a good reminder yesterday that Libya's oil production is at risk from the domestic turmoil/disagreements. Yesterday, we tweeted [LINK] "*Libya #Oil watch. Speaker of House Saleh warns any changes to Central Bank leadership could lead to halt in oil production. "We will not allow the continued flow of Libya's wealth to individuals who have come through suspicious means and untrustworthy hands." reports @Safa_Alharathy. #OOTT."* Post UN envoy's Koury's briefing to the UN Security Council, the oil threat came because of the Tripoli-based national government wanting to change Central Bank leadership. The Speaker of the House of Representatives Saleh stepping in and warned there is a risk to oil being shut down with a forced change. Yesterday, the Libya Observer reported [LINK] "*Saleh threatens oil shutdown over CBL governor dispute. The Speaker of the House of Representatives (HoR), Aguila Saleh, has warned of a potential shutdown of the country's vital oil production if the Central Bank Governor is replaced, following the Presidential Council's (PC) controversial appointment of Mohammed Shukri to the role. In a television interview on Thursday, Saleh accused the PC of attempting to "loot public funds and perpetuate corruption" by appointing Shukri. He declared, "We will not allow the continued flow of Libya's wealth to individuals who have come through suspicious means and untrustworthy hands."* Our Supplemental Documents package include the Libya Observer report."

Oil: Is some Libya being restored but just to feed domestic markets?

Libya oil production confusion

As of our 7am MT news cut off, it is unclear how much Libya oil may be coming back on and if any restored barrels are just to feed domestic markets. It's confusing to say the least. (i) It seems that some Libya oil may be being restored. Last night, Bloomberg reported "*Libya's exact oil output was clouded in uncertainty, with three fields ordered to gradually resume pumping even as production at a major site was slashed further amid a feud between the OPEC nation's rival governments,.The Sarir field, which has a capacity of 145,000 barrels a day, has already restarted, while the Messla and Nafoura facilities got similar instructions, according to people with direct knowledge of the situation who asked not to be identified as the information isn't public. The operator, Arabian Gulf Oil Co., didn't explain its directive, but the resumption is likely to supply local refineries and power plants rather than for export, the people said. Meanwhile, production from Waha Oil Co. kept dropping to 96,200 barrels a day from its normal level of 320,000, according to another person familiar with the matter."* (ii) It's not clear why these fields are being restarted but it seems to be so they can feed domestic refineries and power plants and not for export markets. Earlier this morning, UBS Analyst Giovanni Staunovo tweeted *"The operator, Arabian Gulf Oil Co., didn't explain its directive, but the resumption is likely to supply local refineries and power plants rather than for export, the people said. Meanwhile, production from Waha Oil Co. kept dropping to 96,200 barrels a day from its normal level of 320,000, according to another person familiar with the matter*"

Oil: UN envoy warned Libya is headed to "greater domestic and regional instability"

UN warned Libya heading the wrong direction

Here is another item from last week's (Aug 25, 2024) Energ Tidbits memo on the UN's warning on Libya. "*UN envoy warned Libya is headed to "greater domestic and regional instability. We have been surprised that Libya hasn't had more domestic crisis/battles as it's been almost four years since the last minute cancelled Dec 2021 national election that was supposed to be the unifying event for the future. And there have been times when there were rumbles that haven't emerged to a return to the east vs west conflict. So it is hard to predict if the latest signs of unrest can be put back to rest or if it accelerates. But, on Tuesday, we tweeted [LINK] "Libya watch! "the status quo is not sustainable. In the absence of renewed political talks leading to a unified government and elections – you see where this is heading - greater political financial and security instability, entrenched political and territorial divisions, and greater domestic and regional instability." @stephaniekoury1 👇warns US Security Council. #OOTT [LINK]." UN Special Envoy Stephanie Koury briefed the UN Security Council on Tuesday with a recap of recent events in Libya and a clear waning that things are breaking down and there needs to be a big change and some sort of* *unified efforts from all parties or else Libya is heading for domestic trouble. Her message is clear and worth a read. Our Supplemental Documents package includes the Koury briefing*."

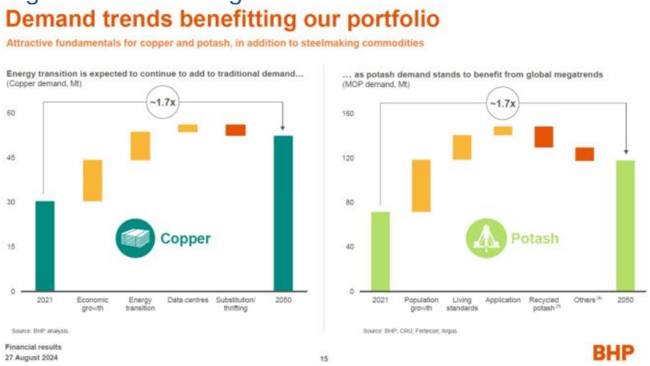
Is more trouble or domestic unrest about to come in Libya?
Here is another part of the above item we wrote in last week's (Aug 25, 2024) Energy Tidbits memo. "Is more trouble or domestic unrest about to come in Libya., Koury's briefing to the UN Security Council on Tuesday recapped some of the key events that we have been tracking. Here is what we wrote in our Aug 11, 2024 Energy Tidbits memo on Libya's path ahead. "*Is more trouble or domestic unrest about to come in Libya? We go thru the Libyan news sites at least a few times a week, more this week as we were following the force majeure at Sharara oilfield in SW Libya. Our primary news outlets are Libya Herald, Libya Observer and Libya Review. And starting midweek, there were a few separate reports that make us wonder if there is the risk of domestic unrest about to come. And the reason why domestic unrest is significant is that it could easily lead to Libya going back down to zero oil production. On Tuesday, reported clashes in Aljmail (west of Tripoli) injured several. On Wednesday, there were the reports that Haftar had moved more troops down into southwest Libya, ostensibly to protect Libya's southern border. On Thursday, there were the reports that forces for the Tripoli based Libya government were mobilized in what was described as a response to Haftar moving his forces into SW Libya. On Friday, Libya Observer (and the others similarly) "Nine people were killed and 16 others injured, including a civilian, in armed clashes in Tajoura at noon on Friday, as reported by Libya's Ambulance and Emergency Service. Hostilities broke out between the Rahbat Al-Duroo Battalion and the Martyr Sabriya Battalion following an alleged assassination attempt on Rahbat Al-Duroo's commander, Bashir Khalaf Allah." Tajoura sits on the eastern edge of Tripoli. Yesterday, the Libya Herald reported "UNSMIL expressed concern in a statement yesterday over the mobilisation of forces by Hafter and anti-Hafter forces. This comes as Western Libyan forces aligned with the Tripoli based Libyan government mobilised in what they said was a response to Hafter's forces expanding out of their usual southern territory and heading northwest towards Ghadames on the Libyan Algerian border. UNSMIL's statement read: ''UNSMIL monitors with concern the recent mobilization of forces in various parts of Libya, particularly in the southern and western regions. We commend ongoing efforts to de-escalate the situation and prevent further tension. UNSMIL urges all parties to exercise maximum restraint and avoid any provocative military actions that could be perceived as offensive and might jeopardize Libya's fragile stability and the safety of its people. The Mission calls for continued communication and coordination between forces affiliated to the LNA and GNU." We don't know what will evolve but it seems like the domestic tensions are rising and so the issue for Libya will be can they put a lid on the domestic tensions?"*

Oil: BHP, China is having "an uneven recovery among its end-use sectors"

BHP: uneven recovery in China

BHP had its year-end fiscal yr 2024 call on Tuesday and one of the market focus areas was on BHP's view on China given the importance of China to BHP's key commodities. BHP warned there is an uneven China recovery and that they see a "small to mild surplus" for their key commodities over the next couple of years ie. China is not yet on a sustained road to recovery. On Tuesday we tweeted [LINK] "*BHP outlook. "China is experiencing an uneven* *recovery among its end-use sectors. ...we see steady growth in some parts of the economy important commodity demand, like conventional infrastructure, zero and low-emissions technologies, machinery, automotive, and shipbuilding, its property market remains under pressure. The effectiveness of recently announced pro-growth policies will be key to China achieving its official target of around 5% growth in 2024." "Overall, while these dynamics will support continued strong demand for our products, growth in supply over the next couple of years will likely result in a small to mild surplus for a number of those and continued price volatility." #OOTT."* The market focus was on China for the next year or two, but BHP also highlighted they still see a strong mid to long term outlook for its key commodities. Below is their mid to long term outlook slide. Our Supplemental Documents package includes excerpts from the BHP call transcript.

Figure 45: BHP long term to 2050 demand trends



Source: BHP

Oil: Temu highlights careful Chinese consumer trading down

Temu on Chinese consumer

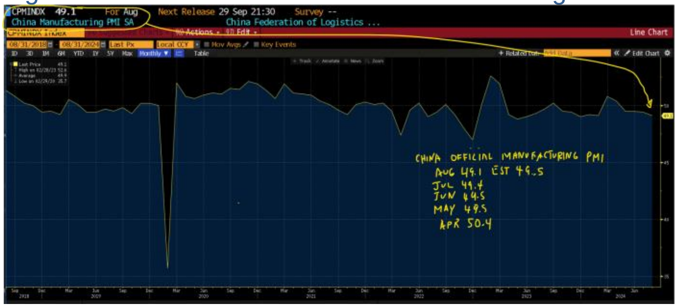
We could write many items every week on the cautious Chinese consumer so we only tend to add comments from high profile companies, in this case PDD (online retailer Temu). On Wednesday, we tweeted [LINK] "*Chinese consumer trading down! PDD (online retailer Temu) shares down >30% post Q2. Q2 call "On the other hand, there is a growing emphasis on rational consumption. Consumers are making more thoughtful decisions to balance quality and value." #OOTT."* PDD shares were hammered and were down 30% post the Q2. No wonder, PDD was clear that they are facing changing consumer demand, they will need increased investment and "*our profitability will affect as a result*." In their prepared remarks, PDD also noted, in a polite way, the Chinese consumers are spending less and being more careful in their spending. Mgmt said "*Since the beginning of this year, we are seeing that consumer preferences have become more diverse. On one hand, consumers are increasingly choosing experience-based consumption over material purchases. On the other hand, there is a growing emphasis on rational consumption. Consumers are making more thoughtful decisions to balance quality and value."*

Oil: China official Manufacturing PMI 4th consecutive month of contraction

China official Manufacturing PMI

More indicators for China economy is stuck in negative territory with the China official manufacturing PMI released on Friday night that had August as the 4th consecutive month of contraction. As a reminder, there are two China manufacturing PMI data reports that come out each month, The Official Manufacturing PMI that the National Bureau of Statistics publishes, and the Caixin Manufacturing PMI from S&P Global. The Caixin Manufacturing PMI is for more smaller, export-oriented companies. The Official Manufacturing PMI normally comes out a day before the Caixin Manufacturing PMI data that we track, and, Friday night MT, the Official Manufacturing PMI was released. Yesterday, we tweeted [LINK] "*China manufacturing negative. 4th mth of contraction. China official National Bureau of Statistics Manufacturing PMI. Aug 49.1. Est 49.5. July 49.4. Jun 49.5. May 49.5. Apr 50.4. Mar 50.8. Feb 49.1. Jan 49.2. Export oriented smaller firm Caixin Manufacturing PMI is Sun night. #OOTT. Thx @business.*" As noted in our tweet, the more export oriented smaller firm Caixiin Manufacturing PMI is to be released tonight.

Figure 46: China Official General Manufacturing PMI



Source: Bloomberg

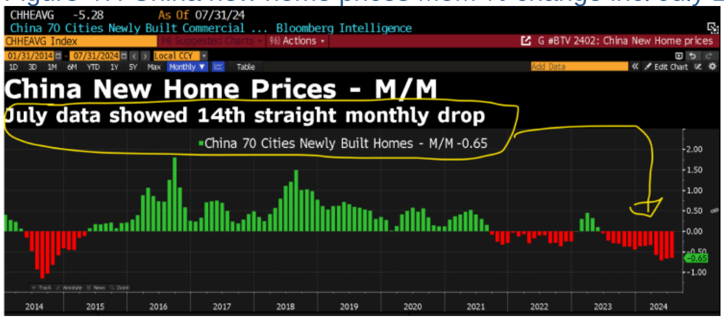
China's latest home saving measures

Oil: China looking at allowing homeowners to refinance their mortgages at lower rates

The world keeps watching China real estate markets and sees values keep going down and the Chinese consumer getting hammered in their most important assets. And there are still no signs of any sustained turn. Rather, the housing market keeps drifting down. But China keeps trying to find a way to speed up a bottoming and turnaround in the housing market. The latest is China is reportedly considering allowing homeowners to refinance their mortgages to lower mortgage costs ie. reduce homeowner's monthly mortgage costs. On Friday, Bloomberg reported "*China is considering allowing homeowners to refinance as much as $5.4 trillion of mortgages to lower borrowing costs for millions of families and boost consumption. Under the plan, homeowners would be able to renegotiate terms with their current lenders before January, when banks typically reprice mortgages, people familiar with the matter said, asking not to be identified discussing private information. They would also be allowed to refinance with a different bank for the first time since the global financial crisis, the people said. Authorities are ramping up a push to reduce mortgage costs after the central bank encouraged such support last year and banks responded with a rare rate cut on outstanding mortgages of first homes. It wasn't immediately clear if the latest considerations apply to all homes. While lower mortgage rates would hurt profitability at state-run Chinese banks, authorities are facing renewed pressure to stem a housing-led slowdown in Asia's largest economy. "If implemented, the move would send a signal that the central government is intensifying measures to support overall economy, protect household wealth and spur consumption," said Raymond Cheng, head of China property research at CGS International Securities Hong Kong. "It would also indirectly help the real estate sector."* Our Supplemental Documents package includes the Bloomberg report.

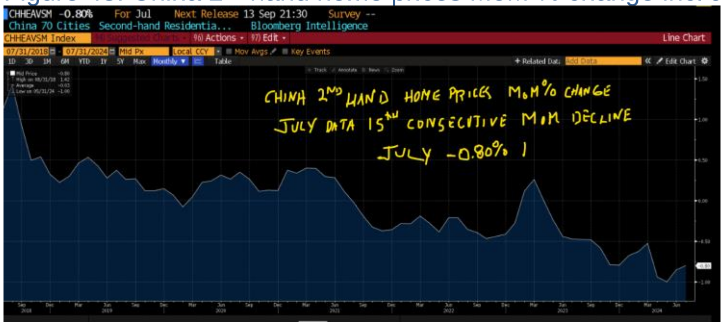
China home prices keep losing value, 14 mths for new & 15 mths for old,
Here is what we wrote in our Aug 18, 2024 Energy Tidbits memo. "*The big negative to the Chinese consumer is that they keep losing value in their homes, their biggest asset value keeps decreasing month after month. On Wednesday, we tweeted [LINK]: "No wonder Chinese consumer is still on sidelines. Their most important asset, home values keep going lower. July new home prices: 14th straight MoM drop, -0.65% M/M (June -0.67% M/M). July 2nd hand home prices: 15th straight M/M drop, -0.80% M/M (June -0.85% M/M). Thx @business #OOTT." Just like in North American, the home is the most important asset for most Chinese is their home and all the Chinese have seen is the value of their homes decline month after month with no end in sight. In July, Chinese new home and 2nd home prices were down MoM vs June. July MoM value declines weren't as bad as June or May, which was the worst month for China home values in ~10 years. But it was bad and kept the consecutive MoM home values losses streak alive, which is now 14 straight MoM declines in new home prices and is now 15 straight MoM declines in 2nd hand home prices. Below are the Bloomberg graphs with the July data."*

Figure 47: China new home prices MoM % change incl July 2024



Source: Bloomberg, National Bureau of Statistics

Figure 48: China 2nd hand home prices MoM % change incl July 2024



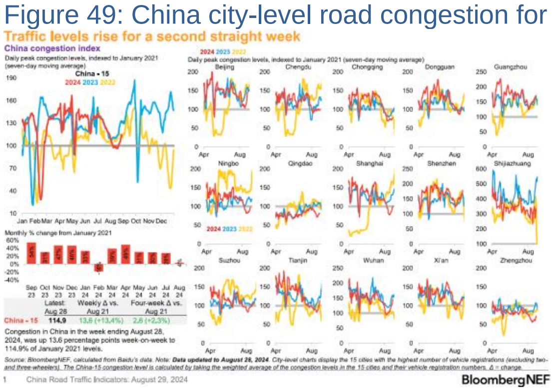
Source: Bloomberg, National Bureau of Statistics

China city-level traffic congestion

Oil: Baidu China city-level road congestion in August is down -14.2% YoY
China Baidu city-level road congestion is only an indicator, but we can't help to think that more Chinese consumers are having staycations this summer versus last summer ie. more

driving holidays. And one of the primary drivers for staycations in North America is to save money i.e. a cheaper holiday. Summer in China is much like in the western world, it's a holiday season. So, as seen in any holiday in China, it means people leave the cities and city-level road congestion should be lower. It's only an indicator but August 2024 city-level road congestion for the top 15 cities is 86% of August 2023, which suggests more people left the city for holidays this year. And we wonder if this is linked to more Chinese taking driving holiday. On Thursday, BloombergNEF posted its China Road Traffic Indicators Weekly August 29 report, which includes the Baidu city-level road congestion for the week ended August 28. 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 levels trend higher*". This week, BloombergNEF reported Baidu city-level road congestion was up by 13.4% WoW to 114.9% of Jan 2021 levels, but compared to August 2023, August's average daily peak congestion levels so far are down -14.2% YoY. Bloomberg noted that all 13 of the top 15 cities are down YoY. Below are the BloombergNEF key figures.

Figure 49: China city-level road congestion for the week ended August 28



Source: Bloomberg

Figure 50: China city-level road congestion for the week ended August 28

Month-to-date congestion was 14.2% lower than the entire month of August 2023

- Table to the left shows monthly congestion levels indexed to the average daily peak congestion levels **in January 2021** for each respective city.
- Table to the right shows monthly congestion levels indexed to the average daily peak congestion levels **of the same month in 2021** for each respective city.
- Three-color scale conditional formatting is set to red = 0, white = 100 and green = 200. It is possible for congestion levels to hit zero.
- **Data below are downloadable by running {97 <GO>} on the Bloomberg Terminal, or via the attached Excel on the BNEF website.**

Indexed to January 2021 = 100

	Aug 23	Sep	Oct	Nov	Dec	Jan 24	Feb	Mar	Apr	May	Jun	Jul	Aug
China-15	120	153	130	146	146	133	81	138	148	130	129	127	103
Beijing	137	180	159	167	161	145	73	151	169	143	141	146	121
Chengdu	114	130	121	123	116	120	68	134	140	125	119	126	97
Chongqing	88	127	112	122	116	111	80	112	138	122	129	119	75
Dongguan	101	147	130	141	144	121	52	129	138	138	138	126	98
Guangzhou	149	184	160	178	181	161	76	171	195	174	170	162	153
Ningbo	115	127	118	146	142	127	79	144	146	120	128	121	92
Qingdao	106	106	92	99	103	78	51	71	78	72	75	91	81
Shanghai	123	162	127	155	150	115	79	146	152	130	132	119	91
Shenzhen	146	181	151	169	170	149	68	160	164	172	163	162	153
Shijiazhuang	439	484	343	491	461	494	350	400	390	311	329	334	308
Suzhou	109	135	108	127	136	118	79	134	137	113	112	105	96
Tianjin	114	173	150	169	190	133	85	160	165	145	132	106	95
Wuhan	136	189	143	159	159	167	105	174	171	146	144	141	114
Xi'an	111	151	135	156	155	152	98	141	147	129	123	135	105
Zhengzhou	92	106	80	97	108	110	85	96	96	80	78	86	65

Indexed to the same month in previous year = 100

	Aug 23	Sep	Oct	Nov	Dec	Jan 24	Feb	Mar	Apr	May	Jun	Jul	Aug
China-15	107	112	126	155	187	151	55	100	114	110	96	104	86
Beijing	95	106	149	214	275	135	42	92	113	103	93	106	89
Chengdu	135	174	117	131	124	144	51	106	107	115	91	116	85
Chongqing	145	98	130	395	224	136	64	101	125	125	112	113	85
Dongguan	92	105	108	104	156	258	41	99	127	120	108	108	97
Guangzhou	104	114	146	317	307	199	45	99	127	127	107	107	103
Ningbo	79	69	96	101	127	203	59	115	140	121	112	106	80
Qingdao	97	100	96	124	195	175	62	94	97	98	87	95	77
Shanghai	81	81	115	93	172	156	54	98	117	105	101	98	74
Shenzhen	97	122	108	97	156	189	41	96	120	132	99	113	105
Shijiazhuang	173	218	120	459	258	156	69	93	85	81	77	89	70
Suzhou	84	87	91	88	157	171	60	111	130	117	97	99	88
Tianjin	122	213	109	137	244	136	60	114	121	119	100	96	84
Wuhan	138	144	199	192	187	151	55	94	100	97	85	95	84
Xi'an	119	106	149	139	152	132	66	110	112	105	91	110	95
Zhengzhou	112	112	171	294	164	119	76	98	102	90	82	98	71

Source: BloombergNEF calculations based on Baidu data. Note: Data updated to ***August 28, 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

08/15/24: Are Chinese consumers trading down for their holidays?

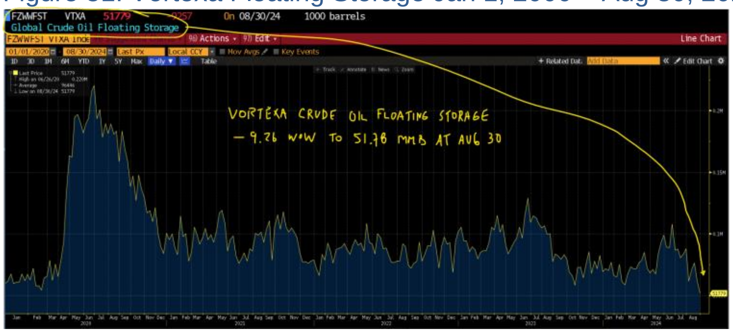
Here is what we wrote in our Aug 18, 2024 Energy Tidbits memo and why we wonder if more Chinese were having staycations and hitting the road for their holidays. "*Are Chinese consumers trading down for their holidays? We have to believe that* *consumers around the world, including in China, are the same in how they look at spending. If they have less to spend or want to spend less for their holidays, they stay closer to home, take shorter trips and spend less. So when we saw the Thursday Global Times (state media) report on how Chinese are driving more for their holidays, it seemed to be iindicator a change in Chinese holiday spending. On Thursday, we tweeted [LINK] "Is Chinese consumer trading down on their holidays? More are driving for holidays with shorter weekend trips. And spending less. "Luhun rest & service oasis has seen a daily average of more than 13,000 visitors and 4,000 vehicles, with passenger and car traffic up more than 30% and revenue rising 10% compared with last year," #OOTT." The Global Times report "Highway oases become new attractions as holiday-goers take to the roads" [LINK] highlighted "As self-driving tourism gains popularity in China" and "the growth of road trips" and ""Our service oasis is near popular attractions like Baiyun Mountain and Laojun Mountain, so many visitors choose to stop here for a 'mini vacation' for one or two days." And what caught our attention on spending of visitors to these highway stops. Global Times wrote "Since the summer began, the Luhun rest and service oasis has seen a daily average of more than 13,000 visitors and 4,000 vehicles, with passenger and car traffic up more than 30 percent and revenue rising 10 percent compared with last year," Ge Changbo, the manager of Henan Transport Investment Expressway Service Area Management Co, Lu Hun Service Area told the Global Times on Thursday." So >30% more vehicles and passengers but only 10% more revenue. Our Supplemental Documents package includes the Global Times report."*

Oil: Vortexa crude oil floating storage est 51.78 mmb at Aug 30, -9.26 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 Aug 24 at 9am MT. (i) Yesterday, we tweeted [LINK] "*Headline is Vortexa crude #Oil floating storage of 51.78 mmb at Aug 31, lowest since Covid & only 1 of 3 wks in 50s. But last 5 wks revised up incl +7.29 to Aug 23 & +5.05 to Aug 16. Even still, last 5 wks average 64.35 mmb, solid trend as only been 18 wks <70 mmb since Covid, incl 3 in Aug. Thx @vortexa @business #OOTT.*" This is the lowest since Covid but the estimates, as seen last week, are always revised one way or another. But the key is that the last 5 weeks, even after the upward revisions, is 64.35 mmb, which is a positive trend. (ii) As of 9am MT Aug 31, Bloomberg posted Vortexa crude oil floating storage estimate for Aug 30 at 51.78 mmb, which was -9.26 mmb WoW vs revised up Aug 23 of 61.04 mmb. Note Aug 23 was revised +7.29 mmb vs 53.75 mmb originally posted at 9am MT on Aug 24. (iii) Revisions. The last five weeks were revised up including +7.29 mmb to Aug 23 and +5.05 mmb to July 26. Here are the revisions for the past seven weeks compared to the estimates originally posted on Bloomberg at 9am MT on Aug 24. Aug 23 revised +7.29 mmb. Aug 16 revised +0.95 mmb. Aug 9 revised +2.88 mmb. Aug 2 revised +2.43 mmb. July 26 revised +5.05 mmb. July 19 revised -0.39 mmb. July 12 revised -1.06 mmb. (iv) There is a wide range of floating storage estimates for the past seven weeks, but a simple average for the prior seven weeks is 70.45 mmb vs last week's then prior seven-week average of 72.10 mmb. The decline was due to adding a low 51.78 mmb week to the rolling 7-week average more than offsetting the prior five weeks upward revisions. (v) 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. (vi) 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. (vii) Aug 30 estimate of 51.78 mmb is -77.20 mmb vs the 2023 peak on June 25, 2023 of 128.98 mmb. Recall Saudi Arabia stepped in on July 1, 2023 with its voluntary cuts. (viii) Aug 30 estimate of 51.78 mmb is -31.89 mmb YoY vs Sept 1, 2023 of 83.67 mmb. Below are the last several weeks of estimates posted on Bloomberg as of 9am MT Aug 31, 9am MT Aug 24, and 9am MT Aug 17.

Figure 51: Vortexa Floating Storage Jan 1, 2000 – Aug 30, 2024, posted Aug 31 at 9am MT



Source: Bloomberg, Vortexa

Figure 52: Vortexa Estimates Posted 9am MT on Aug 31, Aug 24, and Aug 17

Posted Aug 31, 9am MT

	Date	FZWWFST VT... Last Px
Fr	08/30/2024	51779
Fr	08/23/2024	61036
Fr	08/16/2024	76132
Fr	08/09/2024	71141
Fr	08/02/2024	61644
Fr	07/26/2024	87766
Fr	07/19/2024	83651
Fr	07/12/2024	80504
Fr	07/05/2024	87643
Fr	06/28/2024	86628
Fr	06/21/2024	107.84k
Fr	06/14/2024	88718

Aug 24, 9am MT

	Date	FZWWFST VT... Last Px
Fr	08/23/2024	53753
Fr	08/16/2024	75178
Fr	08/09/2024	68262
Fr	08/02/2024	59210
Fr	07/26/2024	82720
Fr	07/19/2024	84040
Fr	07/12/2024	81557
Fr	07/05/2024	88804
Fr	06/28/2024	87119
Fr	06/21/2024	107.647k
Fr	06/14/2024	87788
Fr	06/07/2024	89317

Aug 17, 9am MT

	Date	FZWWFST VT... Last Px
Fr	08/16/2024	61819
Fr	08/09/2024	65565
Fr	08/02/2024	59366
Fr	07/26/2024	83139
Fr	07/19/2024	82674
Fr	07/12/2024	84224
Fr	07/05/2024	94995
Fr	06/28/2024	89871
Fr	06/21/2024	108.902k
Fr	06/14/2024	90174
Fr	06/07/2024	89484
Fr	05/31/2024	97889

Source: Bloomberg, Vortexa

Source: Bloomberg, Vortexa

Oil: Vortexa crude oil floating storage WoW changes by regions

Vortexa floating storage by region

Bloomberg also 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 Aug 23, in total, was revised +7.29 mmb with the key revision being Asia revised +5.58 mmb. (ii) Total floating storage at A 30 was -9.26 mmb WoW vs the revised up Aug 23 of 61.04 mmb. The major WoW changes were Asia -8.28 mmb WoW and Other -2.02 mmb WoW. (iii) Aug 30 estimate of 51.78 mmb is -77.20 mmb vs the 2023 high on June 23, 2023 of 128.98 mmb. Recall Saudi Arabia started its voluntary 1 mmb/d production cuts on July 1, 2023. The major changes by region vs the last year June 23, 2023 peak are Asia -49.56 mmb and Other -16.52 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 Aug 23 that was posted on Bloomberg at 9am MT on Aug 24.

Figure 53: Vortexa crude oil floating by region

				Original Posted	Recent Peak	
Region	Aug 30/24	Aug 23/24	WoW	Aug 23/24	Jun 23/23	Aug 30 vs Jun 23/23
Asia	23.90	32.18	-8.28	26.60	73.46	-49.56
North Sea	1.65	1.71	-0.06	1.62	5.42	-3.77
Europe	2.52	3.57	-1.05	3.34	5.75	-3.23
Middle East	3.45	2.63	0.82	2.35	6.76	-3.31
West Africa	6.66	6.50	0.16	6.42	7.62	-0.96
US Gulf Coast	1.17	0.00	1.17	0.00	1.02	0.15
Other	12.43	14.45	-2.02	13.42	28.95	-16.52
Global Total	51.78	61.04	-9.26	53.75	128.98	-77.20
Vortexa crude oil floating storage posted on Bloomberg 9am MT on Aug 31						
Source: Vortexa, Bloomberg						

Source: Bloomberg, Vortexa

Oil: U.S. Domestic travel over Labor Day weekend is up +9.0% YoY

Labor Day travel up YoY

The American Automobile Association (AAA) released commentary on domestic and international booking over Labor Day weekend [LINK]. AAA reports that domestic travel bookings are up +9.0% YoY while international travel bookings are down -4.0%. The AAA wrote "*overall domestic travel over Labor Day weekend is up 9% compared to last year, while the cost to travel domestically is down 2%...International travel over Labor Day weekend is down 4% compared to last year, per AAA booking numbers, while the cost to travel internationally is up 11%".* In addition to this AAA forecasts "*Travelers taking road trips should expect to pay less for gas compared to last year. The national average over Labor Day weekend in 2023 was $3.81. In recent weeks, gas prices have remained steady, hovering around $3.50".* AAA also noted the top 10 domestic and international destinations for Americans over Labour Day and Vancouver was #1. Our Supplemental Documents package includes the official AAA report.

Figure 54: Top 10 Domestic and International Destinations over Labor Day

Top Labor Day Destinations

DOMESTIC	INTERNATIONAL
Seattle, WA	Vancouver, BC, Canada
Orlando, FL	Rome, Italy
Anchorage, AK	London, England
New York, NY	Paris, France
Boston, MA	Dublin, Ireland
Las Vegas, NV	Amsterdam, Netherlands
Denver, CO	Barcelona, Spain
Chicago, IL	Athens, Greece
Juneau, AK	Mexicali, Mexico
San Francisco, CA	Edinburgh, Scotland

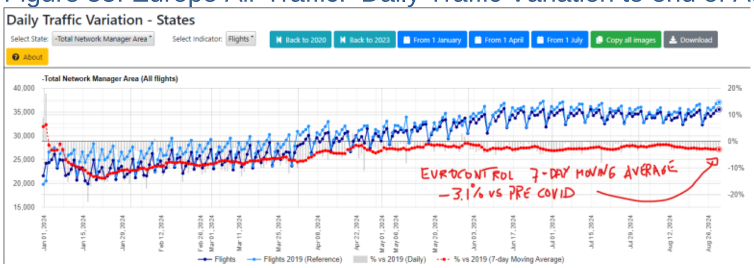
Source: AAA

Oil: Europe airports daily traffic 7-day moving average is -3.1% below pre-Covid

Europe airports daily traffic

Yesterday, we tweeted [LINK] "*Daily Europe air traffic still stuck below pre-Covid. 7-day moving average as of: Aug 29: -3.1% below pre-Covid. Aug 22: -2.8%. Aug 15: -2.2%. Aug 8: -1.3%. Aug 1: -1.9%. Jul 25: -2.2%. Jul 18: -2.6%. Jul 11: -2.9%. Jul 4: -3.3%. Jun 27: -2.9%. Thx @eurocontrol. #Oil #OOTT.*" Other than over Christmas, European daily traffic at airports has been 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 –3.1% below pre-Covid as of Aug 29, which followed -2.8% as of Aug 22, -2.2% as of Aug 15, -1.3% as of Aug 8, -1.9% as of Aug 1, –2.2% below as of July 25, -2.6% below as of July 18, and -2.9% below as of July 11. Please note that we try to pull the data on Saturday mornings for a consistent weekly comparison. Eurocontrol updates this data daily and it is found at [LINK].

Figure 55: Europe Air Traffic: Daily Traffic Variation to end of Aug 29



Source: Eurocontrol

Oil: Ryanair CEO continues to see soft demand from European air customers

Ryanair CEO on Europe air customer

On Wednesday, we tweeted [LINK] "*EU consumer still feeling pinched. "fares are getting cheaper but the decline has leveled off" "think it's reasonable to believe [winter] pricing will be down... down 5% is my best guess" "We continue to have to stimulate demand" @Ryanair CEO O'Leary to @GuyJohnsonTV #OOTT.*" Bloomberg interviewed Ryanair CEO Michael O'Leary and O'Leary was clear that the European air consumer is feeling pinched and that is reflected as they look ahead to winter pricing and demand. Our tweet included the key O'Leary quotes on how they see winter pricing down 5% and that they have to stimulate demand to get the seats in the plane ie. reduce pricing. Our tweet included a video clip of O'Leary's comments.

Oil: IATA July international air travel up YoY but still below pre-Covid

July air travel up YoY

On Thursday, the International Air Transport Association (IATA) released air passenger data for July 2024 [LINK]. (i) The key message from the data is that international air travel hit an all-time-high in all regions except Africa, with international demand rising +10.1% YoY. But the IATA also highlighted international air travel is below pre-Covid. The IATA wrote "*All regions saw growth rates above 5%, though growth has been tapering off since April 2021 and may take longer to return to pre-2020 figures.*" The IATA wrote "*International demand rose 10.1% compared to July 2023. Capacity was up 10.5% year-on-year and the load factor fell to 85.9% (-0.3ppt compared to July 2023). Total demand, measured in revenue passenger kilometers (RPK), was up 8.0% compared to July 2023. Total capacity, measured in available seat kilometers (ASK), was up 7.4% year-on-year. The July load factor was 86.0% (+0.5ppt compared to July 2023). There was no significant negative demand impact from the CrowdStrike IT outage on 19 July.*" (iii) Total global traffic in July, measured in revenue passenger kilometers (RPK), rose +8.0% YoY. Please note the IATA splits out total market air travel into international travel vs domestic travel. (iv) The split was between International RPKs which were up +10.1% vs July 2023 and Domestic RPKs which were up +4.8% vs July 2023. (v) Willie Walsh, IATA's Director General, commented *"July was another positive month. In fact, passenger demand hit an all-time high for the industry and in all regions except Africa, despite significant disruption caused by the CrowdStrike IT outage….The winding down of the peak northern summer season is a reminder of how much people depend on flying. As the mix of travelers shift from leisure to business, aviation's many roles are evident—reuniting families, enabling exploration, and powering commerce. People need and want to fly. And they are doing that in great numbers. Load factors are at the practicable maximum. But persistent supply chain bottlenecks have made deploying the capacity to meet the need to travel more challenging. As much of the world returns from vacation, there is an urgent call for manufacturers and suppliers to resolve their supply chain issues so that air travel remains accessible and affordable to all those who rely on it"* Our Supplemental Documents package includes the official IATA report.

Figure 56: July 2024 Air Passenger Market

	World share [1]	July 2024 (% year-on-year)				July 2024 (% year-to-date)			
		RPK	ASK	PLF (%-pt)	PLF (level)	RPK	ASK	PLF (%-pt)	PLF (level)
TOTAL MARKET	*100.0%*	**8.0%**	**7.4%**	**0.5%**	**86.0%**	**12.6%**	**11.0%**	**1.2%**	**83.0%**
International	*60.1%*	10.1%	10.5%	-0.3%	85.9%	16.3%	16.1%	0.1%	82.6%
Domestic	*39.9%*	4.8%	2.8%	1.7%	86.1%	7.1%	3.5%	2.8%	83.6%

Source: IATA

Oil: Asia/Pacific intl July passenger air travel up +22.6% YoY but down -4.5% vs 2019

Asian Pacific air traffic in July

On Wednesday, the Association of Asia Pacific Airlines released its July traffic results [LINK] which is comprised of aggregate data across a total of 40 Asia Pacific airline carriers. (i) Air travel. International passenger air travel on the 40 airlines is up big YoY, but still -4.5% below 2019 levels. The AAPA reports preliminary July 2024 travel figures were up +22.6% YoY from July 2023. The AAPA wrote *" Preliminary July 2024 traffic figures released today by the Association of Asia Pacific Airlines (AAPA) showed healthy growth in international air passenger markets. Regional initiatives to encourage travel continued to yield positive results, with relaxation of visa policies underpinning a significant rise in leisure travellers during the peak summer holiday season. For the month, a total of 31.9 million international passengers were carried by Asian airlines, representing a 22.6% year-on-year increase. The steady growth brought traffic volumes to 95.5% of the levels seen in the same month of 2019. Available seat capacity expanded by 21.2%, marginally surpassing the 20.5% increase in demand measured in revenue passenger kilometres (RPK). As a result, the average international passenger load factor decreased marginally by 0.6 percentage points to 82.6% in July"* (ii) Air cargo was up +12.3% YoY, measured in Freight Tonne Kilometres (FTK), and the load factor increased to 61.1%. Meanwhile, headline capacity measured in Available Seat Kilometres (ASK) expanded +21.2%. (iii) Subhas Menon, Director General of the AAPA, said *"The strong demand trend observed in the first half of the year carried into July, with Asian airlines reporting growth in both international passenger and cargo markets. Overall, during the first seven months of the year, the number of international passengers carried grew by a solid 39% to 208 million, supported by network expansions. Correspondingly, international air* *cargo demand rose by 15.6% year-on-year, in contrast to the depressed levels seen in the same period last year."* Below is a snapshot of the APAA's traffic update.

Figure 57: APAA Preliminary International Air Traffic Data

International	Jul-24	Jul-23	% Change
Passengers (Thousand)	31,921	26,032	+ 22.6%
RPK (Million)	111,868	92,861	+ 20.5%
ASK (Million)	135,365	111,671	+ 21.2%
Passenger Load Factor	82.6%	83.2%	- 0.6 pp
FTK (Million)	6,241	5,557	+ 12.3%
FATK (Million)	10,214	9,205	+ 11.0%
Freight Load Factor	61.1%	60.4%	+ 0.7 pp

Source: AAPA

Oil: IATA, global air cargo July was 8th consecutive month of double-digit YoY growth
We look at international air cargo as the data that affirms the level of export orders and trade. On Wednesday, the International Air Transport Association (IATA) announced cargo data for the month of July [LINK]. The IATA wrote "*Total demand, measured in cargo tonne-kilometers (CTKs*), rose by 13.6% compared to July 2023 levels (14.3% for international operations). This is the eighth consecutive month of double-digit year-on-year growth, with overall levels reaching heights not seen since the record peaks of 2021. Capacity, measured in available cargo tonne-kilometers (ACTKs), increased by 8.3% compared to July 2023 (10.1% for international operations). This was largely related to the growth in international belly capacity, which rose 12.8% on the strength of passenger markets and balancing the 6.9% growth of international freighter capacity. It should be noted that the increase in belly capacity is the lowest in 40 months whereas the growth in freighter capacity is the highest since an exceptional jump was recorded in January 2024.*" Willie Walsh, IATA's Director General, commented "*Air cargo demand hit record highs year-to-date in July with strong growth across all regions. The air cargo business continues to benefit from growth in global trade, booming e-commerce and capacity constraints on maritime shipping. With the peak season still to come, it is shaping to be a very strong year for air cargo. And airlines have proven adept at navigating political and economic uncertainties to flexibly meet emerging demand trends*" Our Supplemental Documents package includes the official IATA report.

Figure 58: July 2024 Air Cargo Market

	World share[1]	July 2024 (% year-on-year)				July 2024 (% year-to-date)			
		CTK	ACTK	CLF (%-pt)	CLF (level)	CTK	ACTK	CLF (%-pt)	CLF (level)
TOTAL MARKET	*100.0%*	**13.6%**	**8.3%**	**2.1%**	**44.4%**	**13.4%**	**9.2%**	**1.7%**	**45.3%**
International	*86.6%*	14.3%	10.1%	1.8%	49.7%	14.3%	11.8%	0.1%	50.9%

Note 1: % of industry CTKs in 2023

Source: IATA

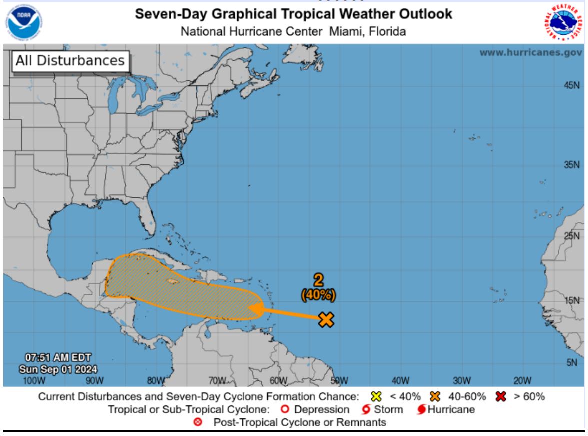
Oil & Natural Gas: Hurricane track map rule of thumb – the Dominican Republic

Hurricane rule of thumb

Earlier this morning, we tweeted on the potential storm [LINK] "*Hurricane Track Map Rule of Thumb. @NHC_Atlantic only 40% chance to reach cyclone strength w/ path south of DR. Hurricanes that move south of the Dominican Republic are the ones that are likely to hit Yucatan Peninsula or come into the GoM to hit Gulf Coast, or both. Last 4 yrs of @NHC_Atlantic track maps 👇 are indicative of track maps since 2000. #OOTT #NatGas."*

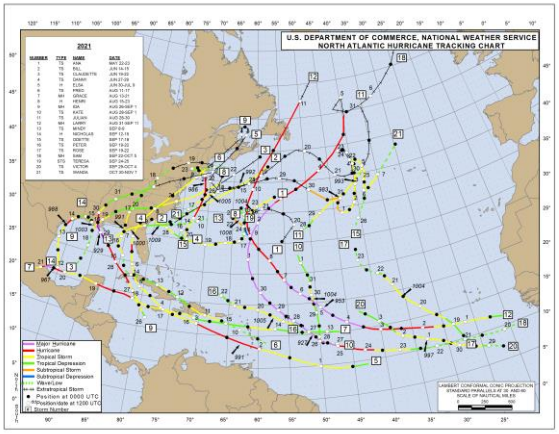
Not so much for the National Hurricane Center's estimate for a 40% chance for the disturbance could reach cyclone status but we highlighted the 40% chance storm because it's projected path would be south of the Dominican Republic. And if it does reach tropical storm or hurricane strength on this path, a path south of the Dominican Republic will normally mean it goes at the Yucatan Peninsula and possibly continuing on into the Gulf of Mexico ie. at the major US oil, natural gas and LNG infrastructure as well as at offshore GoM oil and natural gas production. Hurricanes and tropical storms are always unpredictable in terms of speed, wind strength and path. But, based on history, there are some rules of thumb. One pretty good rule of thumb is that tropical storms or hurricanes that move south of the Dominican Republic are likely to either hit the Yucatan Peninsula or come into the Gulf of Mexico and hit the Gulf Coast. Our tweet included the last four years of NHC track maps and we maintain the track maps since 2000 and they provide support for this rule of thumb.

Figure 59: Tropical Storm Ernesto



Source: National Hurricane Center

Figure 60: Atlantic hurricane track map for 2021



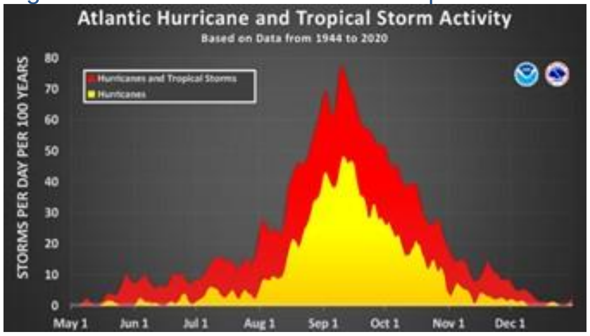
Source: National Hurricane Center

Oil & Natural Gas: Sept is normally the busiest Atlantic hurricane month

Sept is normally the busiest hurricane emonth

It was a relatively quiet in August for Atlantic hurricane season. But we remind that the normal peak hurricane season is mid-Aug thru mid-Oct and that 90% of the Atlantic hurricanes typically come after Aug 1. The peak of peak hurricane season is normally mid-Sept and September normally sees 45% of Atlantic hurricanes. And don't forget all the hurricane forecasters are calling for a more than normal hurricane activity. Here is what we wrote in our Aug 6, 2023 Energy Tidbits memo. "*90% of Atlantic hurricanes come after Aug 1, peak is normally mid-Sept It may already be the hottest time of the year, but we always remind that 90% of Atlantic hurricanes typically come after Aug 1. And August normally marks the start of the ramp up of hurricane season with high hurricane activity typically from mid-Aug thru mid-Oct with a normal peak in mid-Sept. Below is NOAA's graph showing the distribution of Atlantic hurricanes and tropical storms based on data from 1944 to 2020. [LINK].*"

Figure 61: Atlantic hurricane and tropical storm activity by month



Source: NOAA

Oil & Natural Gas: Harris says she won't ban fracking and won't going forward

Harris won't ban fracking

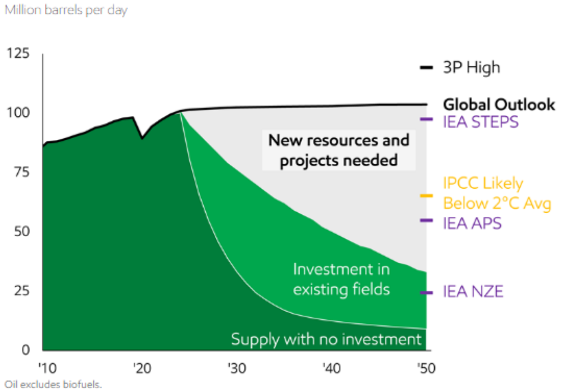
No surprise, on the Harris/Walz CNN interview on Thursday, Harris was asked about her changing position on fracking. When she was running for Democrat Presidential nomination, she had a clear no fracking position. That has changed. But we suspect the US oil industry is still going to want to wait and see as they are well aware that a Harris Administration could impact oil and gas drilling in other ways. On Thursday night, we tweeted [LINK] "*Harris says won't ban fracking. See 👇@business transcript on Harris/Walz interview tonight with @DanaBashCNN #OOTT.*" We included an excerpt of the Bloomberg transcript. Harris said she wouldn't ban fracking and said she won't ban fracking "*going forward*". Harris said "*No, and I made that clear on the debate stage in 2020, that I would not ban fracking. As vice president, I did not ban fracking. As president, I will not ban fracking.*" The interesting point is that she made a point of saying she wouldn't change here position. And "*In 2020, I made very clear where I stand. We are in 2024, and I've not changed that position nor will I going forward. I kept my word and I will keep my word.*" Our Supplemental Documents package includes the Bloomberg transcript.

Oil & Natural Gas: Exxon warns global oil & gas decline rates are higher now

Exxon on global oil and gas decline rates

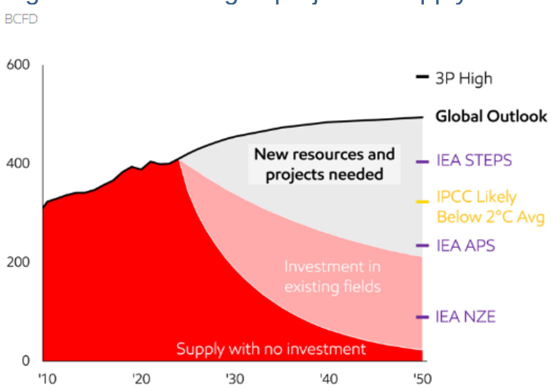
On Wednesday, Exxon posted its outlook to 2050 and the headlines were on how they see strong oil demand to 2050. But, we believe the overlooked important oil and natural gas factor affecting the next decade is Exxon saying that the global decline rate of producing oil and natural gas production is higher now with the added supply of US and other unconventional supply. (i) Every oil and gas industry executive knows that the #1 challenge for them is add enough new oil and natural gas production to offset the existing decline in the existing production base. And the higher the base decline rate, the more production has to be added just to keep production flat. (ii) On Wednesday, we tweeted [LINK] "*#Oil #NatGas 101. All existing oil & natural gas producing fields have declining production levels and require ongoing capital spending to try to minimize the rate of decline. Then need to add new production from new field just to stay flat, let alone grow. #OOTT.*" (iii) Exxon sees global decline rates increasing. Our tweet included the below Exxon global oil and natural gas production graphs. Exxon wrote "*Decline rates of existing fields are the biggest driver for new supply needed, and the reason significant investment is still required even before accounting for demand growth. The annual decline of existing supply is higher now, with an increasing mix of unconventional resources, such as U.S. tight oil, which decline faster than conventional oil and natural gas resources.*" (iv) Exxon included a new line on their graph on how much oil and natural gas declines if there is zero investment. We suspect they wanted to try to shock people with the slope of the graph and saying that, without any investment, global oil production would decline by 15% and global natural gas supply by 11%. We suspect they wanted to emphasize that a lot of capital is needed to keep global production flat year-on-year. (v) Hard to say if the terminology is apples to apples. We don't think it is compared to Exxon's prior views on decline rates. Exxon first says "T*he annual decline of existing supply is higher now, with an increasing mix of unconventional resources".* But then Exxon writes "*Some have advocated for continued investment in existing fields, but no new oil and natural gas developments. This would still lead to energy shortages, as oil supply would decline by ~4% per year and natural gas by ~3% per year*." The second part is how we typically refer to as global decline rates. And in the past Exxon has been way higher than ~4% for oil. (vi) So the reason must be shale and unconventional resources around the world like in Canada, Argentina, Saudi Arabia, etc. Exxon says the existing decline rates are much higher due to unconventional like US shale. But it also seems to be saying that there is more development from existing production and development such that the overall decline rate is ~4% AFTER investment in existing fields. This makes sense as it reinforces that plays like the Permian have lots of development such that they can be developed such that the overall decline rate for oil is only ~4%. It's the good news/bad news of shale. There is huge decline rate but, at least for now, there is plenty of development. (vii) Regardless, the reminder from decline rates is that industry has to add "new" fields to the producing base every year to keep production flat after they have invested in existing fields/development projects. So If Exxon's ~4% is what we believe it is meant to be, the world has to add ~4 mmb/d of new fields production each year to stay flat.

Figure 62: Global oil projected supply and demand



Source: Exxon

Figure 63: Natural gas projected supply and demand



Source: Exxon

Canada hits Tesla's made in China

Energy Transition: Canada hits China made EVs w/ 100% surtax & losing $5,000 rebate

We probably should have titled this Canada hits EV sales in Canada with 100% surtax and losing $5,000 point-of-sale rebate. (i) After a consultation period that started in early July, on Monday, the Liberals govt released its "*Canada implementing measures to protect Canadian workers and key economic sectors from unfair Chinese trade practices*" [LINK], which included adding a 100% surtax and removing the $5,000 point-of-sale rebate for EVs made in China. We did not see any exception in the backgrounder so this would include Tesla's made in Shanghai. (ii) On Monday, we tweeted [LINK] "*Big hit to EV sales in Canada. Headline: Liberals add 100% surtax to Chinese made EVs ie. Tesla's made in Shanghai. BUT big one is to limit eligibility for incentives to Zero Emission Vehicles to countries that have free trade agreements with Can. This is the $5,000 point of sale rebate. See 👇06/24/24 tweet. @KellyCryderman notes 44,400 Tesla's made in Shanghai landed in Van in 2023. #OOTT.*" (iii) As our tweet highlighted, the headlines on the Liberals move was the 100% surtax on Chinese-made EVs primarily because that was point #1 that said "*First, the Government of Canada intends to implement a 100 per cent surtax on all Chinese-made*

EVs, effective October 1, 2024. This includes electric and certain hybrid passenger automobiles, trucks". And the other big item that was overlooked was point #4 probably because it wasn't as specific was "*Fourth, the federal government is announcing its intention to limit eligibility for the Incentives for Zero-Emission Vehicles (iZEV), the Incentives for Medium and Heavy Duty Zero Emission Vehicles (iMHZEV), and the Zero Emission Vehicle Infrastructure Program (ZEVIP) to products made in countries which have negotiated free trade agreements with Canada."* This is the $5,000 point-of-sale rebate on Chinese-made EVs, which is the logical point that we would have expected to be included. (iv) Our Monday tweet linked to our June 24, 2024 tweet and Kelly Cryderman (Globe and Mail) wrote on how there were 44,000 Tesla's made in Shanghai that were landed in Vancouver. And Tesla's were about 25% of Canada EV sales. So this week's move should have a big impact on Tesla EV sales and therefore total Canada EV sales. It's not just in the US that lower and middle income car owners can't afford to pay up for an EV and Tesla EVs just got more expensive starting Oct 1, 2024. Our Supplemental Documents package includes the Liberals release, backgrounder and excerpt on the Incentives for Zero-Emissions point-of-sale rebates.

Tesla tried to get a reduced surtax on its Shanghai-made EVs to Canada
No surprise to see the Reuters report that Tesla tried to get out of the new surtax on Chinese-made EVs. Liberals Finance Minister Freeland announced the 30-day consultation period on the potential to add surtax on Chinese-made EVs at the end of June. So we would have been shocked if Tesla and others hadn't approached the Liberals about an exemption. They were reportedly turned down for an exemption. On Thursday, Reuters reported [LINK] "*Before Canada said this week it was imposing a 100% duty on Chinese-made electric vehicles, Tesla (TSLA.O), opens new tab approached Ottawa and asked for a lower tariff on its autos, a Canadian government source said on Wednesday."* And "*The source, who requested anonymity given the sensitivity of the situation, said Tesla approached Canada before the official announcement. The automaker asked for a rate similar to what it received in the European Union, the source said. Tesla does not disclose its Chinese exports to Canada. However, vehicle-identification codes showed that the Model 3 compact sedan and Model Y crossover models were being exported from Shanghai to Canada."* And "*Tesla has not contacted Ottawa since Monday, the source said. Tesla was not immediately available for comment. The office of Canada's Finance Minister, Chrystia Freeland, who has overall responsibility for tariffs, declined to address talks with Tesla."*

06/24/24: Big hit to Canada EV sales if follow US in big tariffs on China EVs
Our tweet this week linked to our June 24, 2024 tweet when the Liberals announced they were going to look at following the US in some sort of taxing on China items including EV. Here is what we wrote in our June 30, 2024 Energy Tidbits memo. *"Big hit to Canada EV sales if follow US in big tariffs on China EVs. This week Canada Finance Minister Chrystia Freeland announced "On July 2, we will launch a 30-day consultation on potential policy responses to protect Canada's auto workers, our growing EV industry, and to prevent trade diversion." This is to consider following the US lead in adding big surtax on EVs made in China. (i) On Monday, we tweeted [LINK] "Can't be good if EV price cutting leader Tesla gets hit by more tariff. Wonder*

if Liberals will still let point-of-sale $5,000 rebate for Shanghai-made Teslas? One advantage for Liberals is would provide a bad guy to blame for EV sales below expectations. #OOTT [LINK]." (ii) Biden's added tariffs on Chinese-made EVs does not impact near term EV sales. No one has been making a big deal on Biden cranking up tariffs on Chinese EVs because everyone said the US doesn't import any Chinese made EVs so it has no impact today and is meant to prevent future Chinese made EV imports like from BYD. (iii) ii) There was a good reminder from Globe and Mail that Canada EVs sales should be hurt if the Liberals follow the US and crank up tariffs of Chinese-made EVs. The Globe and Mail reported 44,400 Chinese made EVs landed in Vancouver in 2023. We confirmed with the Globe and Mail that they were referring to Shanghai-made Teslas. They wrote "Chinese brands aren't really a part of Canada's EV market right now. But, according to Bloomberg, Canada is seeing a significant surge in imports of Chinese-made EVs, particularly Tesla Inc. models made in Shanghai. The number of cars arriving from China at the port of Vancouver rose more than fivefold last year, to 44,400. And Canadians get a $5,000 point-of-sale rebate on these models, to boot." (iv) We agree with the Globe and Mail that it would slow down EV adoption if Liberals add tariffs that cover any Chinese-made EVs including Teslas made in Shanghai; They noted the existing tariff is 6.1%. For round numbers, let's assume or use $3,000 as a ballpark tariff today. If that is doubled, that adds $3,000 to the EV price. (v) Then there is a bigger question. Why is Canada cranking up the tariffs? If its like the US on unfair trade practices, why would they leave a Shanghai-made Tesla still eligible for a point-of-sale rebate of $5,000. Imagine if Shanghai-made Teslas are dropped from this $5,000 rebate on top of a doubling of the tariffs. That is a huge added cost that isn't a factor in why it's a nothing event in the US. (vi) The bottom line is that if you make the price cutter leader's EVs more expensive then it has to impact overall EV sales. It's not like you making the most expensive EVs more expensive. So we agree with the Globe and Mail that this should impact EV sales, especially If the point-of-sale rebate comes into play as Tesla has been the leader in cutting prices and accounted for ~25% of Canada EV sales in 2023. (vii) Driving.ca reported [LINK] "Tesla doesn't report market-specific, model-specific sales figures on a monthly or quarterly basis in the manner of virtually all other automobile manufacturers. But if it feels as though you're beginning to see Model 3s and Model Ys everywhere you turn, there's good reason. Automotive News estimates Tesla sold 16,000 Model 3s in Canada in 2023; 18,500 Model Ys." That is 34,500 Teslas in 2023. Bloomberg reported an estimate of 139,500 EVs sales in 2023 so Teslas were approx. 25% of total Canada EV sales. So the numbers make sense. (viii) The domestic politics reason why we think Liberals are likely to crank up tariffs on Chinese-made EVs is that we think it gives the Liberals something to blame for EVs slowdown. EVs sales are less than expected. The Liberals haven't yet come out and said slower sales make sense as Canadians don't want EVs as much as the Liberals want them to. So this would give the Liberals the Chinese to blame for the EVs shortfall. And blaming the Chinese plays well in Canada or the US. Our Supplemental Documents package includes the Globe and Mail report."

Energy Transition: HEVs (hybrids) are really just more fuel efficient ICE vehicles

On Thursday, we tweeted [LINK] "*HEV 101. HEVs are really just a more fuel efficient ICE as the electric motor kicks in at times BUT HEVs are fueled by gasoline/diesel. Its electric motor is charged by the ICE, NOT by the grid. HEV "use an electric motor and an ICE. In an HEV, gasoline or diesel is the fuel source". #OOTT Thx @EV_OnlineNews.*" We hadn't described HEVs in this manner previously but, earlier on Thursday, we were talking with some financial people who were really big on how HEVs (hybrids) were going to put ICE vehicles in their place and how that linked to their view on the demise of gasoline consumption. We partially agreed with them and highlighted the EU July new car registrations and HEVs sales were now approaching petrol ICE vehicles sales in EU. But we added the reminder that HEVs are really just a more efficient ICE. They run on gasoline or diesel and just get more miles per gallon because the electric motor will kick in the city. So if HEVs can continue to grow at the cost of both EVs and ICE, it probably wipes out most of the gasoline savings vs what an EV would have done. Our tweet included the below diagram from EV Energy Infrastructure on HEV vs PHEV vs BEV. EVEI wrote "*While a BEV uses only an electric motor powered by the battery pack, various HEVs use an electric motor and an ICE. In a HEV, gasoline or diesel is the fuel source; a PHEV uses a combination of gasoline or diesel and the electric grid as the fuel source; in a BEV, the electric grid is the only power source*".

HEVs are more fuel efficient ICE vehicles

Figure 64: EU New Car Registrations in July 2024

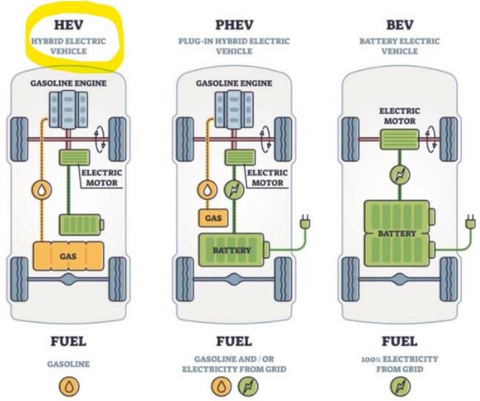


Figure 2. HEV, PHEV, and BEV drivetrains include various combinations of battery and gasoline or diesel as the fuel. (Image:

Source: ACEA

Energy Transition: Ford F-150 HEVs does 23 mpg vs 19 mpg for the F-150 ICE

It's not a true apples to apples comparison but Ford posts its miles per gallon for its F150 pickup hybrid vs ICE. It's not a real life comparison because Ford doesn't postthe mpg differences with half-loads or full loads. And that is especially so since hybrids have a lower maximum towing capacity of 11,200 lbs vs the ICE that has a maximum towing capacity of 13,500 lbs. We believe assuming half or full loads, the mpg difference would be much small. But, putting the non-real-life comparison, Ford states the HEV F-150 does 23 mpg, whereas the ICE F-150 does 19 mpg.

HEVs are more fuel efficient ICE vehicles

Energy Transition: EU July car sales, HEVs up YoY EV, PHEV, Petro, Diesel down YoY

On Thursday, ACEA posted its Europe new car registrations for July [LINK]. On Thursday, we tweeted [LINK]: "*EU new car sales July & YTD July 31. Hybrids getting closer to Petrol Hybrids & Others up YoY BEV, PHEV, Petrol & Diesel down YoY. July: BEV -10.8% YoY to 102,705 PHEV -14.1% to 57,689 HEV +25.7% to 273,003 Others +5.3% to 26,724 Petrol -7.0% to 305,531 Diesel -10.1% to 107,670 Total +0.2% to 852,051 YTD July 31: BEV -0.4% YoY to 815,399 PHEV -4.1% to 449,702 HEV +22.8% to 1,935,654 Others +6.3% to 206,010 Petrol -1.3% to 2,292,803 Diesel -7.9% to 837,794 Total +3.9% to 6,537,362 Thx @ACEA_auto #OOTT*". The July EU new car sales reinforce that hybrids continue to win the day. Hybrids are taking market share from EVs and petrol cars. Battery-electric vehicles are now 12.1% of the total market share, hybrid-electric cars are up to 32.0% of total market share~~,~~ and plug in hybrids are 6.8% of the total car market. Petrol and diesel cars fell to 46.0% of total Europe car sales and remain below 50%. Our Supplemental Documents package includes the ACEA press release.

EU July new car sales

Figure 65: EU New Car Registrations in July 2024

	BATTERY ELECTRIC			PLUG-IN HYBRID			HYBRID ELECTRIC[1]			OTHERS[2]			PETROL			DIESEL			TOTAL		
	July 2024	July 2023	% change 24/23	July 2024	July 2023	% change 24/23	July 2024	July 2023	% change 24/23	July 2024	July 2023	% change 24/23	July 2024	July 2023	% change 24/23	July 2024	July 2023	% change 24/23	July 2024	July 2023	% change 24/23
Austria	2,933	3,321	-11.7	1,406	1,300	+8.2	5,156	3,799	+35.7	1	1	+0.0	6,388	5,387	+18.6	3,017	3,758	-19.7	18,901	17,566	+7.6
Belgium	9,706	6,731	+44.2	4,333	8,428	-48.6	2,709	2,664	+1.7	201	240	-16.3	13,630	13,822	-1.4	1,572	2,784	-43.5	32,151	34,669	-7.3
Bulgaria	151	168	-10.1	41	34	+20.6	82	53	+54.7	0	0		3,154	2,561	+23.2	478	551	-13.2	3,906	3,367	+16.0
Croatia	268	121	+121.5	1	82	-98.8	32	1,174	-97.3	104	90	+15.6	4,165	2,623	+58.8	1,049	1,204	-12.9	5,619	5,294	+6.1
Cyprus	79	109	-27.5	56	83	-32.5	533	589	-9.5	0	0		676	865	-21.8	16	39	-59.0	1,360	1,685	-19.3
Czechia	820	468	+75.2	431	453	-4.9	4,078	2,870	+42.1	290	224	+29.5	7,743	8,310	-6.8	4,089	3,763	+8.7	17,451	16,088	+8.5
Denmark	5,934	3,516	+68.8	445	1,155	-61.5	2,111	1,990	+6.1	0	0		2,508	4,055	-38.2	519	520	-0.2	11,517	11,236	+2.5
Estonia	122	119	+2.5	117	43	+172.1	820	669	+22.6	49	3	1,533.3	460	718	-35.9	286	270	+5.9	1,854	1,822	+1.8
Finland	1,340	1,702	-21.3	950	1,631	-41.8	1,795	1,720	+4.4	6	87	-93.1	815	941	-13.4	293	317	-7.6	5,199	6,398	-18.7
France	17,030	16,867	+1.0	9,171	13,230	-30.7	48,457	32,877	+47.4	4,430	5,109	-13.3	37,441	48,370	-22.6	9,508	12,493	-23.9	126,037	128,946	-2.3
Germany	30,762	48,682	-36.8	14,811	14,345	+3.2	65,059	53,138	+22.4	1,119	1,258	-11.0	83,405	83,358	+0.1	43,107	42,496	+1.4	238,263	243,277	-2.1
Greece	882	573	+53.9	814	685	+18.8	5,469	4,273	+28.0	192	418	-54.1	4,090	4,738	-13.7	758	1,693	-55.2	12,205	12,380	-1.4
Hungary	582	355	+63.9	468	536	-12.7	3,799	3,188	+19.2	11	31	-64.5	2,569	3,025	-15.1	1,096	1,207	-9.2	8,525	8,342	+2.2
Ireland	3,136	4,177	-24.9	2,801	2,027	+38.2	6,112	6,031	+1.3	0	0		7,745	8,874	-12.7	5,889	6,227	-5.4	25,683	27,336	-6.0
Italy	4,266	4,083	+4.5	4,799	5,244	-8.5	49,859	42,471	+17.4	14,197	11,811	+20.2	35,879	34,579	+3.8	15,940	21,130	-24.6	124,940	119,318	+4.7
Latvia	104	124	-16.1	57	31	+83.9	503	443	+13.5	28	28	+0.0	525	786	-33.2	178	327	-45.6	1,395	1,739	-19.8
Lithuania	159	160	-0.6	114	115	-0.9	1,164	980	+18.8	40	21	+90.5	876	798	+9.8	347	255	+36.1	2,700	2,329	+15.9
Luxembourg	1,255	906	+38.5	363	394	-7.9	908	891	+1.9	0	0		1,245	1,391	-10.5	519	626	-17.1	4,290	4,208	+1.9
Malta	199	125	+59.2	53	51	+3.9	156	143	+9.1	0	0		311	259	+20.1	87	45	+93.3	806	623	+29.4
Netherlands	8,207	7,539	+8.9	4,106	4,241	-3.2	8,542	7,359	+16.1	107	162	-34.0	5,543	9,011	-38.5	331	296	+11.8	26,836	28,608	-6.2
Poland	1,151	1,153	-0.2	1,092	1,058	+3.2	19,041	13,903	+37.0	854	946	-9.7	17,254	15,850	+8.9	3,750	3,478	+7.8	43,142	36,388	+18.6
Portugal	3,317	2,697	+23.0	2,360	2,475	-4.6	2,701	2,663	+1.4	840	735	+14.3	3,916	5,777	-32.2	1,416	1,727	-18.0	14,550	16,074	-9.5
Romania	640	1,076	-40.5	-	-		5,510	3,215	+71.4	1,396	1,284	+8.7	4,130	5,212	-20.8	1,381	1,312	+5.3	13,057	12,099	+7.9
Slovakia	174	163	+6.7	164	327	-49.8	1,884	2,109	-10.7	87	146	-40.4	3,425	3,851	-11.1	1,085	1,405	-22.8	6,819	8,001	-14.8
Slovenia	145	276	-47.5	88	100	-12.0	372	552	-32.6	94	69	+36.2	2,827	2,051	+37.8	1,003	728	+37.8	4,529	3,776	+19.9
Spain	3,827	3,406	+12.4	4,415	5,176	-14.7	34,535	26,253	+31.5	2,536	2,299	+10.3	30,132	34,418	-12.5	8,534	9,650	-11.6	83,979	81,202	+3.4
Sweden	5,516	6,483	-14.9	4,223	3,883	+8.8	1,616	1,155	+39.9	142	424	-66.5	3,418	3,901	-12.4	1,422	1,451	-2.0	16,337	17,297	-5.6
EUROPEAN UNION	**102,705**	**115,100**	**-10.8**	**57,679**	**67,127**	**-14.1**	**273,003**	**217,172**	**+25.7**	**26,724**	**25,386**	**+5.3**	**284,270**	**305,531**	**-7.0**	**107,670**	**119,752**	**-10.1**	**852,051**	**850,068**	**+0.2**
Iceland	250	441	-43.3	189	119	+58.8	197	282	-30.1	0	0		62	187	-66.8	138	239	-42.3	836	1,268	-34.1
Norway	5,933	6,148	-3.5	153	613	-75.0	160	443	-63.9	1	0		45	109	-58.7	164	212	-22.6	6,456	7,525	-14.2
Switzerland	3,434	3,649	-5.9	1,553	1,777	-12.6	6,313	4,887	+29.2	1	4	-75.0	5,252	6,301	-16.6	1,877	1,981	-5.2	18,430	18,599	-0.9
EFTA	**9,617**	**10,238**	**-6.1**	**1,895**	**2,509**	**-24.5**	**6,670**	**5,612**	**+18.9**	**2**	**4**	**-50.0**	**5,359**	**6,597**	**-18.8**	**2,179**	**2,432**	**-10.4**	**25,722**	**27,392**	**-6.1**
United Kingdom	27,335	23,010	+18.8	13,149	11,702	+12.4	53,982	45,372	+19.0	0	0		49,428	58,150	-15.0	3,623	5,687	-36.3	147,517	143,921	+2.5
EU + EFTA + UK	**139,657**	**148,348**	**-5.9**	**72,723**	**81,338**	**-10.6**	**333,655**	**268,156**	**+24.4**	**26,726**	**25,390**	**+5.3**	**339,057**	**370,278**	**-8.4**	**113,472**	**127,871**	**-11.3**	**1,025,290**	**1,021,381**	**+0.4**

Source: ACEA

Energy Transition: E.ON CEO "*Germany must change course in the energy transition*"

We don't know if Germany is listening to E.ON CEO Leonhard Birnbaum's consistent warnings on Germany's flawed energy transition but he keeps trying to warn. The latest was his Friday interview with Frankfurter Allgemeine Zeitung. E.ON describes itself "*The E.ON Group is one of Europe's largest operators of energy networks and energy infrastructure and a provider of innovative customer solutions for approx. 47 million customers*". (i) Earlier this morning, we tweeted [LINK] "'*Germany must change course in the energy transition" @EON_SE_en CEO Birnbaum. His 4 key reasons why DEU has never had shortages like today and used up almost of its significant power reserves. 1. Connected millions of renewables. 2. Secured generation in south have been switched off & replaced by wind generation in north. 3. "To produce as the same amount of electricity, you need twice as much power from wind power as from gas power plants".4. "currently electrifying our entire society". Great interview @MarcusTheurer. #OOTT #EnergyTransition #NatGas."* (ii) Birnbaum was clear that Germany has an electricity problem that is getting worse and that Germany has used up almost all of its significant electricity reserves. Our tweet noted his four reasons for this and the key reason is adding renewables and reducing baseload like coal, nuclear and natural gas. It's not just adding intermittent and reducing baseload, Birnbaum

E.ON CEO latest warning on Germany's power situation

also reminded that big logistical problem of replacing the baseload power in the south and needing to bring wind power from the north to the south of Germany. (iii) Birnbaum also noted the problem with the Germany's solar incentive system and why "*the overall economic value of the additional solar modules is often not just zero, it is even negative. Because these systems push electricity into the grid uncontrolled at midday, when there is a lot of sun, and thus increase the oversupply at this time of day."* And the problem it causes because *"At the moment, operators of solar systems receive a legally guaranteed, fixed purchase price for their electricity from the grid operator. This is the case even when the electricity price is negative due to the oversupply - i.e. the grid operator would have to pay others to buy the excess electricity from him. Ultimately, other electricity customers pay for this subsidy. To put it bluntly: the low-earner in the rented apartment pays for the solar system on the high-earner's single-family home."* There is more in the interview and it's worth a read. Our Supplemental Documents package includes the Birnbaum interview transcript.

08/14/24: E.ON multiple warnings EU is not ready for electricity transition

As noted above, we have highlighted E.ON CEO Birnbaum's direct talk on the energy transition. Here is what we wrote on in our Aug 18, 2024 Energy Tidbits memo on Birnbaum's interview on Bloomberg TV on Aug 14 to answer questions post his Q2 release. And he raised multiple problems with the EU Energy Transition and how it can cope with electricity. Below are the three key warnings we noted at that time..

"Higher EU electricity prices ahead in EU but higher income can offset

Birnbaum didn't come out and make a point that Europe electricity prices were going higher, rather he just threw out in his comments that there would be "some higher electricity cost." Bloomberg asked "as you kind of project out to the quarters and the years ahead does the power prices in Europe edge lower?" We put Birnbaum's reply in a tweet. lOn Wednesday, we tweeted [LINK] "Higher EU electricity prices ahead. But higher income can offset. "consumers that have the ability [cash] to invest in PV [solar] and batteries might actually come out with lower energy prices, I would say. You have to take the total bill. Obviously they would be in a position to use their heating costs maybe also their mobility costs and could then cope with some higher electricity cost. Customers which can't invest are in a tougher position" E.ON CEO to @TomMackenzieTV @GuyJohnsonTV #OOTT #NatGas."

Need more subsidies for electricity transition projects to attract enough capital

Birnbaum didn't come out directly and say many/most electricity transition projects in EU are just not economic. Rather he did come out and say EU governments need to regulate increased returns for them to attract capital for transition investments, which is really the same thing. Birnbaum was asked if the limiting factor to increasing investment capital for electricity transition projects were supply chain items like people. The answer was no, rather it's the need for regulators to give them higher returns or else they can't attract capital for electricity transition projects. On Wednesday, we tweeted [LINK] "Insufficient returns in EU energy transition projects to attract capital. See

👇transcript. E.ON CEO's polite way of saying need more govt subsidies for many EU clean energy transition investments to give enough return to attract capital. #OOTT @GuyJohnsonTV @TomMackenzieTV." Here is the transcript we created and attached to our tweet. Bloomberg "The restrictions on your ability to invest though are not financial. It is the people, the kits [?], the stuff you need to make these investments." Birnbaum: "These are also relevant kinda like boundary restrictions. Currently we have them under control. Currently clearly the restriction is the amount of capital we can deploy and so with that and that is mainly limited by the regulation. I remind the listeners that we are in a regulated business and the amount of returns that we can achieve on infrastructure investment depends on regulation, and regulation needs to allow us to get competitive returns to attract private capital internationally and we don't have that to sufficient degrees in our markets yet and that is the limiting factor. If regulation would improve, we could increase our investments even further and to be clear, the targets which are out there would require actually a further increase of investments. " Bloomberg "Interesting on the need to attract that private capital. Specifically, what would need to change on the regulatory front to get to that point that you want it?" Birnbaum: Yeah, good morning. We have been clear and vocal that we need the ability to outperform our cost of capital by 150-200 basis points and that is a pre-requisite that we have heard from our investors which we need and this we can't under the current environment under the current kinda like investment levels. If we need to increase them further, we need more op-ex because we need more people to deploy that and then actually additional incremental investment dilutes our profitability. And so what we need is a higher return especially on the existing asset base. If you compare that, it is different obviously by markets, we are not only a German company, we are actually active in 11 countries, not in all in infrastructure but its different market by market but we would need indeed a higher capex return so that means on each billion that we invest we need to have a higher regulated return".

Grid maxed out, so no data centers in UK, Netherlands, Germany
Birnbaum also made a point of highlighting the grid was maxed out in various major EU areas like the UK, Netherlands and parts of Germany, which means there isn't a grid connection potential for any major electricity user ie. data centers. There is a power problem in Europe that is only going to get worse. Luckily, they have had very warm winter the last 2 years or else we would see this. But one example is that major users like data centers are not going to happen in UK, Netherlands and parts of German. What we don't know is if there is opportunity for data centers in those jurisdictions to do some one-off separate power deal that avoids utilities like is being tried in US and Canada. On Wednesday, we tweeted [LINK] "Data centers won't be happening in UK, NLD, DEU. "markets like the UK and the Netherlands where clearly the grid is maxed out and any connection of large consumers takes 7 to 8 to 9 years….." E.ON CEO Birnbaum. Maxed out grid = higher power prices ahead! Bad timing for declining domestic #NatGas supply.

#OOTT @TomMackenzieTV @GuyJohnsonTV." Here is the transcript we created and attached to our tweet. "Johnson: "When it comes to connecting some of the green technology that we are beginning to deploy here in Europe to the grid, how big is that backlog currently? How quickly do you think it is going to be possible to clear it?" Birnbaum: "That is depending country by country. There are countries, markets like the UK and the Netherlands where clearly the grid is maxed out, and any connection of large consumers takes 7 to 8 to 9 years so if you don't have a grid connection you are in a bad place. The other market for this situation is slightly better for example in Germany, but we have to say that more and more areas are subject to clear restrictions to grid connections. If you want to erect a data centre around Frankfurt, I can tell you already today it is out of question before the next decade that you even get a grid connection. Every possible grid connection that we have is already booked kinda like a decade in advance. This situation is similar in other regions, and so I would indeed say that the real bottleneck for speed for the energy transition right now is absolutely the infrastructure, which is obviously great news for E.ON because we are providing those infrastructure but it is actually a challenge for the energy transition."

Energy Transition: New Zealand blames energy shortage on wind and solar

New Zealand wants more natural gas

New Zealand is the first industrialized country that we can recall is directly blaming wind and solar for an energy shortage and that natural gas is therefore needed. And NZ said "*New Zealand needs abundant, affordable energy."* NZ continues on its big change to its focus on energy away from the move to Net Zero no matter the cost to one that has a priority of energy security ie. move back to fossil fuels. In this week's latest shift, NZ said they want to add LNG import facilities to have access to global LNG supply. This fits NZ's prior statement that more natural gas is needed to keep the lights on. (i) On Monday, we tweeted [LINK] "*New Zealand needs #NatGas as can't rely on intermittent wind & solar. "New Zealand currently has an energy shortage. The lakes are low, the sun hasn't been shining, the wind hasn't been blowing, and we have an inadequate supply of #NatGas to meet demand," Now wants to add #LNG import facilities in addition to reversing ban on offshore #Oil #NatGas exploration. #OOTT;"* (ii) NZ has an energy shortage, which they link to clean energy. Their release was titled *Urgent action taken to bolster energy security*" [LINK]. And their blame goes on wind and solar. NZ wrote *""New Zealand currently has an energy shortage. The lakes are low, the sun hasn't been shining, the wind hasn't been blowing, and we have an inadequate supply of natural gas to meet demand*." (iii) The are moving to "act with urgency" on their previously announced move "*to reverse the ban on offshore oil and gas exploration, with legislation passed by the end of 2024*." (iv) The new natural gas focus is to add LNG import facilities. As noted above, NZ said "*we have an inadequate supply of natural gas to meet demand."* So in addition to the reversing the ban on offshore exploration, NZ said they will "*Remove regulatory barriers to the construction of critically needed facilities to import Liquefied Natural Gas (LNG) as a stop gap*". (v) And NZ wrote they would "*Ease restrictions on electricity lines companies owning generation. • Ensure access for gentailers to hydro contingency. • Improve electricity market regulation*." (vi) Our Supplemental Documents package includes the New Zealand release.

06/09/24: New Zealand, natural gas is needed to keep the lights on
As noted above, New Zealand previously announced it needed to add more natural gas to keep the lights on and that it would be reversing its ban on offshore exploration. Here is what we wrote in our June 9, 2024 Energy Tidbits memo. "*New Zealand, natural gas is needed to keep the lights on. New Zealand continues under its Feb 8, 2023 major shift to prioritize energy security and cost of living and not the energy transition away from oil and natural gas. (i) Earlier this morning, we tweeted [LINK] "Big Reality Check! "Natural gas is critical to keeping our lights on and our economy running, especially during peak electricity demand and when generation dips because of more intermittent sources like wind, solar and hydro" NZ @mangonui08. NZ reverses ban on #Oil #NatGas exploration to try halt production decline. Big admission that banning exploration "also shrank investment in further development of know gas fields which sustain our current levels of use" Note NZ recognizes need to do more than removing ban, need "further changes" to "attract investment in exploration AND production". #NatGas was ~15% of energy use mix in 2022. #OOTT." (ii) Earlier this morning New Zealand issued the release announcing the removal of the ban on oil and gas exploration. Our tweet included the key quotes on how natural gas is critical to keep the lights. (iii) There was an important admission from New Zealand when they realize that banning exploration also meant that oil and gas companies would cut back on development and other oi and gas investment. It really shows the reality of politicians who thought in New Zealand, and think elsewhere, that if they only ban new exploration, it won't impact any other oil and gas spending on near field development and other oil and gas investment. Reality is that if oil and gas companies don't see potential to explore and add new fields, they are going to look carefully at all other capex. New Zealand admitted this. (iv) The other significant admission from New Zealand is that they recognize they need to do more than reverse the ban is they are convince oil and gas companies they are serious about setting up an investment environment for oil and gas companies. (v) What is also significant is that New Zealand has cut natural gas consumption from 0.48 bcf/d in 2017 (the ban went on in 2018) to ~0.35 bcf/d and natural gas is only ~15% of the energy fuel supply mix. But they can't get rid of natural gas, and actually need more. This is a big reality check on the need for natural gas. (vi) This is under Prime Minister Christopher Luxon (The National Party), who won the most seats but not a majority in the Oct 14, 2023 election and assumed office on Nov 27, 2023. Our Supplemental Documents package includes the New Zealand release."*

02/08/23: New Zealand new priority is cost of living, not energy transition
Prior to the Oct 14, 2023 election, the Labour party had a solid majority but it was looking brutal for them in the year before, then PM Jacinda Ardern abruptly resigned in Jan 2023 and Chris Hipkins took over as Labour party leader and PM. Hipkins was facing a crisis to try to change voter support for the Labour party and one of his first major steps was to try to convince people that the Labour party was changing away from the energy transition and its related high costs to a focus on cost of living. It didn't save the election. But Hipkins did start the abrupt shift. Here is what we wrote in our Feb 12, 2023 Energy Tidbits memo. "*There was a pretty clear new priority for New Zealand – the priority to focus on the cost of living, which, no surprise, means a*

major energy transition policy was cancelled as it would just add to the cost of living. On Wednesday, the new New Zealand Prime Minister Chris Hipkins made his first big policy statement after their first cabinet meeting. The announcement was titled "Government takes new direction with policy refocus" and "Prime Minister Chris Hipkins has announced a suite of programmes that are being cancelled or delayed in order to put the Government's focus on the cost of living. "The Government is refocusing its priorities to put the cost of living front and centre of our new direction," Chris Hipkins said. "I said the Government is doing too much too fast, and that we need to focus on the cost of living. Today we deliver on that commitment." It was a very clear message that he is cancelling or delaying a number of former PM Jacinda Ardern's policies. Ardern surprised with an abrupt resignation on Jan 20. Her Labour party had fallen behind the opposition National party in the polls with the election set for Oct 14. On Wednesday, we tweeted [LINK] "Reality hits! @chrishipkins NZ new direction, refocus priorities to put cost-of-living front & centre. #biofuels mandate will not proceed. The mandate would have increased the price of fuel and given the pressure on households that's not something I'm prepared to do. #OOTT." One of cancelled policies was Ardern's "Powering NZ's future with biofuels" announced on Dec 15, 2021 [LINK] that would seen "From 1 April 2023, fuel wholesalers will be required to cut the total greenhouse gas emissions for transport fuels they sell by a set percentage each year, by deploying biofuels as a part of their fuel supply." Hipkins new direction cancelled this ""Cabinet also agreed that the biofuels mandate will not proceed. The mandate would have increased the price of fuel, and given the pressure on households that's not something I'm prepared to do."

Energy Transition: Korea mandates 1% Sustainable Aviation Fuel for international

1% sustainable aviation fuel mandate in Korea

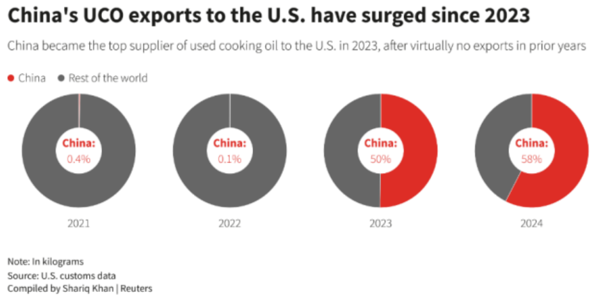
We continue to highlight that aviation is one of the hard to decarbonize sectors. It's not that it can't be done, but that the cost and availability of sustainable aviation fuel. At the same time, there is no question that governments want to push airlines to decarbonize. But at lest they are trying to be somewhat realistic on doing so Korea is the latest to mandate SAF requirements but is limiting the requirement to 1% and to international flights. On Friday, The Korea Times reported that sustainable aviation fuel will be a requirement for all international in and out of Korea flights starting in 2027 [LINK]. The Korea Times reported, "*19 countries are now using SAF as a strategy to combat climate change. In line with IATA's goal to expand global SAF use to over 18 million tons by 2030, up from 240,000 tons in 2022, several countries have announced plans to boost their SAF consumption. The European Union has announced that member states will be required to blend at least 2 percent SAF starting in 2025, with the blend increasing to 6 percent by 2030 and 70 percent by 2050. Singapore and India have also set plans to mandate 1 percent SAF, beginning in 2026 and 2027, respectively. Additionally, Japan has committed to using 10 percent SAF by 2030."* Our Supplemental Documents package includes the Korea Times report.

Energy Transition: US Imports of Chinese used cooking oil set to hit record high

Increasing imports of Chinese used cooking oil

We still wonder how much any controversy over the validity of Chinese cooking oil will actually emerge given the Biden administration's desire to be maximize the use of used cooking oil. On Wednesday, Reuters reported that US imports of Chinese used cooking oil ("UCO") are set to hit a record high in the coming months [LINK]. Reuters reported, "*U.S. demand for UCO, a feedstock for biofuels like renewable diesel, has surged as federal and* *state governments launched incentives to support the industry as they aim to decarbonize transportation….The rapid surge flipped the U.S. from a net exporter of UCO until 2021, to a net importer since 2022. U.S. imports surpassed 1.36 million metric tons (mt) last year, up from about 400,000 mt in 2022, the data showed.* " In 2023, imports from China made up half of all the used cooking oil imported to the US, up huge from a 0.1% share in 2022. From January to June this year, China accounted for roughly 60% of the roughly 1 million mt of used cooking oil imported into the US. Our Supplemental Documents Package contains the report from Reuters.

Figure 66: China exports of Used Cooking Oilto US



Source: Reuters

Capital Markets: USDA Consumer Price Index in July for food +0.3% MoM, +2.2% YoY

USDA CPI for food +2.2% YoY

We believe the USDA consumer food price index is supposed to be a much better indicator for grocery store prices than the UN's food commodity price index. But we continue to believe the actual prices at the grocery stores are way higher than indicated by the USDA inflation, or at least that is the view of consumers. And we highly doubt anyone who buys groceries, especially items like ground beef, would think grocery prices are only up +2.2% YoY. On Friday, the USDA posted its July Consumer Price Index for food [LINK], which reported the Consumer Price Index for all food (CPI) was +0.3% MoM and +2.2% YoY in July. The +2.2% YoY increase in the Consumer Price Index has a relative weighting for the various food categories. Beef and veal were up +1.8% MoM, +4.5% YoY, and are expected to increase +5.6% over 2024, fresh vegetables are up +1.2% MoM, +0.4% YoY, and expected to increase +1.3% in 2024, retail eggs are up +5.7% MoM and +19.1% YoY, and expected to increase +2.4% in 2024. It is important to note the USDA said that the *"Food prices are expected to continue to decelerate in 2024 compared to recent years. In 2024, prices for all food are predicted to increase 2.3 percent, with a prediction interval of 1.7 to 2.8 percent. Food-at-home prices are predicted to increase 1.2 percent, with a prediction interval of 0.4 to 2.0 percent, and food-away-from-home prices are predicted to increase 4.1 percent, with a prediction interval of 3.8 to 4.5 percent."*

Demographics: Australia implements the right to disconnect after work hours

Australia right to disconnect

We would be curious how workers and leaders at the best in class companies in Australia will look at the new right to disconnect rules. We recognize the working world has changed dramatically in the last decade but find it hard to believe that top performing companies will disconnect. After all, part of their edge is they work harder, worker smarter and faster. But maybe the working world has changed that much. Can't help think about some of the best ever people in Cdn financial investment business like former GMP head trader, Mike Wekerle, would never clock out or the people working in his group or other people in the firm saying they are clocking out. But time are different so we wonder how people at top performing companies in Australia look at these changes. For example, on Monday, the Australian govt announced [LINK] "*Right to disconnect among many increased benefits for workers starting today*." It's a straightforward new rule but with one key subjective measure – what is unreasonable. Australia wrote "*Changes starting today include: •A right to disconnect outside of paid work hours; • A fair definition of a casual employee; • A fairer test for determining whether a person is an 'employee' or an 'independent contractor'; •New 'regulated worker' functions for the Fair Work Commission, including setting minimum standards for 'employee-like' workers in the gig economy, and minimum standards for the road transport industry. This stands in stark contrast to Peter Dutton and the Coalition, who have launched an attack on workers' rights by voting against our Secure Jobs, Better Pay bill, and have already promised to overturn our right to disconnect and casuals reforms as part of a "targeted package of repeals". Right to disconnect. Eligible workers now have the right to disconnect. They are legally protected from responding to contact outside their working hours unless it would be unreasonable not to do so. Minister for Employment and Workplace Relations Senator Murray Watt said unless workers were being paid, they should not be expected to monitor, read or respond to contact. "Clocking off used to mean something in this country," Minister Watt said. "It meant time with your kids, time with your friends or just time to yourself to relax."* Our Supplemental Documents package includes the Australia govt release.

Demographics: Reminder Sept brings the back to office requirements for many co's

Back to office in Sept for many

Labor Day is tomorrow and that means Tuesday will be the start of back to office requirements for many companies. It doesn't seem like this is a big change in for many companies in Calgary as most ended remote working other than a day or two a week in 2022 or 2023. But it seems like that wasn't the case for many large companies in the US. We have a good number of older executives and board friends who are old school so aren't fans of remote working even if for two days a week. Most of the companies set the new return to office standards months ago to start after the Labour Day weekend. And these old school friends see an issue for both bosses and workers as many companies will have requirements for bosses/managers to be in the office for four days a week. It will be interesting to watch.

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

@Energy_Tidbits on Twitter

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.

LinkedIn: Look for quick energy items from me on LinkedIn
I can also be reached on Linkedin and plan to use it as another forum to pass on energy items in addition to our weekly Energy Tidbits memo and our blogs that are posted on the SAF Energy website [LINK].

Look for energy items on LinkedIn

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

Wine of the week: 1999 Avignonesi Desiderio
In August, I started the wine of the week when I realized I had to get 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. And because I was fortunate to have had great buyside and company clients for our energy success at Griffiths & McBurney/GMP Securities in 1998 to 2013, it means there are some great older bottles of red wine downstairs. So am now making sure some good wine of the week bottles get opened especially as many are 20 to 40 years old. On Friday, I tweeted out the wine of the week, which was the 1999 Avignonesi Desiderio. It was the last of a case from the early 2000's. This is a wine that should have been opened a decade ago so I decanted it for an hour. It was okay, not bad, but not as great as it was a decade ago. It's also one from 20 years ago when I would put the Parker or Wine Spectator review on the back to make it easier for guests to pick out a wine to drink.

Figure 67: 1999 Avignonesi Desiderio

Source: SAF Group

Farmers' Almanac vs Old Farmer's Almanac
This week we highlighted the Old Farmer's Almanac winter forecast vs last week's (Aug 25, 2024) Energy Tidbits memo highlighting the Farmers' Almanac winter forecast. The Old Farmer's Almanac is scheduled to release its winter forecast tomorrow. The difference is that the Farmers' Almanac started over 200 years ago in 1818, whereas the Old Farmer's Almanac started in 1792. The Old Farmer's

Almanac started life as the Farmer's Almanac but added the old in 1832. We have to believe there weren't strict naming rights in 200 years ago, when the Farmers' Almanac started up in 1818 using the same name as the original Farmer's Almanac.

150 Most Legendary Restaurants in the World, by TasteAtlas

It seems like a lot of our friends were traveling to Europe this summer and some of them hit some of our favorite places such as Vecchia Roma in Rome. One of the reasons they went to Vecchia Roma was that they were using last December's "*150 Most Legendary Restaurants in the World & Their Iconic Dishes*" by TasteAtlas. [LINK] and Vecchia Roma was #8. TasteAtlas says "*These are not just places to grab a meal, but destinations in their own right, comparable to the world's most famous museums, galleries and monuments. Each one has withstood the test of time, eschewing trendy gimmicks in favor of traditional, high-quality cuisine."* We hadn't seen this before so checked it. And it turns out we have had the good fortune to have hit up some of them: Vecchia Roma #8, Peter Luger Steak House in NYC #18, Au Pied de Cochon in Paris #25, Union Oyster House in Boston #35, Schwartz's Deli in Montreal #58, The Ivy's in London #65, Le Releas3 de l'Entrecote in Paris #92, and Tadich Grill in San Francisco #127. Our Supplemental Documents package includes the Top 150 list.

Figure 68: 150 Most Legendary Restaurants in the World

tasteatlas

150 Most Legendary Restaurants in the World

1	**Figlmüller,** Vienna	1905	Schnitzel Wiener Art
2	**Pizzeria da Michele,** Naples	1870	Pizza Napoletana
3	**Hofbräuhaus München,** Munich	1589	Schweinshaxe
4	**Gino e Toto Sorbillo,** Naples	1935	Pizza Margherita
5	**Paragon,** Kozhikode	1939	Biryani
6	**Tunday Kababi,** Lucknow	1905	Galouti kebab
7	**Café de Tacuba,** Mexico City	1912	Enchiladas
8	**Trattoria Vecchia Roma,** Rome	1916	Amatriciana
9	**Warung Mak Beng,** Sanur	1941	Ikan goreng
10	**Peter Cat,** Kolkata	1975	Chelow kebab

Source: TasteAtlas

Schwartz's Deli in Montreal got the fame, but some of us were BENS fans

As noted above, Schwartz's Deli in Montreal was ranked #58 in the TasteAtlas 150 Most Legendary Restaurants in the World. Schwartz's had the brand name, it was good and visitors would put it on the list of where to go for smoked meat. However, some of us were loyal BENS fans until it was demolished 15 years ago. It started out that it was just a convenient place to pick up a smoked meat on the way back to the hotel but, over time, it became our favorite. BENS was demolished about 15 years ago.

NFL season starts this week

For many sports fans, it's a big week with the start of the NFL season with games on Thursday (Chiefs/Ravens), Friday (Eagles/Packers in Brazil), Sunday and, of course Monday Night Football (Jets/49ers). One of the reasons I set the target for the Energy Tidbits memo to be posted by noon MT was because of feedback from a couple of key buyside clients 25 years ago who said they needed something to read at halftime of the NFL season. I was gathering feedback from buyside clients on what additional research I could provide on top of covering companies. And in those days, there was nothing published on Sundays. It was a good time deadline to make sure I could watch the 11am MT kickoffs. One item that will be watched over the next few days is Brazil wildfires. Apparently the air quality is bad near Sao Paulo and there is a risk that the game could be forced to be played back in Philadelphia as the Eagles are the home team.