Energy Tidbits

September 24, 2023

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Did US/Iran Deal Also Unlock >$12b Iraq Owes to Iran for Natural Gas That Won't be Restricted to Humanitarian Uses?

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. Our 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 our review of investor days, conferences and earnings calls focusing on sector developments that are relevant to the sector. Our target is to write on 48 to 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. An overlooked aspect of the US/Iran deal (prisoner swap, unfreezing $6b funds in Korea) may have also unlocked >$12b Iraq owes to Iran for natural gas that won't be restricted to humanitarian uses [CLICK HERE].

2. Bloomberg tanker tracking indicates Russia oil shipments in 4-wks to Sept 17 rose to 3.34 mmbd, +0.465 mmb/d vs the 4-wk period to Aug 20 [CLICK HERE].

3. UK PM Sunak is another leader to back of green initiatives to not hit cost of living for citizens [CLICK HERE].

4. Saudi Aramco CEO Nasser reminds green hydrogen costs $200-$400/boe, which is why commercial buyers haven't stepped up for commercial deals [CLICK HERE].

5. Holdback to near term LNG & natural gas prices is the forecasts for a warm start to winter in Europe and Japan [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: +64 bcf build in US gas storage; now +410 bcf YoY surplus

US gas storage +410 bcf YoY surplus

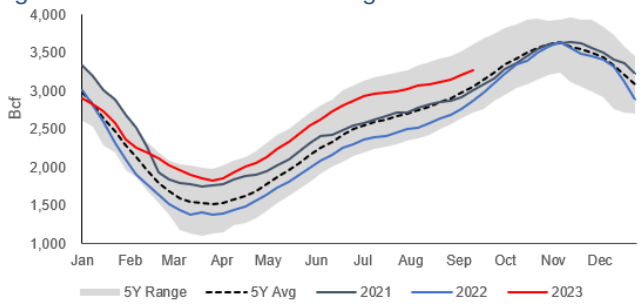
It's been a warm end to summer (much like last summer) that has led to lower than normal seasonally gas injections into storage. For the week of September 15, the EIA reported a +64 bcf build (above the expectations of a +64 bcf build), and a YoY decrease compared to the +103 bcf build reported for the week of September 16, 2022. Total storage is now 3.269 tcf, representing a surplus of +410 bcf YoY compared to a surplus of +445 bcf last week. Total storage is +183 bcf above the 5-year average, down from the +203 bcf surplus last week. Below is the EIA's storage table from its Weekly Natural Gas Storage report [LINK].

Figure 1: US Natural Gas Storage

	Stocks billion cubic feet (Bcf)				Historical Comparisons: Year ago (09/15/22)		5-year average (2018-22)	
Region	09/15/23	09/08/23	net change	implied flow	Bcf	% change	Bcf	% change
East	793	775	18	18	686	15.6	751	5.6
Midwest	931	904	27	27	839	11.0	883	5.4
Mountain	228	225	3	3	167	36.5	189	20.6
Pacific	263	260	3	3	237	11.0	265	-0.8
South Central	1,053	1,041	12	12	931	13.1	998	5.5
Salt	242	241	1	1	197	22.8	231	4.8
Nonsalt	811	801	10	10	733	10.6	767	5.7
Total	3,269	3,205	64	64	2,859	14.3	3,086	5.9

Source: EIA

Figure 2: US Natural Gas Storage – Historical vs Current



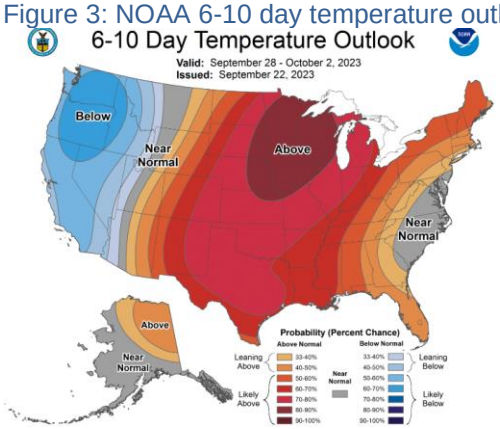
Source: EIA, SAF

Natural Gas: NOAA 8-14 day temperature outlook, it's moving to shoulder season

NOAA 8-14 day outlook

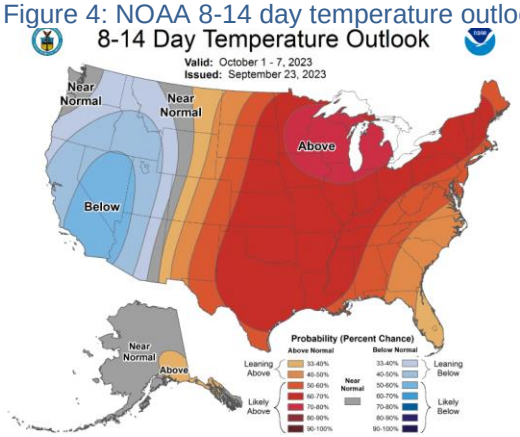
NOAA posts daily, around 1pm MT, an updated 6-10 day and 8-14 day temperature probability outlook. Yesterday, we tweeted [LINK] "*End of Sept is shoulder season for #NatGas so warmer than normal temps, generally for the US excl the south, don't drive big A/C demand. Rather 70s tend to be leave the windows open temp. Thx @NOAA @weatherchannel #OOTT."* The NOAA outlooks call for warmer than normal temperature for central and eastern US. Our tweet also included the Weather Channel daily high temperature forecast for Oct 1 to give perspective on warmer than normal temps. Other than the south, warmer than normal typically means 70s and daily highs in the 70s typically don't drive A/C demand. Rather it's what we have always called leave your windows open weather. It's what you should expect as summer turns to shoulder season. Below are the maps attached to our tweets: NOAA's 6-10 day outlook covering Sept 28-Oct 2, 8-14 day outlook covering Oct 1-7, and the Weather Channel's forecast for daily highs on Oct 1.

Figure 3: NOAA 6-10 day temperature outlook Sept 28-Oct 2



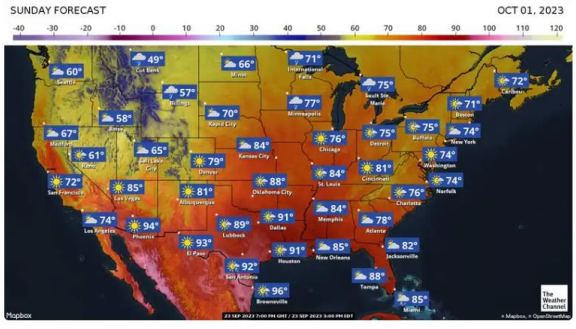
Source: NOAA

Figure 4: NOAA 8-14 day temperature outlook Oct 1-7



Source: NOAA

Figure 5: Daytime high forecast for Oct 1



Day 9 Forecast

Day 9 high temperature forecast.

Source: The Weather Channel

Shale/tight gas production

Natural Gas: EIA, US shale/tight natural gas been fairly flat for 6 mths at 98-~99 bcf/d

US natural gas production is still up strong YoY with the US shale/tight natural gas plays up almost 3 bcf/d YoY. However, we have been highlighting how the major US shale/tight natural gas plays have been stuck at around 99 bcf/d, now for the last 6 months. (i) On Monday, the EIA released its monthly Drilling Productivity Report for September 2023 [LINK], which is the EIA's forecast for oil and natural gas production from the major shale/tight oil and gas basins for the current month (in this case September) and the next month (in this case October). (ii) The EIA forecasts US shale/tight natural gas for October at 98.366 bcf/d, which is down slightly from 98.705 bcf/d in September. The shale/tight natural gas plays have been fairly flat for six months with May 99.097 bcf/d, June 98.942 bcf/d, July 99.017 bcf/d, August at 98.895 bcf/d, Sep at 98.705 bcf/d, and now October at 98.366 bcf/d. (iii) Permian has been stalled between 23 and 24 bcf/d for eight months. Mar 23.41 bcf/d, Apr 23.51 bcf/d, May 23.66 bcf/d, June 23.62 bcf/d, July 23.67 bcf/d, August at 23.71 bcf/d, September at 23.73 bcf/d, and now October at 23.75 bcf/d. (iv) Haynesville is the same for the last year, ranging consistently around 16-17 bcf/d since October 2022, but its the stalling growth that is the item to highlight from the DPR. (vii) Remember US shale/tight gas is ~90% of total US natural gas production. So, whatever the trends are for shale/tight gas are the trends for US natural gas in total. Below is our running table showing the EIA DPR data for the shale/tight gas plays, and the MoM changes in major shale/tight natural gas production. Our Supplemental Documents package includes the EIA DPR.

Figure 6: EIA Major Shale/Tight Natural Gas Production

				2023														
mmcf/d	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Oct YoY	Oct YoY%	Oct MoM	Oct MoM%
Anadarko	6,973	6,830	6,442	6,872	6,864	6,846	6,833	6,761	6,864	6,820	6,756	6,687	6,610	-363	-5%	-77	-1%
Appalachia	34,386	34,856	34,722	35,538	34,970	35,757	35,438	35,804	35,904	35,912	35,879	35,855	35,718	1,332	4%	-137	0%
Bakken	3,198	3,088	2,686	2,888	3,087	3,102	3,163	3,195	3,282	3,318	3,342	3,367	3,390	192	6%	23	1%
Eagle Ford	7,070	7,086	7,059	7,202	7,310	7,694	7,551	7,683	7,742	7,718	7,671	7,612	7,542	472	7%	-70	-1%
Haynesville	16,420	16,457	16,276	16,428	16,845	17,131	16,713	16,912	16,419	16,455	16,404	16,302	16,196	-224	-1%	-106	-1%
Niobrara	5,211	5,215	4,925	4,992	4,990	5,049	5,079	5,083	5,111	5,125	5,136	5,148	5,165	-46	-1%	17	0%
Permian	22,206	22,070	21,884	22,306	22,321	23,409	23,508	23,658	23,619	23,669	23,706	23,734	23,745	1,539	7%	11	0%
Total	95,463	95,602	93,995	96,225	96,387	98,987	98,284	99,097	98,942	99,017	98,895	98,705	98,366	2,903	3%	-339	0%

Source: EIA, SAF

Chevron reaches deal with union

Natural Gas: Chevron/Union deal ends industrial action on Gorgon& Wheatstone LNG

On Thursday, the news broke that Chevron and the unions reached an agreement to end the industrial action at the 2.1 bcf/d Gorgon LNG and 1.2 bcf/d Wheatstone LNG. As of our 7am MT news cut off (9pm Perth time), we haven't see any confirmation from the Offshore Alliance union that the deal has been formally signed off. No one expects anything but a formal sign off. And that would seem to be affirmed by Offshore Alliance early Sat morning (Perth time) that replacement workers were leaving Gorgon and Wheatstone. Yesterday, we tweeted [LINK] "*Gonna miss the Offshore Alliance posts that says it in a way that many probably think. Their latest 👇 and still haven't formally signed off on the Chevron offer of settlement. But if replacement workers leaving, union must be arriving & #LNG operations should be normal right away. #NatGas #OOTT."* Offshore Alliance said they were reviewing the proposed agreements to their deal to make sure the draft agreement reflects what was agreed. Offshore Alliance said [LINK] "*Chevron's non-competent BCP workforce are scuttling off the Gorgon and Wheatstone facilities as OA members consider the drafting of EBA changes to level progression, remuneration and key entitlements. Chevron's lawyers have sent the Offshore Alliance legal team a draft of their offer of settlement and our lawyers are reviewing their proposed Agreements to ensure there are no weasel words which*

Chevron use to avoid their industrial obligations. We told Chevron from the outset that our members will go one day longer and one day stronger in our bargaining campaign. The Offshore Alliance will be meeting with members once our lawyers have reviewed Chevron's proposed settlement of claims."

Natural Gas: India August natural gas production up +1.38% MoM to 3.61 bcf/d

India domestic natural gas production peaked in 2010 at 4.6 bcf/d, and then ultimately declined to average 2.8 bcf/d in 2020-2021. India returned to modest growth in 2021/2022. There was a several months of basically flat production but modest production growth has returned in 2023. On Tuesday, India's Petroleum Planning and Analysis Cell released their monthly report for August's natural gas and oil statistics [LINK]. India's domestic natural gas production for August was 3.61 bcf/d, which was +1.38% MoM from 3.56 bcf/d in July. On a YoY basis, natural gas production was up +9.32% from 3.30 bcf/d in August 2022. Our Supplemental Documents package includes excerpts from the PPAC monthly.

Natural Gas: India LNG imports flat MoM at 2.54 bcf/d in August

India LNG imports down YoY

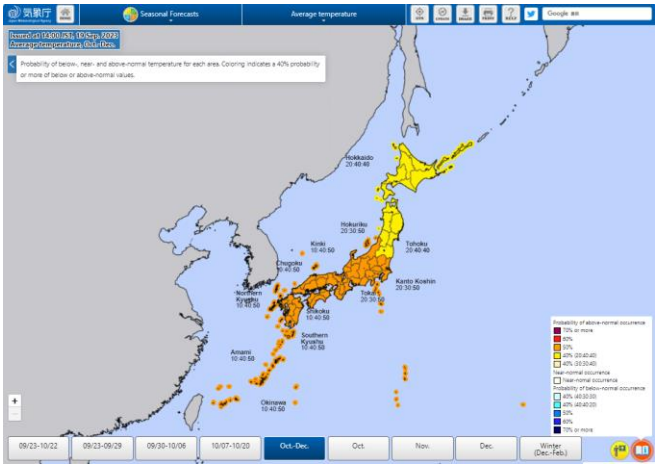
For the past several years, India has increased LNG imports whenever domestic natural gas production was flat or decreased. But the overriding factor in 2022 was the high LNG prices. India is always viewed as an extremely price sensitive buyer in terms of its LNG imports. We saw this in periods of low LNG prices such as June to Oct 2020 when India had a big ramp up in LNG imports. But with the sky-high LNG prices in 2022, India did their best to minimize LNG imports. However, now with the pull back in LNG prices, we have been seeing some India LNG imports move up or down in line with domestic production moving down or up. On Tuesday, India's Petroleum Planning and Analysis Cell released their monthly report for August's natural gas and oil statistics [LINK]. Over the past 3 years, India's LNG imports declined from a 2020-2021 peak of 3.84 bcf/d in Oct 2020 to just 2.85 bcf/d in Jan 2021 and lower in 2022. Additionally, August's LNG imports were 2.54 bcf/d, which is flat from July. LNG imports are now down -10.1% YoY from 2.31 bcf/d 2022. Our Supplemental Documents package includes excerpts from the PPAC monthly.

Natural Gas: Forecast for warmer than normal start to winter for Japan

Japan OND temperature forecast

Our concern for near-term natural gas and LNG prices is that three will be a holdback as long as forecasts call for warmer than normal temperatures to start winter. And the concern for 2024 is that when it starts warm, it's hard but not impossible to catch up. On Thursday, we tweeted [LINK] "*Near-term holdback to #LNG #NatGas prices. Warmer than normal temp forecast for Oct/Nov/Dec by JMA for Japan and by ECMWF for Europe. A warm start to winter makes it hard, but not impossible to catch up. But means need cold Jan/Feb. #OOTT."* Our tweet included the Tues update from the Japan Meteorological Agency for their temperature outlook for Oct/Nov/Dec [LINK], which calls for a warmer than normal OND. That should not surprise given it is still much warmer than normal in Japan. The following item includes the JMA's updated 30-day outlook and it calls for much warmer than normal temperatures to end Sept and start Oct. Below is the JMA temperature map for OND.

Figure 7: JMA Oct/Nov/Dec Temperature Probability Forecast



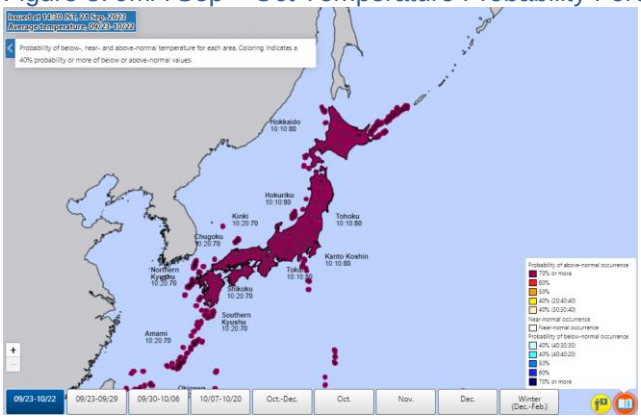
Source: Japan Meteorological Agency

Natural Gas: Forecast well above normal temperatures through October in Japan

Japan's 30-day temperature forecast

It has been really hot in Japan this summer and it looks like the hot weather will continue through the end of September and start of October. Every Thursday, the Japan Meteorological Agency updates its 30-day outlook [LINK]. The September 21 update calls for much warmer than typical temperatures for the Sept 23 – Oct 22 period. The well above average temperatures are forecasted through the whole country, with every region having the highest probability-level of warm temperatures. The hot weather should keep demand on electricity for air conditioning and continue to pull on LNG stocks. Below is the JMA's 30-day temperature probability forecast for Sep 23 to Oct 22.

Figure 8: JMA Sep – Oct Temperature Probability Forecast



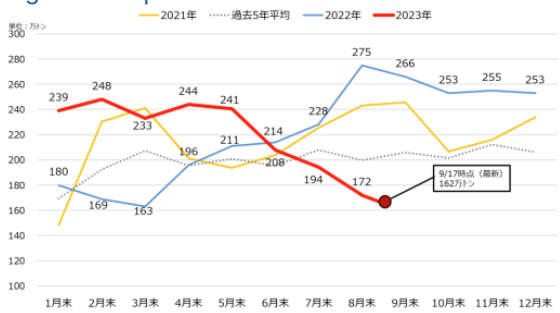
Source: Japan Meteorological Agency

Natural Gas: Japan's LNG stocks remain below 2022 and 5-year average levels

Japan LNG stocks down -4.7% WoW

It's been hot in Japan, and Japan has been drawing on its LNG stocks for power generation for the past few weeks and have taken LNG stocks below year ago and the 5-yr average. It means that Japan will be starting to get some LNG cargos to increase LNG stocks before the winter. But that was not the case this week as we observed a large draw, keeping Japan LNG stocks well below 2022 average levels and the 5-year average. On Wednesdays, Japan's METI releases its weekly LNG stocks data [LINK]. LNG stocks on Sept 17 were 77.8 bcf and are down -4.7% WoW from Sept 10 of 81.6 bcf, and below the 5-year average of 98.9 bcf. METI did not comment on the MoM increase. Below is the Japanese LNG stocks graph from the METI weekly report.

Figure 9: Japan LNG Stocks



Source: METI

Natural Gas: Japan LNG imports up MoM to 8.78 bcf/d in August

Japan LNG imports up MoM

The warm winter was the key factor for Japan's low natural gas demand and ending winter with high LNG stocks. And Japan didn't really draw on the high LNG stocks in the spring. As a result, Japan's LNG imports in 2023 have been below normal levels. But, with LNG stocks moving below the five-year average, we would expect to see some pickup in LNG imports in Sept and Oct. On Thursday, Japan's Ministry of Finance posted its import data for August [LINK] and pointed to a material YoY decline in LNG imports. The MOF reported Japan's August LNG imports were 8.78 bcf/d, which is up +11.5% MoM from 7.88 bcf/d in July, and down -9.6% YoY from 9.71 bcf/d in August 2022. August's imports of 8.78 bcf/d show some recovery from the recent low in May of 7.14 bcf/d. Japan's thermal coal imports in August were -31.5% YoY, compared to -7.0% YoY in July. Petroleum products imports were down -11.4% YoY. Below is our table that tracks Japan LNG import data.

Figure 10: Japan Monthly LNG Imports

bcf/d	2014	2015	2016	2017	2018	2019	2020	2021	2022	22/21	2023	23/22
Jan	12.66	13.06	11.22	12.85	12.79	11.69	11.63	12.48	10.51	-15.8%	10.56	0.5%
Feb	12.88	13.26	12.30	13.36	14.23	12.61	10.99	13.84	12.19	-11.9%	10.98	-9.9%
Mar	12.46	12.60	12.62	12.61	12.28	11.30	11.16	11.04	10.07	-8.7%	8.86	-12.0%
Apr	11.54	10.56	10.21	10.52	8.97	9.00	8.31	7.96	8.92	12.0%	7.25	-18.7%
May	10.06	8.91	8.55	9.66	9.92	8.62	7.09	7.67	8.92	16.3%	7.14	-19.9%
June	10.91	10.61	10.02	9.90	8.88	8.32	8.42	9.13	9.29	1.7%	7.25	-22.0%
July	12.14	10.77	10.19	10.19	10.55	10.56	9.35	9.58	9.54	-0.4%	7.88	-17.4%
Aug	10.92	10.93	11.96	11.24	11.73	9.45	9.04	9.75	9.71	-0.4%	8.78	-9.6%
Sept	11.64	11.06	10.67	9.31	10.04	10.30	10.41	8.66	8.52	-1.6%		
Oct	10.75	9.38	9.73	9.50	10.12	9.75	9.20	7.17	7.88	9.9%		
Nov	11.00	10.71	12.07	10.26	10.15	10.03	9.63	9.38	8.88	-5.4%		
Dec	12.79	12.51	11.69	12.31	11.23	10.54	11.96	10.89	9.39	-13.8%		

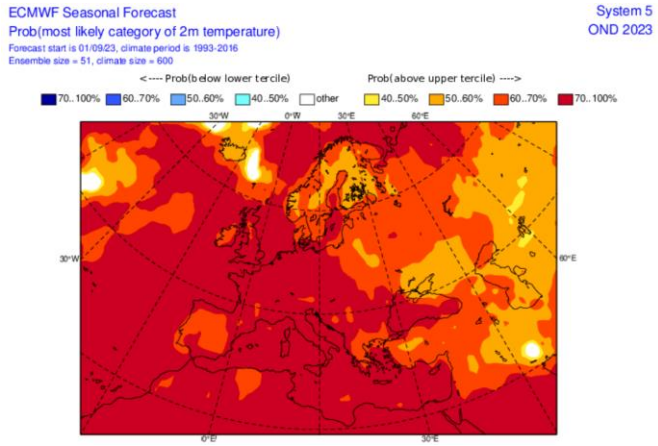
Source: Japan Ministry of Finance, SAF

Natural Gas: Forecast for warmer than normal start to winter for Europe

Europe OND temperature forecast

Our concern for near-term natural gas and LNG prices is that three will be a holdback as long as forecasts call for warmer than normal temperatures to start winter especially if it starts warmer than normal in multiple major natural gas consumption regions. And the concern for 2024 is that when it starts warm, it's hard but not impossible to catch up. On Thursday, we tweeted [LINK] "*Near-term holdback to #LNG #NatGas prices. Warmer than normal temp forecast for Oct/Nov/Dec by JMA for Japan and by ECMWF for Europe. A warm start to winter makes it hard, but not impossible to catch up. But means need cold Jan/Feb. #OOTT.*" Our tweet included the latest (Sept) update [LINK] from the ECMWF for Oct/Nov/Dec temperatures. ECMWF is European Centre for Medium Range Forecasts. The ECMWF is calling for a much warmer than normal OND.

Figure 11: ECMWF Oct/Nov/Dec Temperature Probability Forecast



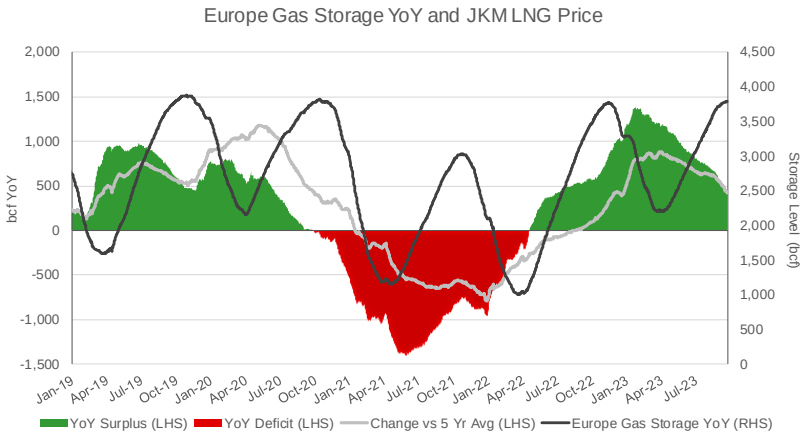
Source: ECMWF

Natural Gas: Europe storage over 94% full so entering winter full or close to full

Europe gas storage

Europe storage stayed above the 94% full level this week so they will be entering winter at full or close to full levels. This week, Europe storage increased by +0.61% WoW to 94.48% on Sep 21. Storage is now +7.84% greater than last year's levels of 86.64% and is +8.77% above the 5-year average of 85.71%. The current storage is within the 5-year range, albeit at the top end of the range. Below is our graph of Europe Gas Storage Level.

Figure 12: European Gas Storage Level



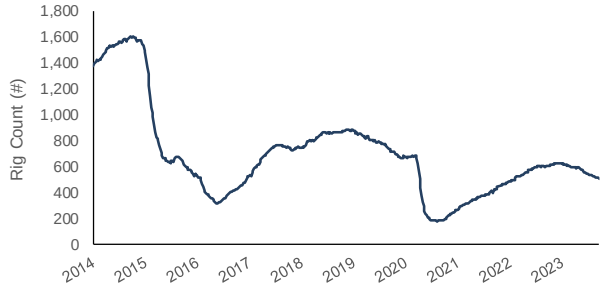
Source: Bloomberg, SAF

Oil: US oil rigs -8 WoW at 507 rigs on September 22, US gas rigs -3 WoW to 118 rigs

US oil rigs down WoW

On Friday, Baker Hughes released its weekly North American drilling rig data. (i) Total US oil rigs were down -8 WoW at 507 total rigs and are down -95 rigs YoY for the week of September 22. This is up +26 rigs from the 2022 low of 481 rigs in January. We are surprised that oil rigs haven't responded to $80 WTI since the end of July and now over $90 for the last week. On a per basin basis, there were a few changes in the major US basins for the week of September 22. The Permian was down -5 rigs WoW to 314 rigs, Cana Woodford was down -1 WoW at 16 rigs, Granite Wash was up +1 WoW at 5 rigs, and Ardmore Woodford was up +1 WoW at 2 rigs. Eagle Ford and DJ Niobrara were flat WoW at 44 and 14 rigs respectively. Others were down -4 WoW at 80 oil rigs. The Permian is near its lowest level since March 18, 2022, and is down -43 rigs from its recent high of 357 rigs on April 28, 2023. (ii) Gas rigs were down -3 rigs WoW to a total of 118 rigs and have now decreased -42 rigs YoY. On a per basin basis, Haynesville was down -2 WoW at 39 rigs. Others were down -1 gas rigs to a total of 33 rigs. Below is our graph of total US oil rigs.

Figure 13: Baker Hughes Total US Oil Rigs



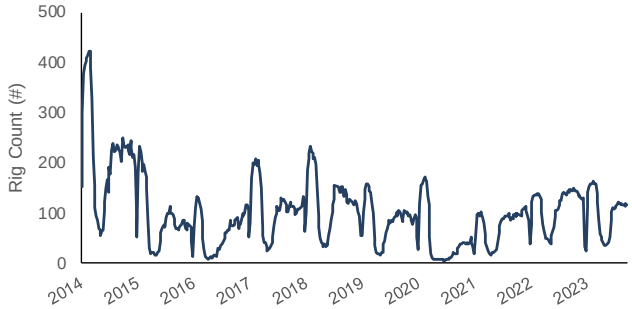
Source: Baker Hughes, SAF

Oil: Total Cdn rigs flat WoW at 190 total rigs

Cdn total rigs flat WoW

For the week of September 22, total Cdn rigs were flat WoW at 190 rigs. BC was up +1 rig WoW at a total of 19 rigs and Alberta was up +1 rigs to a total 133 rigs. This increase in BC was expected with the minor decrease in wildfires. Saskatchewan was down -2 rigs for a total of 34 rigs, while Newfoundland remained flat at 0 rigs. Cdn oil rigs were down -4 WoW to 115 rigs, and Cdn gas rigs increased +4 rigs to 75 rigs. Cdn oil rigs are down -33 rigs YoY, while gas rigs are up +8 rigs YoY. Below is our graph of total Cdn oil rigs.

Figure 14: Baker Hughes Total Cdn Oil Rigs



Source: Baker Hughes, SAF

Oil: US weekly oil production estimates flat WoW at 12.9 mmb/d

US oil production flat WoW

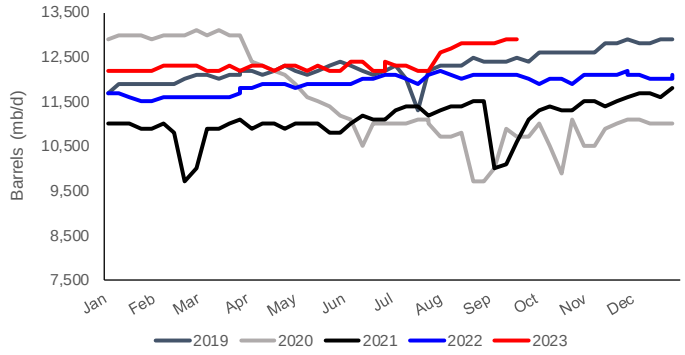
Our Aug 13, 2023 Energy Tidbits memo highlighted the EIA increased their weekly US oil production estimates by +0.4 mmb/d and how we had been expecting such a big increase to the weekly estimates. For months, we highlighted how the US weekly estimates were well below the EIA's actuals as per its monthly Form 914. As a result, the weekly estimates now seem more or less in line with the monthly actuals. The production estimates have continued to increase in September and has reached another post-pandemic high. This week, the EIA's production estimates were flat WoW at 12.900 mmb/d for the week ended September 15 [LINK]. The Lower 48 was also flat WoW at 12.500 mmb/d, and Alaska down slightly at 0.415 mmb/d. Below is a table of the EIA's weekly oil production estimates.

Figure 15: EIA's Estimated Weekly US Field Oil Production

	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
2022-Jan	01/07	11,700	01/14	11,700	01/21	11,600	01/28	11,500		
2022-Feb	02/04	11,600	02/11	11,600	02/18	11,600	02/25	11,600		
2022-Mar	03/04	11,600	03/11	11,600	03/18	11,600	03/25	11,700		
2022-Apr	04/01	11,800	04/08	11,800	04/15	11,900	04/22	11,900	04/29	11,900
2022-May	05/06	11,800	05/13	11,900	05/20	11,900	05/27	11,900		
2022-Jun	06/03	11,900	06/10	12,000	06/17	12,000	06/24	12,100		
2022-Jul	07/01	12,100	07/08	12,000	07/15	11,900	07/22	12,100	07/29	12,100
2022-Aug	08/05	12,200	08/12	12,100	08/19	12,000	08/26	12,100		
2022-Sep	09/02	12,100	09/09	12,100	09/16	12,100	09/23	12,000	09/30	12,000
2022-Oct	10/07	11,900	10/14	12,000	10/21	12,000	10/28	11,900		
2022-Nov	11/04	12,100	11/11	12,100	11/18	12,100	11/25	12,100		
2022-Dec	12/02	12,200	12/09	12,100	12/16	12,100	12/23	12,000	12/30	12,100
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				

Source: EIA

Figure 16: EIA's Estimated Weekly US Oil Production



Source: EIA, SAF

Oil: US shale/tight oil production has been stalled for six months

Shale/tight oil production

US shale/tight oil production continues to be stuck around ~9.4 mmb/d, now for the last six months. On Monday, the EIA released its monthly Drilling Productivity Report for September 2023 [LINK], which is the EIA's forecast for oil and natural gas production from the major shale/tight oil and gas basins for the current month (in this case September) and the next month (in this case October). (ii) The EIA is forecasting a MoM production decrease in September of -25,864 b/d MoM to 9.433 mmb/d and a MoM decline of -40,450 b/d to 9.392 mmb/d in October. (iii) The EIA's forecast for US shale/tight oil for the past six months are May 9.372 mmb/d, June 9.466 mmb/d, July 9.476 mmb/d, August at 9.459 mmb/d, September at 9.433 mmb/d, and now October at 9.392 mmb/d. (iv) Permian shale/tight oil production has also been stalled: March 5.779 mmb/d, April 5.761 mmb/d, May 5.773 mmb/d, June 5.826 mmb/d, July 5.825 mmb/d, August 5.815 mmb/d, September at 5.799 mmb/d, and now October at 5.773. (v) US shale/tight oil production is +469,000 b/d YoY to 9.392 mmb/d in October 2023. The major change areas are Permian ~+147,000 b/d YoY, Bakken

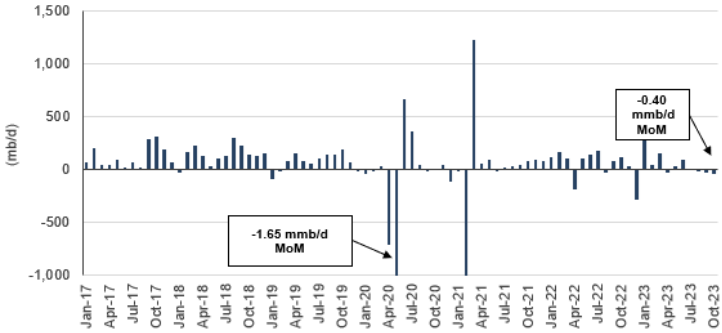
at ~+84,000 b/d YoY, and Eagle Ford at ~-21,000. (vi) Note that shale/tight oil is approx. ~75% of total US production, so whatever the trends are for shale/tight oil are normally the trends for US oil in total. Below is our table of running DPR estimates of shale/tight oil production and our graph of MoM changes in major shale/tight oil production.

Figure 17: US Major Shale/Tight Oil Production

Thousand b/d	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Oct YoY	Oct YoY%	Oct MoM	Oct MoM%
Anadarko	389	404	382	415	405	417	423	427	423	425	424	423	420	31	8%	-3	-1%
Appalachia	122	127	122	144	152	152	153	158	149	149	149	148	146	24	20%	-2	-1%
Bakken	1,143	1,126	988	1,093	1,190	1,157	1,165	1,166	1,201	1,214	1,219	1,224	1,227	84	7%	3	0%
Eagle Ford	1,129	1,104	1,063	1,113	1,135	1,176	1,150	1,156	1,163	1,155	1,142	1,126	1,109	-21	-2%	-17	-2%
Haynesville	36	35	33	35	35	35	35	35	36	36	36	36	36	0	0%	0	0%
Niobrara	651	662	605	624	612	649	655	657	669	672	674	677	682	30	5%	5	1%
Permian	5,626	5,666	5,647	5,752	5,687	5,779	5,761	5,773	5,826	5,825	5,815	5,799	5,773	147	3%	-26	0%
Total	9,096	9,124	8,840	9,177	9,218	9,366	9,342	9,372	9,466	9,476	9,459	9,433	9,392	469	3%	-40	0%

Source: EIA, SAF

Figure 18: MoM Changes in US Major Shale/Tight Oil Production



Source: EIA, SAF

Oil: EIA DUC's down marginally MoM in August

DUCs down marginally in August

We have been warning that we see a key risk to how much US oil production can sustainably grow in 2023 and beyond, is the need to increase rig counts (not have less frac spreads) to replenish the inventory of Drilled Uncompleted wells at higher levels and the challenge for oilfield services to add capacity to increase frac spreads and completions. The biggest problem in the past with the EIA's Drilling Productivity Report [LINK] estimate of Drilled Uncompleted wells was that the data had been constantly revised and sometimes significantly. (i) The EIA estimates DUCs were down -39 MoM (-442 YoY) in August to 4,749 DUCs. Note that July's data (including the Permian) had a net upward revision of +1 to 4,788. (ii) To put in perspective, there were 8,653 DUCs in the height of the Covid slowdown in August 2020, 5,851 DUCs in August 2021, 5,191 DUCs in August 2022 and now 4,749 DUCs in August 2023. (iii) It looks like DUCs have steadily decreased over the past five months with 4,920 DUCs in April, 4,868 DUCs in May, 4,815 DUCs in June, 4,788 DUCs in July, and now 4,749 DUCs in August. (iv) But we still believe there is still the need for drilling rigs to pick up to replenish the DUC inventory if the US is to have sustained strong oil growth in 2024 and beyond. (v) The largest YoY DUCs declines are the Permian (-298 YoY), Eagle Ford (-224 YoY), and Bakken (-102 YoY). (vi) Note that shale/tight oil is approx. ~70% of total US production, so whatever the trends are for shale/tight oil are normally the trends for US oil in total. Below is our table of running DPR estimates of shale/tight oil production and our graph of MoM changes in major shale/tight oil production.

Figure 19: Estimated Drilled Uncomplete Wells in 2023

Mar	April	May	June	July	Aug	Aug YoY	YoY %	Aug MoM	MoM %
756	757	750	738	733	729	-46	-6%	-4	-1%
766	754	744	730	724	714	-94	-12%	-10	-1%
555	543	528	506	488	474	-102	-18%	-14	-3%
514	494	474	456	450	444	-224	-34%	-6	-1%
740	750	766	775	782	789	152	24%	7	1%
814	789	795	788	778	769	170	28%	-9	-1%
864	833	811	822	833	830	-298	-26%	-3	0%
5,009	4,920	4,868	4,815	4,788	4,749	-442	-9%	-39	-1%

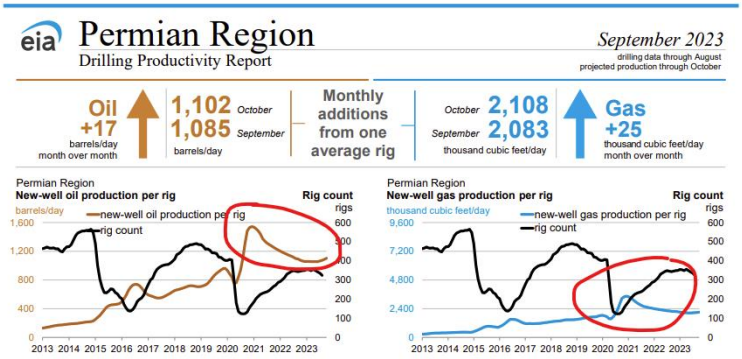
Source: EIA, SAF

Permian DUCs

Oil: Hard to see the math for sustained future Permian growth based on the DUCs

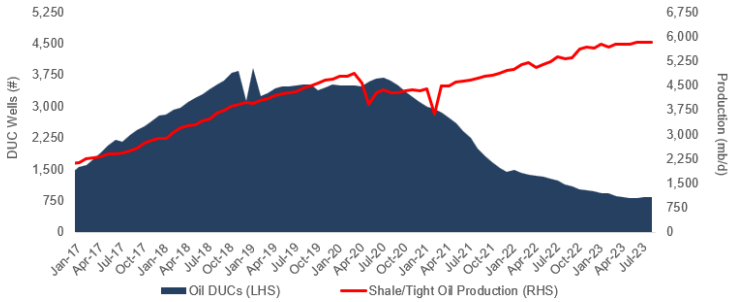
We have been focused on the level of Drilled Uncompleted Wells (DUCs) in the Permian from the EIA's monthly Drilling Productivity Report because the level of sustained Permian oil growth for the next few years is perhaps the biggest wildcard and variable to oil prices for the rest of the decade. It's not that we don't care what US shale/tight oil production is forecast in September or October, absent a big fall off the cliff, it isn't the key data point from the EIA's DPR. Our position is unchanged – we have trouble seeing how the math works for sustained Permian oil growth beyond 2023 based on the level of DUCs and oil rigs. Permian DUCs are at the roughly the same levels as Aug/Sept 2014. The EIA DPR Sept estimates Permian DUCs are 830 in August 2023. The peak for Permian DUCs was in the height of Covid at 3,690 DUCs in July 2020. The last time Permian DUCs were at 830 was back in fall 2014 with 818 in Aug 2014 and 903 in Sept 2014. Yet Permian oil rigs are 314 at September 22, 2023, which is currently 56% of the Aug/Sept 2014 average of approx. 560 oil rigs. Yet the EIA DPR forecasts Permian oil production of 5.773 mmb/d in Oct 2023 is 3.5 times higher than 1.673 mmb/d in Aug/Sept 2014. There is no question fracking/completions are multiples better than 2014. But if we use the EIA August DPR new production added per rig as a guide (see below EIA excerpt), it's about three times higher than 2014 so a big jump as would be expected. But note that that has dropped by about a third in the past two years. That makes sense if you recall some recent producer comments that, in the move to survive in 2020 and 2021, they drilled their best wells. On the flip side, when you look ahead, more companies have drilled up most off, or a good chunk, of their Tier 1 lands and we have been seeing this specifically said by more producers. The math is straightforward. Oil and gas production levels are the result of decline rates and how much can they be offset or more than offset by new well completions. And the ability to complete a well for shale/tight plays needs wells that are being drilled or have been drilled for an inventory of DUCs to be completed to add to production. Shale/tight oil plays like the Permian are all fracked. So, a drilling rig drills the well, it then leaves the well as uncompleted and waiting for the frack spread to come and frack/complete the well. If drilling isn't high enough to keep adding to the DUCs and the existing DUCs inventory is low, there is less growth potential. It's math! This is why we still think it's tough to see how there is sustained production growth from the Permian for the coming years. It doesn't mean to say it declines and falls off a cliff, but it's hard to see sustained growth. Below is the table showing Permian DUCs vs rigs and production comparing June with Aug/Sept 2014 when DUCs were a similar level, and the excerpt from the DPR showing the new well production per Permian rigs that was in the August DPR.

Figure 20: Permian – EIA's Permian new-well-oil Production Per Rig



Source: EIA, SAF

Figure 21: Estimated Drilled Uncomplete Wells vs Permian Oil Production



Source: EIA, SAF

Oil: EIA's excellent excel on all US liquids pipeline projects since 2010

EIA liquids pipeline excel

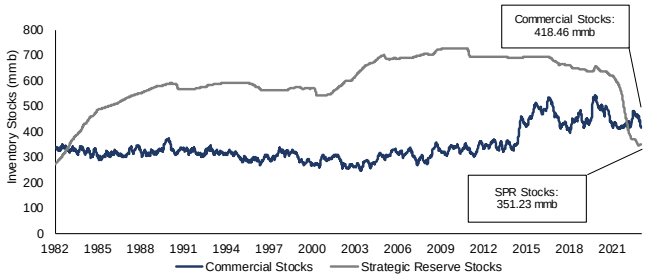
This is item won't be for most, rather it is for those who like/need detail. Last week, the EIA posted its updated Pipeline Projects excel sheet. We have noted this previously and it is a great starting point for information on any liquids pipeline projects from 2010 thru Q2/23. The excel lists every liquids pipeline project name, the developer, the type of projects (ie. new, expansion, conversion, reversal), start date, in-service date, beginning/end state, beginning/end PADD, capacity, type of product, and notes. We have used this excel for years as the starting point on liquids pipelines. The excel is at [LINK]

Oil: US SPR reserves now -67.226 mmb lower than commercial crude oil reserves

US SPR reserves

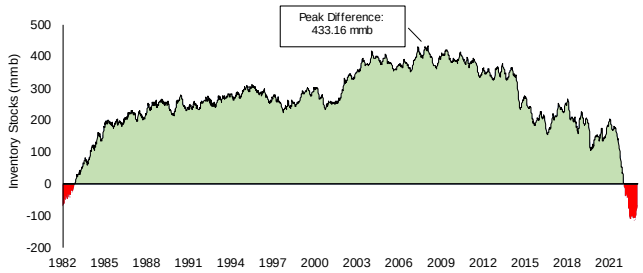
Oil in the US Strategic Petroleum Reserves (SPR) continues to be much lower than total US commercial crude oil reserves. The SPR went back below commercial for the first time since 1983 in the Sept 16, 2022 week. This deficit narrowed this week after a big draw in commercial oil stocks of -2.136 mmb, which puts commercial stocks at their lowest level since January. The EIA's weekly oil data for September 15 [LINK] saw the SPR reserves up +0.600 mmb WoW with the US DOE repurchases increasing SPR reserves to 351.230 mmb, while commercial crude oil reserves decreased -2.136 mmb to 418.456 mmb. There is now a -67.226 mmb difference between SPR reserves and commercial crude oil reserves. The below graphs highlight the difference between commercial and SPR stockpiles.

Figure 22: US Oil Inventories: Commercial & SPR



Source: EIA, SAF

Figure 23: US Oil Inventories: SPR Less Commercial



Source: EIA, SAF

Oil: US gasoline prices -$0.02 this week to $3.85 but California +$0.22 WoW to $5.80

US gasoline prices

US gasoline prices are in the news with the continued rise in California gas prices. California gas prices were +$0.22 this week to $5.80 with worries that they will hit the $6 level. The all time high for California regular gas prices was $6.44 on June 14, 2022 and for diesel was $7.01 on June 18, 2022. Yesterday, AAA reported that US national average prices were down $0.02 this week to $3.85, which is +$0.16 vs year ago of $3.69. Remember US gasoline prices started to ease below $4 in August 2022 and were declining in Sept helped by the SPR releases..

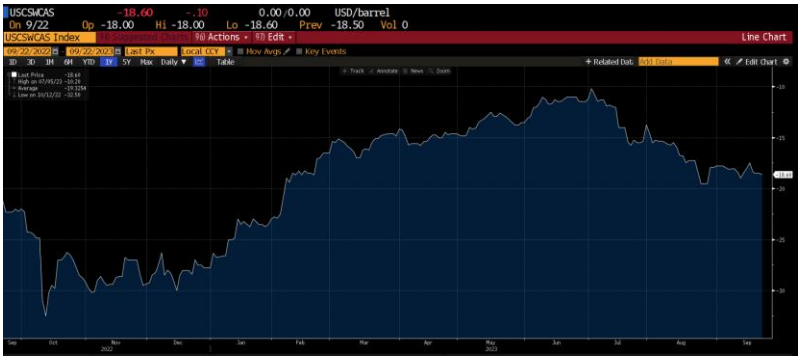
Oil: Cdn WCS less WTI differentials widened $0.60 to close at $18.60 on Sept 22

WCS less WTI differentials

It was a great May thru mid Aug for WCS less WTI differentials that were much narrower than normal and, even in Sept, are still narrower than normal. Normally WCS less WTI differentials start to seasonally widen in mid-May. But that didn't happen this year. WCS less WTI differentials were $14.15 on March 31, which was the Friday before the Sun Apr 2 reports that OPEC+ was going to cut production effective May 1. The WCS less WTI differential was up and down but closed at $14.65 on Apr 28, then narrowed in May to 13.50 on May 31, narrowed in June to $11.25 on June 30, widened in July to $13.75 on July 31, and then widened to close at $17.75 on Aug 31. This week, WCS less WTI differentials widened by $0.60 to close at $18.60 on Sept 22. This is not the norm and is linked to the global medium sour tightness and, in the US, the reducing Saudi oil exports to the Gulf Coast. The normal

seasonal trend for WCS less WTI differentials that normally widen starting in mid-May. For perspective, a year ago, the WCS-WTI differentials last year were $21.25 on Sept 22, 2022. Below is Bloomberg's current WCS–WTI differential as of Sept 22, 2023 close.

Figure 24: WCS less WTI oil differentials including Sept 22 close



Source: Bloomberg

Oil: Crack spreads decreased 20% WoW to $26.07 with turnarounds to start

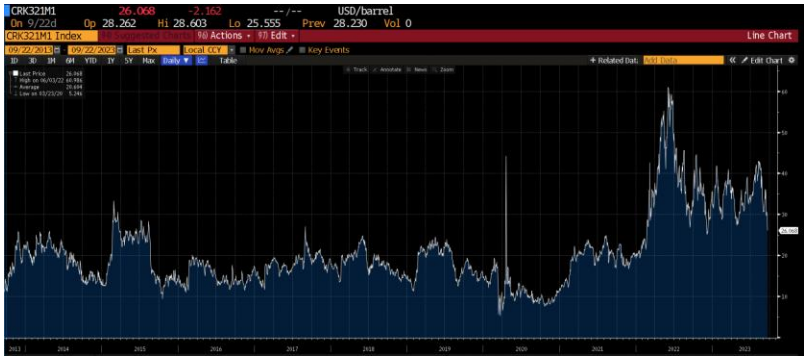
Crack spreads down this week

We have been expecting to see a normal seasonal decline in crack spreads as refiners move into fall turnarounds. This week, crude oil into refineries was down 0.496 mmb/d WoW so we saw a big drop in crack spreads. We remind that oil demand is driven by refiners and their ability to make money by processing oil and selling petroleum products. So crack spreads are a good indicator if refiners will be looking to buy more or less oil. This week, there was approx. 20% decrease in US 321 crack spreads to $26.07 to close on Sept 22, which was down from $32.48 to close on Sept 15. Crack spreads at ~$26.07 are still higher than more normal pre-Covid that was more like $15-$20. There is still money to made by refiners but we expect to see spreads narrow as industry moves into turnaround season for winter fuels.

Explaining 321 crack spread

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, which was $26.07 as of the Friday Sept 22, 2023 close.

Figure 25: Cushing Crude Oil 321 Crack Spread Sept 22, 2013 to Sept 22, 2023



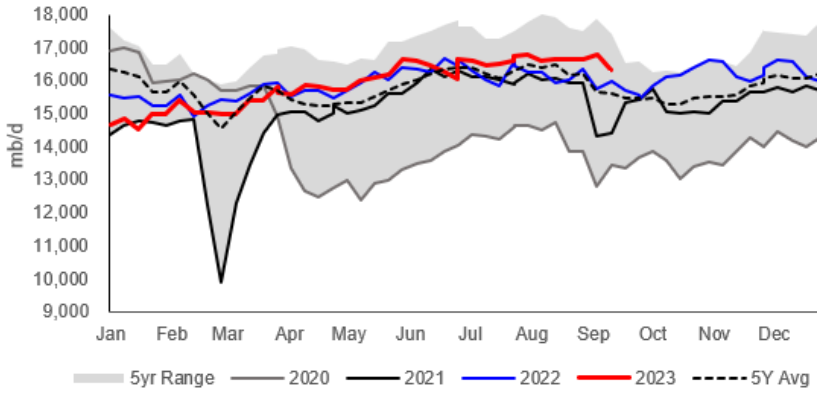
Source: Bloomberg

Oil: Refinery inputs down -0.496 mmb/d WoW to 16.304 mmb/d

Refinery inputs -0.496 mmb/d WoW

There are always unplanned issues that impact crude oil inputs into refineries, but refineries around the world follow seasonal patterns for their maintenance. We'll normally see refineries come out of turnarounds in late March/early April to start their ramp up in refining of summer blend fuels, which typically peaks in Aug/early Sept. So, we have been expecting to see a seasonal decline in crude oil inputs into refineries as refiners turnaround to prepare to shift to more winter fuel blends. But at least so far, continued strong crack spreads and demand for diesel is keeping refineries wanting to operate at higher levels than normal at this time of Sept. On Wednesday, the EIA released its estimated crude oil input to refinery data for the week ended September 15 [LINK]. The EIA reported crude inputs to refineries were down -0.496 mmb/d this week to 16.304 mmb/d and are down -0.510 mmb/d YoY. Refinery utilization was down -1.8% WoW to 91.9%, which is -1.7% YoY. We likely hit the seasonal peak in refining last week.

Figure 26: US Refinery Crude Oil Inputs



Source: EIA, SAF

Oil: Something still isn't right in the EIA weekly oil imports by country data

US net oil imports

We now have an answer as to why the EIA doesn't include weekly oil imports from Venezuela in its weekly oil import data thanks to Reese Mitchell, who asked and received an

answer from the EIA. The EIA weekly table doesn't show imports from Venezuela. The EIA knows this and explains why they don't include in the weekly table. The EIA wrote *"Venezuela has not been in the top ten recently but once a year after the release of our finalized annual data we reassess the top ten rankings on the weekly. We are working on updating the list now but since it is based on the 2022 finalized annual numbers Venezuela will still not be included in the list. However, the monthly series shows full break out of country of origin for imports for crude and product and offers a company listing of imports for crude and product*." So instead of taking Venezuela name off the table, the EIA weekly oil import table just shows zero imports. So we now know why there is a zero, but it still isn't clear if the weekly oil imports are off or if Venezuela is included in the weekly oil imports in an Other number. 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. The EIA reported US "NET" imports were down -3.042 mmb/d to 1.450 mmb/d for the September 15 week. US imports were down -1.065 mmb/d to 6.517 mmb/d. US exports were up +1.977 mmb/d to 5.067 mmb/d. The WoW increase in US net imports was driven mostly by "Top 10". Top 10 was down -0.874 mmb/d. Some items to note on the country data: (i) Canada was down -0.358 mmb/d to 3.287 mmb/d. (ii) Saudi Arabia was flat +0.000 mmb/d at 0.383 mmb/d. (iii) Mexico was down -0.492 mmb/d to 0.603 mmb/d. (iv) Colombia was up +0.076 mmb/d to 0.287 mmb/d. (v) Iraq was down -0.015 mmb/d to 0.233 mmb/d. (vi) Ecuador was up +0.134 mmb/d to 0.134 mmb/d. (vii) Nigeria was down -0.219 mmb/d to 0.000 mmb/d.

Figure 27: US Weekly Preliminary Imports by Major Country

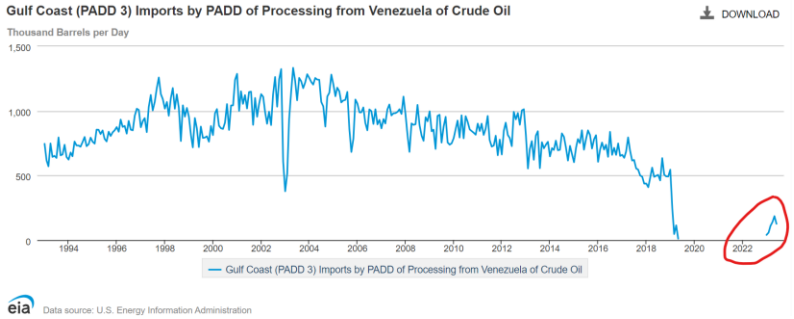
(thousand b/d)	Jul 7/23	Jul 14/23	Jul 21/23	Jul 28/23	Aug 4/23	Aug 11/23	Aug 18/23	Aug 25/23	Sep 1/23	Sep 8/23	Sep 15/23	WoW
Canada	3,385	3,698	3,203	3,691	3,466	3,505	3,832	3,405	3,679	3,645	3,287	-358
Saudi Arabia	444	426	242	427	330	285	221	462	567	383	383	0
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	526	1,004	830	760	667	901	780	437	699	1,095	603	-492
Colombia	153	215	287	290	296	75	290	295	300	211	287	76
Iraq	134	259	273	235	305	304	283	232	100	248	233	-15
Ecuador	144	207	216	175	142	363	192	328	99	0	134	134
Nigeria	189	91	229	94	237	307	89	144	220	219	0	-219
Kuwait	0	0	0	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0	0	0	0
Top 10	4,975	5,900	5,280	5,672	5,443	5,740	5,687	5,303	5,664	5,801	4,927	-874
Others	905	1,274	1,087	996	1,239	1,418	1,246	1,314	1,106	1,781	1,590	-191
Total US	5,880	7,174	6,367	6,668	6,682	7,158	6,933	6,617	6,770	7,582	6,517	-1,065

Source: EIA, SAF

EIA shows imports from Venezuela in its monthly import data.

The good news is that the EIA said why they put zero in their weekly oil import table and they note they include Venezuela in their monthly oil imports. The reason why we have been highlighting the EIA weekly estimates of oil import data by country is that they haven't shown oil imports from Venezuela despite knowing that Chevron has been importing oil from Venezuela starting in Jan. In our May 7, 2023 Energy Tidbits memo, we started to highlight the EIA's monthly actuals starting to show oil imports from Venezuela at then end of April. The EIA posted its monthly actuals for June that continue to show PADD 3 (Gulf Coast) oil imports from Venezuela were 126,000 b/d vs 185,000 b/d in May, 140,000 b/d in April, 109,000 b/d in March, 58,000 b/d in February and 40,000 b/d in Jan.

Figure 28: Gulf Coast PADD 3 Crude Oil Imports From Venezuela to June 30, 2023



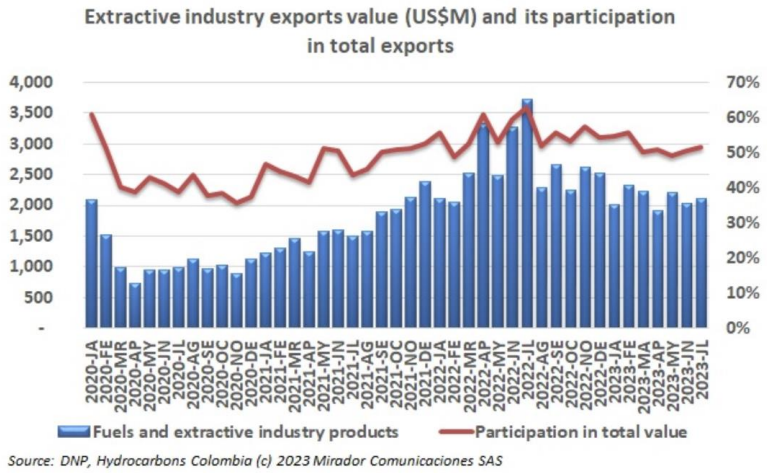
Source: EIA, SAF

Oil: "*Cocaine poised to overtake oil as Colombia's leading export*"

Colombia oil vs cocaine

We wouldn't have posted this item if it wasn't posted by Hydrocarbons Colombia this week and included right amidst all of its other Colombia oil and gas news. But, on Tuesday, Hydrocarbons Colombia posted the below graph [LINK] and said *"Cocaine poised to overtake oil as Colombia's leading export. Cocaine poised to overtake oil as Colombia's leading export Colombia is on the verge of seeing cocaine surpass oil as its primary export, driven by a surge in narcotics production amid a more lenient government stance on drugs*." We didn't have access to the backup info so wonder where did they get the cocaine export values?

Figure 29: Colombia extractive industries export value



Source: Hydrocarbons Colombia

Oil: Norway August oil production of 1.790 mmb/d, down -2.5% MoM

Norway August oil production

On Tuesday, the Norwegian Petroleum Directorate released its August production figures [LINK]. It reported oil production of 1.790 mmb/d, down -2.5% MoM from 1.836 mmb/d in July and +0.4% YoY from 1.783 mmb/d in August 2022. August's production actuals came in -1.0% (0.018 mmb/d) over the forecast volumes of 1.772 mmb/d. The NPD does not provide

any explanations for the changes but we expect it was likely due to some platform maintenance.

Figure 30: Norway August 2023 Production

		Oil mill bbl/day	Sum liquid mill bbl/day	Gas MSm³/day	Total MSm³ o.e/day
Production	**August 2023**	**1.790**	**2.007**	**311.3**	**0.630**
Forecast for	August 2023	1.772	1.985	317.2	0.633
Deviation from forecast		0.018	0.022	-5.9	-0.003
Deviation from forecaset in %		1 %	1.1 %	-1.9 %	-0.5 %
Production	July 2023	1.836	2.059	322.6	0.650
Deviation from	July 2023	-0.046	-0.052	-11.3	-0.020
Deviation in % from	July 2023	-2.5 %	-2.5 %	-3.5 %	-3.1 %
Production	August 2022	1.783	2.006	345	0.664
Deviation from	August 2022	0.007	0.001	-33.7	-0.034
Deviation in % from	August 2022	0.4 %	0 %	-9.8 %	-5.1 %

Source: Norwegian Petroleum Directorate

Oil: Russia's temporary ban on diesel/gasoline exports during harvest season

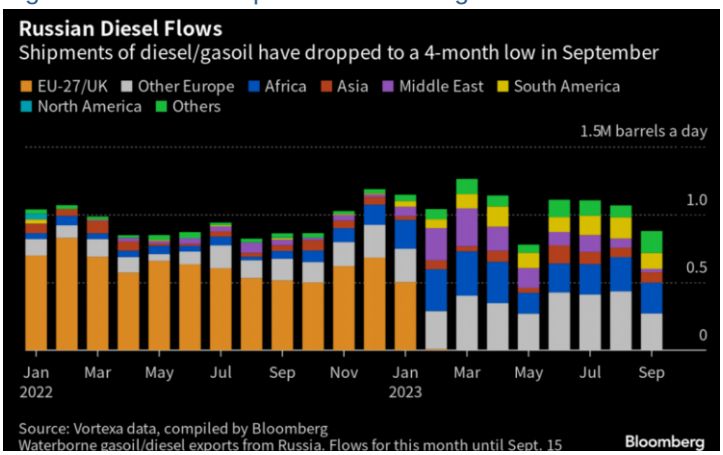
Russia ban of diesel & gasoline exports

Russia surprised oil markets on Thursday announcing a temporary ban on exports of diesel and gasoline. The immediate view was Putin trying to hammer oil markets. We are in the camp that believes the primary reason was to try to keep prices lower during harvest season and to try to make sure there are less "social explosions", but there was the side benefit to Putin of hammering oil markets. Early Friday morning, we tweeted [LINK] "*Russia's temporary ban on #Diesel exports. ASS reminds priority now is for harvest season so need to get diesel prices lower, as well as lower #Gasoline prices for ordinary consumers. social explosions" is a higher priority to hammering global diesel markets. #OOTT."* We don't know how long a ban but it stands to reason that the ban is likely thru October to get thru harvest and transport. Our tweet included the TASS reporting of Kremlin spokesperson Peskov and it reminded of the second key reason – keep "social explosions" down. Clearly, there must be reports of unhappy citizens with the price of diesel and gasoline. It must be no different than the US in that people fill up their cars regularly so the price at the pump is a lighting rod for unhappiness. TASS reported [LINK] "*The spokesman noted that the fuel market "is now quite unstable everywhere." "There were certain problems here, everything was clear. It was necessary to regulate this market against the background of harvesting, all agricultural processes, and against the background of ordinary consumers, [against the background] of not only the wholesale, but also the retail market," Peskov added. He also stressed that there were no prerequisites for "social explosions" due to rising fuel prices, and the Russian government is simply doing its job. "What does social explosion have to do with it? No social explosions, nothing, it's all very much exaggerated wording," the Kremlin spokesman disagreed with one of the journalists."* Our Supplemental Documents package includes the TASS report.

Russia diesel/gasoline export markets

Post the Russian decision, Bloomberg wrote "*So far this year, Russia was the world's single biggest seaborne exporter of diesel-type fuel, narrowly ahead of the US, according to Vortexa data compiled by Bloomberg. The country shipped more than 1 million barrels a day during January to mid-September, with Turkey, Brazil and Saudi Arabia being among the main destinations."* Bloomberg included the below graph that shows Other Europe (ie. Turkey), South America (ie. Brazil). Our Supplemental Documents package includes the Bloomberg report.

Figure 31: Russia shipments of diesel/gasoline



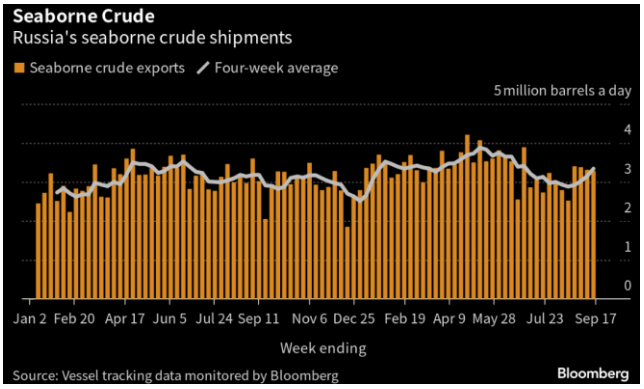
Source:Bloomberg

Oil: Russia 4-wks to Sept 17 shipments to 3.34 mmb/d, +0.465 mmbd vs 4-wk to Aug 20

Russia seaborne crude flows up big MoM

On Tuesday, we tweeted [LINK] "*Another good day for #WTI #Oil up to $91.65. But one negative today was @JLeeEnergy reporting Russia shipments in 4-wks to Sept 17 rose to 3.34 mmbd, +0.465 mmb/d vs the 4-wk period to Aug 20. Seasonal refinery maintenance freed up more oil for export. #OOTT @business."* One of the big advantages in today's oil world is tanker tracking data. They may not be 100% accurate but they tend to be pretty good and they provide current data on tanker shipments. So it's not just for markets, but for Saudi Arabia that all realize Russia looks to be increasing its exports. Bloomberg reported "*That's boosted Russia's seaborne flows to a three-month high. Average nationwide shipments in the four weeks to Sept. 17 rose to 3.34 million barrels a day, tanker-tracking data compiled by Bloomberg show. That's a jump of about 465,000 barrels a day from the period to Aug. 20, with the increases concentrated at the Baltic ports of Primorsk and Ust-Luga and Novorossiysk on the Black Sea."* Our Supplemental Documents package includes the Bloomberg report.

Figure 32: Russia's seaborne crude shipments thru Sept 17 week



Source: Bloomberg

Oil: Saudi MBS says OPEC+ cuts were "*purely about demand, supply*"

Saudi 1 mmb/d voluntary cuts

Yesterday, we tweeted [LINK] "*Did #MBS pivot from asked about "your decision for #Oil production cuts" to talk #OPEC+ cuts. MBS "it's purely about demand, supply". But was Bret Baier referencing KSA voluntary 1 mmb/d cuts that drove prices up. See 👇SAF transcript. Lot more in @BretBaier interview. #OOTT."* The clips of the Fox News (Bret Baier) interview with Saudi Crown Price MBS were interesting and wide-ranging. But Baier is not an oil person so didn't follow up to clarify when MBS looks to have pivoted to talk about OPEC+ cuts and not the Saudi voluntary 1 mmb/d cuts. Baier asked about *"your decision for oil production cuts*", which sounded like he was asking about the Saudi voluntary 1 mmb/d cuts that were not part of the OPEC+ cuts decision. But MBS didn't speak on Saudi voluntary cut but pivoted to OPEC+ cuts. And Baier didn't pick up on the pivot. Here is the transcript we made of the exchange that started at 15:45 min mark. [LINK]. SAF Group created transcript of Saudi Arabia Crown Prince Mohammed bin Salman. With Fox News Bret Baier on Sept 21, 2023. [LINK] Items in "italics" are SAF Group created transcript. At 15:45 min mark, Baier asks "I wanted to ask you about supporting Russia. I spoke to your energy minister, who is fantastic*, Prince Abdulaziz, about your decision for oil production cuts. And he told me that it was about volatility and trying to stabilize the market. There are some supporters of Ukraine who say, by doing that and prices spiking, that you have essentially boosted Russia's war effort at a time when the country, every country, a lot of countries are trying to squeeze him to get out of Ukraine. So how do you deal with that criticism?*" MBS "*So you are talking about support of Ukraine. But how about the President of Ukraine, what did he say? He say totally something against that. He say Saudi Arabia is supporting Ukraine. Supporting to solve the problem between Ukraine and Russia and trying to be a mediator to help in that area. And if we are doing a deal in OPEC+ countries to support Russia, Iran is part of OPEC+ countries and at that time, Iran was our enemy, we don't have that alliance that we have today. So are we supporting Iran at that time? That doesn't make any sense. For us at Saudi Arabia, we just watch supply, demand. If there is shortage of supply, our role at OPEC+ is to fill that shortage. If there is oversupply, our role at OPEC to measure that for stability of the market*." Baier "*so it doesn't have anything to do other than that?"* MBS "*It's purely about demand, supply*."

Saudi Arabia was looking to Q1/24 when it extended 1 mmb/d cut thru Dec

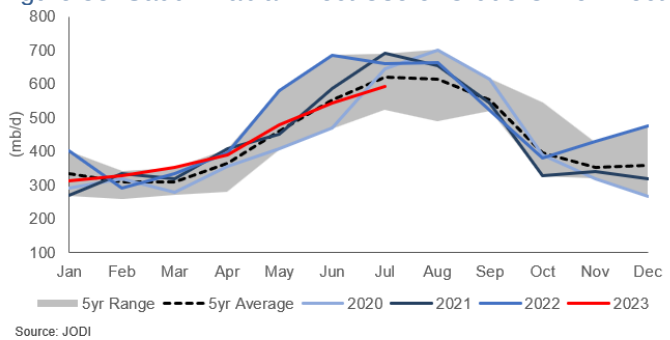
Here is what we wrote in last week's (Sept 17, 2023) Energy Tidbits memo. "T*he big oil news last week was Saudi Arabia extending its 1 mmb/d voluntary cut thru Dec and Russia extending its 0.3 mmb/d reduction to exports thru Dec. There were many reports as to why in the face of $90 Brent. But there was a good reminder from Energy Intelligence's Amena Bakr on Wednesday that Saudi Arabia was looking ahead to Q1/24. Earlier this morning, we tweeted [LINK] "Reminder from @Amena__Bakr - Saudi was looking ahead to Q1/24 deliveries when extended 1 mmbd cut thru Dec to avoid inventory build. #IEA Sept OMR fcasts Q1/24 #Oil demand to be down -1.4 mmbd QoQ vs Q4/23. Thx @business @gulf_intel. #OOTT." We included the IEA Sept OMR forecast for Q1/24 oil demand to be down 1.4 mmb/d QoQ vs Q4/23. This is why Saudi extends the cuts thru Dec 31 to keep the barrels off of deliveries in Q1/24. On the Gulf Intelligence Daily Markets podcast, Amena Bakr said "the cut was really to manage inventory levels. And they were worried about Q1 starting next year, they want to keep things tight. As we saw at the beginning of this year for example, we had a buildup of 700,000 b/d.".*

Oil: Saudi use of oil for electricity up in July ie., less oil available for export

Saudi oil use for electricity up in July

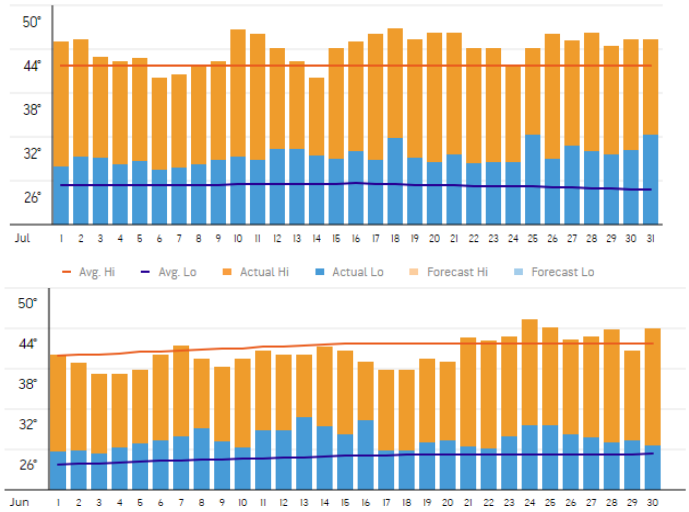
The key seasonal theme for Saudi oil exports is that, all things being equal, Saudi can export more oil in winter months as it uses less oil for electricity and, conversely, it would have less oil exports in summer months as it uses more oil for electricity i.e. air conditioning. Note that a normal peak to trough decline is ~400,000 b/d. If there is less oil used for electricity, then there is more oil for export and vice versa. The JODI data for Saudi Arabia oil supply and demand for July [LINK] was updated on Monday. Saudi used more oil for electricity in July vs June. The increased electricity usage was primarily driven by daily temperatures being at or above the average high throughout most of the month. It is important to note that July experienced warmer temperatures than June and warmer weather means more air conditioning/electricity demand. But, it looks like increased natural gas production and use for power is having an impact on use of oil for electricity as June and July are both lower YoY. Oil used for electricity generation in July was 592,000 b/d (vs July 2022 of 661,000 b/d) and June was 543,000 b/d (vs June 2022 of 687,000 b/d). Below are the AccuWeather Temp maps for Riyadh for July and June.

Figure 33: Saudi Arabia Direct Use of Crude Oil for Electricity Generation



Source: JODI, SA

Figure 34: Riyadh Temperature Recaps for July (top) and June (bottom)



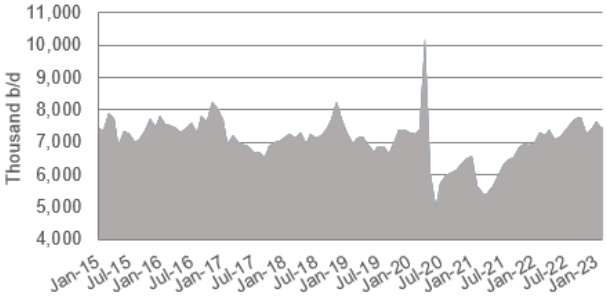
Source: Accuweather

Oil: Saudi oil exports down -792,000 b/d to 6.012 mmb/d in July

Saudi oil exports down -792,000 b/d MoM

As a reminder, Saudi Arabia implemented its voluntary cut of 1 mmb/d starting in July. The JODI data was that production was down 943,000 b/d MoM to 9.013 mmb/d. So a little shy of the 1 mmb/d. Saudi oil exports were only down -792,000 b/d MoM to 6.012 mmb/d, which is what was expected with the lower production and increased use of oil for electricity vs the prior month. The math is off immaterially. Below is our graph of Saudi Arabia monthly oil exports.

Figure 35: Saudi Arabia Oil Exports (mb/d)



Source: JODI, SAF

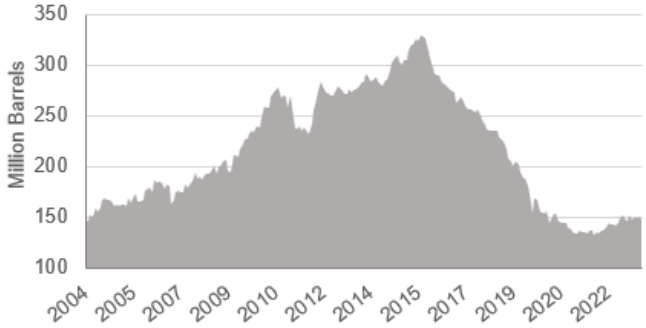
Oil: Saudi oil inventories down -2.962 mmb MoM in July

Saudi oil inventory data

It looks like the increasing Saudi imports of Russian fuel oil is the missing piece of the puzzle for the MoM reconciliation of Saudi oil inventories. JODI data shows inventories were -2.962 mmb MoM, or -96,000 b/d MoM. Looking at the basic components, we would have expected a bigger draw on inventory closer to -197,000 b/d MoM or down -6.107 mmb MoM. There

should have been a MoM inventory draw impact from production being -943,000 b/d MoM and crude oil used for electricity +49,000 b/d MoM. But the offsetting impact for a MoM inventory build would be for exports being -792,000 b/d MoM and oil intake into refineries being -3,000 b/d MoM. This would mean a draw of 197,000 b/d MoM, but inventories were only down by -96,000 b/d MoM leaving 101,000 b/d unexplained MoM items. We believe this is due to increasing oil and fuel oil imports from Russia.

Figure 36: Saudi Arabia Oil Inventories (mb/d)



Source: JODI, SAF

Oil: Did US/Iran deal also unlock >$12b Iraq owes to Iran for natural gas?

Iraq's natural gas debt to Iran

On Friday, we tweeted [LINK] "*No wonder Iran wanted US deal. @DanialRahmat12: $23b of Iran frozen funds being freed up. $6b frozen in Korea now in Iran accts in Qatar, to be spent on humanitarian. Bigger & better than that, Iraq now allowed to pay Iran for overdue #NatGas payments via barter for fuel oil & heavy oil. ie. sounds like should free up cash for whatever Iran wants to spend on. See 👇SAF transcript. Thx @DanialRahmat12 @VandanaHari_SG @gulf_intel #OOTT.*" We, like most, have focused on the well publicized part of the US/Iran deal that saw the prisoner exchange and also the $6b in Iran frozen funds in Korea that have now been transferred to Iranian accounts in Qatar to be used for humanitarian purposes within Iran ie. medical. But on the Gulf Intelligence Daily Energy Markets podcast on Thursday, Tehran-based analyst Danial Rahmat highlighted the $6b of Iranian assets in Korea banks that has been transferred to Iranian accounts in Qatari banks is much less than the money that Iraq owes Iran for its natural gas and those payments have been frozen by US sanctions. Rahmat says those have now been freed up, not to pay in cash, but better in a barter where Iraq will export to Iran fuel oil and heavy oil. Rahmat said Iraq is the big part of the $23b in total of frozen Iranian assets. We looked and saw other reports that the Iraq natural gas debt to Iran was ~$12b but those may be a month or two old. Rahmat didn't specifically say this, but we have to believe the swap of physical fuel oil and heavy oil to Iran would then effectively provide funds for Iran that wouldn't be subject to humanitarian spending restrictions. Rahmat reminded that Iran wouldn't have the need for all the billions for restricted humanitarian spending. Our Supplemental Documents package includes the transcript we made of Rahmat's comments.

07/11/23 Reuters: Iraq owed $12.1b to Iran for natural gas, needs US approval

After hearing Rahmat's above comments, we wanted to see if we could find how many billions Iraq owed Iran for natural gas. We checked and saw this Reuters

07/11/23 report [LINK] "*Iraq to trade crude oil for Iranian gas to settle power debt, prime minister says*". Iraq PM noted that Iraq then owed Iran $12.1b for natural gas, was talking about a swap of oil/products to pay the debt, and needed US approval to settle the debt. So the $12.1b is an Iraq number and we wouldn't be surprised to see Iran have a higher number. Regardless, it fits to Rahmat's comments. Reuters reported *"Iraq will begin trading crude oil for Iranian gas to end the recurring issue of payment delays to Tehran due to the need for U.S. approval, Iraqi Prime Minister Mohammed Shia Sudani said on Tuesday. Sudani said Iran had cut gas exports to Iraq by more than 50% as of July 1 after Baghdad failed to secure U.S. approval to disburse owed funds, but Tehran had now agreed to resume gas exports in exchange for crude oil. The deal was reached during talks with an Iranian delegation that was in Baghdad since Saturday, Sudani said in a televised speech. Iraq imports electricity and gas from Iran that total between a third and 40% of its power supply, especially crucial in sweltering summer months when temperatures can top 50 Celsius (122 Fahrenheit) and power consumption peaks. Iraq has had trouble paying for those imports. It owes Iran around 11 billion euros ($12.1 billion) in outstanding debts, Sudani said, and struggles to pay due to U.S. sanctions that only allow Iran to access funds to buy non-sanctioned goods, such as food and medicine. Even those procedures are complicated, and "contribute to unwanted delays in making the payments, and subsequently the funds are not paid to the Iranians", Farhad Alaaldin, foreign affairs adviser to the prime minister, told Reuters. By trading Iraqi crude for Iranian gas, Sudani said, Iraq would avoid rolling power cuts every summer while working to complete gas capture and extraction projects that would help make the country self-sufficient."* Our Supplemental Documents package includes the Reuters report.

Oil: Doesn't seem like any visibility to when restart Kurdistan/Iraq oil via Turkey

Kurdistan oil via Turkey

As of our 7am MT news cut off, there doesn't seem like any visibility to when there could be a restart of Kurdistan/Iraq oil via the Turkey pipeline to export from Ceyhan. (i) On Thursday, Iraqi New Agency reported [LINK] on Iraq PM al-Sudan's interview on BloombergTV. Their report did not give any indication of when to expect a resumption of Kurdistan oil exports. We did not watch the interview. They reported "*We are awaiting actions from the Turkish side to resume exports through the Turkish pipeline, including oil produced in the Kurdistan Region of Iraq. This aligns with our overall state policy. While there are ongoing mutual complaints in the International Court of Arbitration, we are actively engaged in negotiations with the Turkish side to separate the export-related matters from the legal issues in court. Ceasing exports would negatively impact all parties involved, including the Turkish side, which benefits from tariffs generated by the export pipeline."* (ii) Yesterday, Rudaw (Kurdistan news) reported [LINK] "*Safeen Dizayee, head of the Kurdistan Regional Government's Department of Foreign Relations, told Rudaw's Diyar Kurda on the sidelines of the United Nations General Assembly in New York on Friday that "as Iraq has been trying to get the $1.5 billion, the suspension of the Region's oil export has caused the Iraqi federal budget and Kurdistan Region nearly $6 billion loss since March." This is "mathematically illogical," he added. According to Dizayee, the Region had incurred $5 billion of losses by August 29. About 400,000 barrels of oil were being exported daily by Erbil through Ankara before the halt, in addition to some 75,000 barrels from the federally-controlled Kirkuk's fields. Dizayee said that the Iraqi government does not have the authority to forgive Turkey*

regarding the $1.5 billion penalty "but probably needs a ruling from the parliament." "But there are other solutions. They can find a win-win solution," noted the Kurdish official." Kurdistan is saying that Iraq isn't budging on the $1.5b award, which would be a hold up to a deal.

Turkey "*we need to take care of our interests*" before restart of Kurd oil

Here is what we wrote in last week's (Sept 17, 2023) Energy Tidbits memo on Turkey's latest public comments. "*It was interesting to see the reports and tweets on the Turkish energy minister Alparsian Bayraklar comments on Friday. The reports focused on his comments that the pipeline will soon be "technically" ready for operations. Rather, it seemed like his key comments were overlooked, which is why we tweeted [LINK] ""we need to take care of our interests" says Turkey before can restart Iraq/Kurdish #Oil exports. - Iraq owes $950mm re ICC arbitration, net of damages Turkey has to pay Iraq. - Iraq to withdraw 2nd arbitration case. - negotiate a reduced payment. What else does Turkey need? #OOTT." No question Bayraklar said the pipeline will technically ready to resume production soon, but he was also clear that Turkey will need to take of their interests before there is a resumption. And that they want concessions from Iraq before they let the oil exports resume. It seems clearly in Iraq's court if they want to satisfy Turkey's demands. Reuters wrote "Turkey also calculates Iraq owes $950 million as a result of ICC arbitration, net of damages Turkey has to pay Iraq. Ankara will also file in the Paris court for a "set-aside case", Bayraktar said. Iraq opened an enforcement case against Turkey in a U.S. federal court in April, to enforce a $1.5 billion arbitration award. "As two neighbouring countries, we need to find an amicable solution. But from the legality perspective, we need to take care of our interests. Most likely in the future we might face another court challenge. But the pipeline will be operational technically. It is more or less ready and we will start the operation soon", Bayraktar said. Ankara wants Baghdad to withdraw a second arbitration case covering the period from 2018 onward, and negotiate a reduced payment. Turkey also wants Erbil and Baghdad to agree on a common position and negotiate the continuance of the pipeline agreement, which is set to expire in 2026". Our Supplemental Documents package includes the Reuters report."*

Are there other items on Turkey's wish list before restarting Kurd oil?

Here is another item from last week's (Sept 17, 2023) Energy Tidbits memo. "*Our Friday tweet ended "what else does Turkey need?" on the assumption that there are more items on Turkey's need/want list from Iraq before allowing the restart of Kurdistan oil via Turkey. The reason we thing there is more on the Turkey wish list is because of what we saw on Aug 25 as to the first hint of the Turkey wish list. Here is what we wrote in our Aug 27, 2023 Energy Tidbits memo. ""Up until Friday, we haven't seen any specifics on what Turkey wants to allow the restart of Kurdistan/Iraq oil via Ceyhan. But on Friday morning, we saw the first report albeit without naming the Turkish officials, of what Turkey wants in any deal. (i) We tweeted [LINK] "Best reporting what Turkey wants to resume Kurd #Oil export via Ceyhan. Won't pay $1.5b damages, wants Kurd to pay Baghdad. Contracts to help build out of power plant & other infra. Iraq/Kurd resolve their % oil splits. Exports could resume quickly. Reminder shouldn't be big hit to Oil markets ASSUMING Iraq keeps complying with #OPEC quota. Thx @SelcanHacaoglu @TurkWonk #OOTT." (ii) Our tweet included*

the Bloomberg report "Turkey Seeks Iraq Revenue-Sharing Deal to Restart Oil Exports.' (iii) We noted that a deal to restart shouldn't have any big impact on oil exports to world markets assuming Iraq complies with its OPEC quota as it has been producing close to its quota. (iv) Note that Bloomberg says Turkish officials says oil exports could resume quickly once a deal in place. "The pipeline running from Kirkuk to Turkey's Mediterranean port of Ceyhan remains operational and Iraqi crude exports could start quickly once there is a deal in place, the Turkish officials said, adding that Turkey aims to resolve the conflict as soon as possible." (v) Big one for Turkey. It wants Kurdistan to pay the $1.5b that Turkey was ordered to pay Iraq. we have been assuming this $1.5b payment would somehow be reduced in the negotiations with Iraq. But Bloomberg reports it's not a reduction, any payment is a non-issue. Bloomberg writes ""Turkey halted flows through a twin-pipeline in March after an arbitration court ordered it to pay about $1.5 billion in damages to Iraq for transporting oil without Baghdad's approval. Ankara has no intention of paying the fine and is asking the Kurds to pay it to Baghdad as they were the benefactors, the officials said." (vi) Not a Turkey holdup but a separate issue between Iraq and Kurdistan to resolve is that Turkey wants Iraq and Kurdistan to agree who gets what of the oil revenues split. Bloomberg writes "Baghdad has asked Turkey to collect the money from oil exports and transfer it to Iraq after deducting 12.6% of the share allocated to the KRG, said the officials, speaking on condition of anonymity. The KRG, however, has told Turkey that it wants to claim the entire revenue from exports via its territory, arguing that it has been unable to collect funds from separate Iraqi oil exports, they said." (vii) One other Turkey negotiating point. It isn't called a negotiating point but Turkey has been wanting a comprehensive agreement on issues with Iraq and that oil was part of their issues. So we have been assuming the oil deal would be wrapped into other negotiating items. Or the other negotiating items wrapped around the oil deal. One item that comes out of Bloomberg is that "Ankara is offering the Kurdistan Regional Government, or KRG, as well as the central government in Baghdad help in building power plants and other infrastructure." The offer sounds like Turkey wants some big contracts for its companies. Our Supplemental Documents package includes the Bloomberg report."

Oil: Libya oil production stable at ~1.2 mmb/d

Libya oil stable at 1.2 mmb/d

Yesterday, the Libya National Oil Corporation had a Facebook posting on a production update, which is post the recent deadly floods on the coast. Note that the NOC hasn't been keeping up their Twitter reporting post the flood but has posted more on Facebook. The Google Translate of the NOC Wed Facebook post [LINK] was "*Crude oil production reached 1,212,000 barrels per day, and condensate production reached 53,000 barrels per day during the past 24 hours*." This is unchanged from the ~1.2 mmb/d levels over the past several months. We haven't seen any reports of any lingering impact on loadings.

Oil: China's upcoming 12-day travel rush with national holidays

China's upcoming holidays

Earlier this morning, we tweeted [LINK] "*Reminder. Major 12-day travel rush is coming, expected from Sept 27 to Oct 8 for Mid-Autumn Festival & National Day holidays. Should see big increase in China domestic flights and big decrease in China Baidu city-level road congestion. #OOTT."* We have been highlighting this because it should lead to be swings in the next two weeks data for China schedule domestic flights and China Baidu city-level road

congestions. Here is what we wrote in last week's (Sept 17, 2023) Energy Tidbits memo on the upcoming national holidays in China. "*A reminder as we look ahead to China mobility data to end September is that there is a major 12-day travel rush coming that is expected from Sept 27 to Oct 8. This should lead to a big uptick in domestic air travel and a downtick in city-level road congestion. Yesterday, Xinhua (China state media) reported on the upcoming train travel rush. [LINK]. Xinhua wrote "Friday marks the presale of train tickets for the first day of the Mid-Autumn Festival and National Day holidays, which extend from Sept. 29 to Oct. 6 this year. Ticket sales volumes reflect the travel demands of the people and the trends in economic and social development, said an official of China Railway, adding that the record-breaking ticket sales on Sept. 15 are indicative of the strong demand for travel during the upcoming Mid-Autumn Festival and National Day "golden week" holiday. China is expected to see 190 million railway trips during the upcoming 12-day travel rush, which will last from Sept. 27 to Oct. 8. The Mid-Autumn Festival, falling on Sept. 29 this year, is a traditional Chinese Festival usually marked by family reunions, watching the full moon and eating mooncakes."*

Oil: 3rd consecutive WoW decline in China scheduled domestic flights

China scheduled domestic flights

On Tuesday, we tweeted [LINK] "*China weakness. 3rd consecutive WoW decline and more than expected in China schedule domestic flights post summer at -2.7% WoW to 95,853. But expect big boost in air travel with 12-day National Day holidays end of Sept. Thx @BloombergNEF Claudio Lubis. #OOTT."* (i) On Tuesday noon MT, BloombergNEF posted its Aviation Indicators Weekly Sept 19. (ii) This was the 3rd consecutive WoW decline in China scheduled domestic flights. Flights were expected to decline post the summer, but the drop is larger than expected. So the takeaway is negative or at least reinforcing the continued weak China business/economy and that the Chinese consumer is still not yet confident the bottom is here. (iii) 3rd consecutive week of declines in China domestic schedule flights. China scheduled domestic flights were -2.7% WoW to 95, 853 flights for the Sept 12-18 week., compared to 98,469 flights for the Sept 5-11 week, 103,637 flights for Aug 29-Sept 4 week, and 104,932 flights for Aug 22-28 week. Domestic flights have declined more than expected following the summer holidays. At 95,853 flights, it back to end of June levels. And the drop over the past couple weeks is well below what was expected two weeks ago, when, on Sept 5, the then scheduled flights for next 4-weeks were 102,285 flights. (iv) As noted in the above item, reminder in the look ahead, the increase in domestic flights is due to the upcoming 12-day travel rush with national holidays. (v) BloombergNEF's updated scheduled domestic flights over the next four weeks is expected to increase by 9.5% to 104,947 flights. This is basically unchanged from last week's (Sept 13) that saw the then 4-week lookahead at 104,953 flights. As noted above, the increase makes sense given the big upcoming national holidays. (vi) Also note how it was clear that the outlook tipped negative right after the March 28 -Feb 3 week with lesser China recovery and the then worries about a new Covid peak to hit China at the end of June. The BloombergNEF March 28 report reported that the March 21-27 weeks flights were 89,513 flights and they then forecast a massive jump to 119,180 flights over the then next 4-weeks. Then the next week, March 28-Apr 3 week had made a huge WoW jump from 89,513 flights to 95,624 flights, but then the following week was down to 91,567 flights. And scheduled domestic flights didn't get back to March 21-27 until the end of June. Below is our running WoW changes from the prior BloombergNEF reports and the BloombergNEF charts from Sept 19 and March 28, and our listing of WoW changes from the prior BloombergNEF reports.

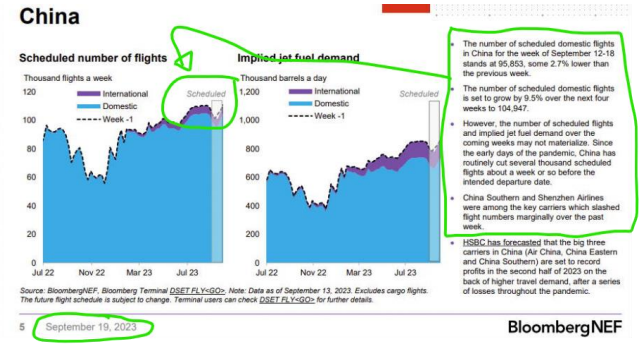
Figure 37: China scheduled domestic flights from BNEF Aviation Indicators Weekly reports

Sept 12-18: -2.7% WoW to 95,853 flights
Sept 5-11: -5.0% WoW to 98,469
Aug 29-Sep 4: -1.2% WoW to 103,637
Aug 22-28: +0.2% WoW to 104,932
Aug 15-21: -0.1% WoW to 104,716
Aug 8-14: +0.8% WoW to 104,823
Aug 1-7: -0.4% WoW to 104,000
July 25-31: +0.4% WoW to 104,436
July 18-24: +1.3% WoW to 104,011
July 11-17: +2.8% WoW to 102,709
Jul 4-10: +2.4% WoW to 99,904
Jun 27-Jul 3: +1.9% WoW to 97,572
Jun 20-26: +3.4% WoW to 95,724
Jun 13-19: -0.9% WoW to 92,568
June 6-12: -1.2% WoW to 93,328
May 30-Jun 5: +0.2% WoW to 94,486
May 23-29: -0.1% WoW to 94,321
May 16-22: -2.8% WoW to 94,417
May 9-15: basically flat at 97,049
May 2-8: +2.8% WoW to 97,087

Apr 25-May 1: +0.04% to 94,471
Apr 18-24: +2.1% WoW to 94,138
Apr 11-17: +0.7% WoW to 92,231
Apr 3-10: -4.2% WoW to 91,567
Mar 28-apr 3: +6.8% WoW to 95,624
Mar 21-27: +1.5% WoW to 89,513
Mar 14-20: -0.6% WoW to 88,166
Mar 7-13 week: -0.8% WoW to 88,675
Feb 27-Mar 3 week: -2.6% WoW to 89,430
Feb 21-27 week: +0.0% WoW to 91,828
Feb 14-20 week -0.5% WoW to 91,561
Feb 7-13 week -0.7% WoW to 92,007
Jan 31- Feb 6 week +10.9% WoW
Jan 24-30 week -9.2% WoW to 83,500
Jan 17-23 week +7% WoW to 91,959
Jan 10-16 week +20% WoW to 85,910
Jan 3-9 week: -5.3% WoW to 71,642
Dec 27-Jan 2 week: -5.6% WoW to 75,652

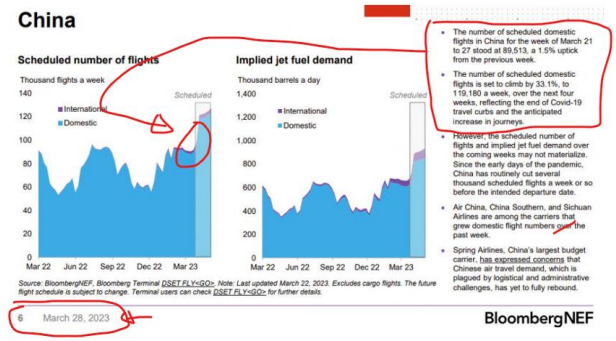
Source: BloombergNEF

Figure 38: China scheduled domestic air flights as of Sept 19



Source: BloombergNEF

Figure 39: China scheduled domestic air flights as of March 28



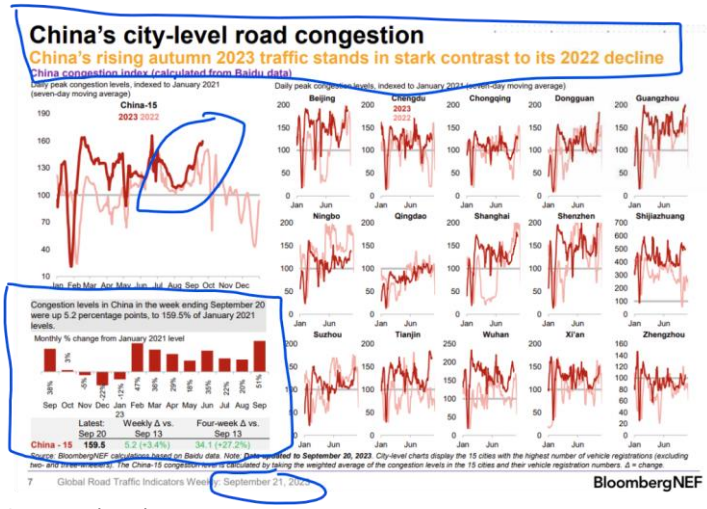
Source: BloombergNEF

Oil: Baidu China city-level road congestion up again, now 98% of 2019 levels

China city-level traffic congestion

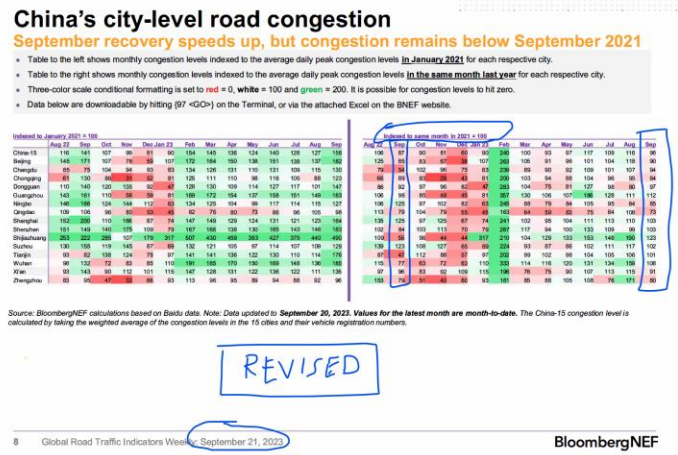
On Thursday, our second tweet was [LINK] *"Indicator China bottoming? China Baidu city-level road congestion for top 15 cities for Sept 2023 to date is 98% of Sept 2021 levels, whereas Sept 2022 was 87% of Sept 2021. Of top 15 cities, 10 are up YoY vs 5 down YoY. Thx @BloombergNEF. #OOTT #Oil."* (i) It was our second tweet on the BloombergNEF Global Road Traffic Indicators Sept 21 report because we had noted a mistake in the report and waited to hear back from BloombergNEF before this second tweet. Bloomberg had inadvertently not updated the detailed table of top 15 cities from the prior week. And when we saw the revised table, we highlighted how the top 15 cities were now 98% of Sept 2021 levels. (ii) For the week ended Sept 20, 2023, Baidu data for China city-level road congestion was +5.2% WoW to 159.5% of Jan 2021 levels. It's the 7th consecutive weekly increase so it supports the expected increase in city-level road congestions as summer ended and people returned to cities and back to work. (iii) .Please note we should be seeing a big drop in the city-level road congestion in the coming 7-10 day data due to the upcoming 12-day travel rush with national holidays. (iv) The top 15 cities in aggregate in Sept 2023 to date are 98% of Sept 2021 levels, whereas Sept 2022 was 87% of Sept 2021 levels. So pretty close to 2021. Of the top 15 cities, 10 are up YoY and 5 are down YoY. Our two tweets included the below graph and table from the BloombergNEF Global Road Traffic Indicators Sept 21 weekly report. We noted Revised on the top 15 table as this was the repost.

Figure 40: China city-level road congestion for the week ended Sept 20



Source: BloombergNEF

Figure 41: China city-level road congestion for the week ended Sept 20.



Source: BloombergNEF

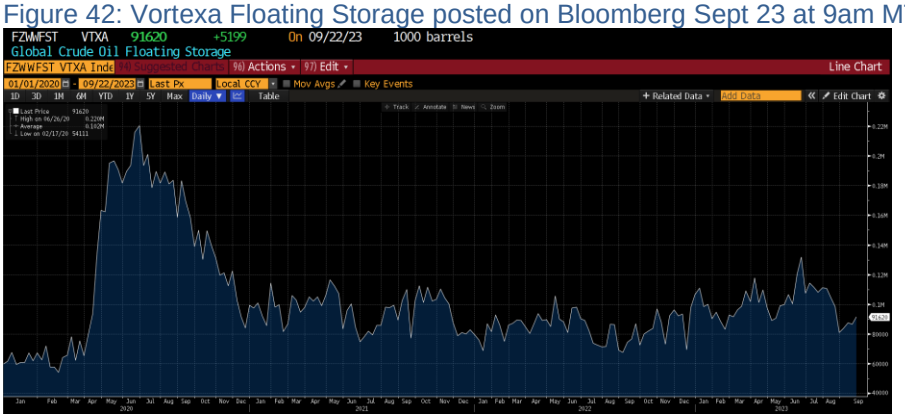
Oil: Vortexa crude oil floating storage at Sept 22 was 91.62 mmb, +5.20 mmb WoW

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 Sept 16 at 9am MT. (i) There was +5.20 mmb upward revision to Sept 15 but all other weeks were revised down including a downward revision of -4.86 mmb to Sept 8. And the average of 86 mmb for the last five weeks is down a whopping 46 mmb vs the recent June 23, 2023 peak of 131.79 mmb. (ii) As of 9am MT yesterday, Bloomberg posted Vortexa crude oil floating storage estimate for Sept 22 at 91.62 mmb, which is +5.20 mmb WoW vs upwardly revised Sept 15 of 86.42 mmb. Note Sept 15 was revised +5.36 mmb vs 81.06 mmb originally posted at 9am on Sept 16. (iii) Revisions. Note that other than +5.36 mmb upward revision to Sept 15, all the other revisions were downward incl Sept 8 down -4.86 mmb. The revisions from the estimates posted yesterday at 9am MT vs the estimates posted on Bloomberg at 9am MT on Sept 16 are as follows: Sept 15 revised +5.36 mmb. Sept 8 revised -4.86 mmb. Sept 1 revised -1.74 mmb. Aug 25 revised -2.14 mmb. Aug 18 revised -2.39 mmb. Aug 11 revised -1.64 mmb. Aug 4 revised -1.60 mmb. (iv) There is a wide range of floating storage estimates for the past seven weeks, but a simple average for the past seven weeks is 89.83 mmb vs last week's then seven-week average of 94.41 mmb. The drop is due to dropping a high week from the average and the downward revisions to all weeks other than Sept 15. (v) Also remember Vortexa revises these weekly storage estimates on a regular basis. For example, when most report on the Vortexa data on Monday morning, they will be reporting on different estimates. 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 now goes back to Jan 1, 2020 and not just three years as floating storage in Apr 2020 had started to reflect the Covid impact. (vii) Sept 22 estimate of 91.62 mmb is -128.69 mmb vs the Covid peak of 220.31 mmb on June 26, 2020. (viii) Sept 22 estimate of 91.62 mmb is +26.01 mmb vs pre-Covid Feb 28, 2020 of

65.61 mmb. (ix) Sept 15 estimate of 91.62 mmb is +4.71 mmb YoY vs Sept 23, 2022 of 86.91 mmb. (x) Below are the last several weeks of estimates posted on Bloomberg as of 9am MT Sept 23, 9am MT Sept 16, and 9am MT Sept 9.

Figure 42: Vortexa Floating Storage posted on Bloomberg Sept 23 at 9am MT



Source: Bloomberg, Vortexa

Figure 43: Vortexa Estimates Posted 9am MT on Sept 23, Sept 16 and Sept 9

Posted Sept 23, 9am MT

FZWWFST VTXA Inde 94) Su
01/01/2020 - 09/22/2023
1D 3D 1M 6M YTD 1Y

Date	FZWWFST VT... Last Px
Fr 09/22/2023	91620
Fr 09/15/2023	86421
Fr 09/08/2023	87552
Fr 09/01/2023	83641
Fr 08/25/2023	80788
Fr 08/18/2023	98377
Fr 08/11/2023	104.428k
Fr 08/04/2023	110.633k
Fr 07/28/2023	111.023k
Fr 07/21/2023	108.16k
Fr 07/14/2023	111.502k

Sept 16, 9am MT

FZWWFST VTXA Inde 94) Su
01/01/2020 - 09/15/2023
1D 3D 1M 6M YTD 1Y

Date	FZWWFST VT... Last Px
Fr 09/15/2023	81063
Fr 09/08/2023	92408
Fr 09/01/2023	85382
Fr 08/25/2023	82930
Fr 08/18/2023	100.765k
Fr 08/11/2023	106.072k
Fr 08/04/2023	112.234k
Fr 07/28/2023	113.251k
Fr 07/21/2023	106.64k
Fr 07/14/2023	110.853k
Fr 07/07/2023	113.483k

Sept 9, 9am MT

FZWWFST VTXA Inde 94) Su
01/01/2020 - 09/08/2023
1D 3D 1M 6M YTD 1Y

Date	FZWWFST VT... Last Px
Fr 09/08/2023	80338
Fr 09/01/2023	84534
Fr 08/25/2023	84359
Fr 08/18/2023	100.352k
Fr 08/11/2023	105.557k
Fr 08/04/2023	110.301k
Fr 07/28/2023	112.572k
Fr 07/21/2023	105.787k
Fr 07/14/2023	111.475k
Fr 07/07/2023	114.175k
Fr 06/30/2023	106.65k

Source: Bloomberg, Vortexa

Source: Bloomberg, Vortexa

Vortexa floating storage by region

Oil: Vortexa crude oil floating storage WoW changes by regions

Bloomberg also posts the Vortexa crude oil floating storage in the key regions, but not all regions of the world. The regions covered are Asia, Europe, Middle East, West Africa and US Gulf Coast. We then back into the "Other" or rest of world. (i) As noted above, Sept 8, in total, was revised +5.20 mmb. The main revision in a region vs the originally posted (as of 9am Sept 16) floating oil storage for Sept 15 was Asia revised +4.13 mmb. (ii) Total floating storage was -5.20 mmb WoW. The largest WoW changes were Europe +3.10 mmb WoW and West Africa +2.94 mmb WoW. (iii) Sept 22 of 91.62 mmb is down a whopping 40.17

mmb vs the recent June 23, 2023 peak of 131.79 mmb. The major changes by region vs the recent June 23 peak are Asia -24.65 mmb, Other -23.03 nnbm and West Africa +6.03 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 Sept 15 that was posted on Bloomberg at 9am MT on Sept 16.

Figure 44: Vortexa crude oil floating by region

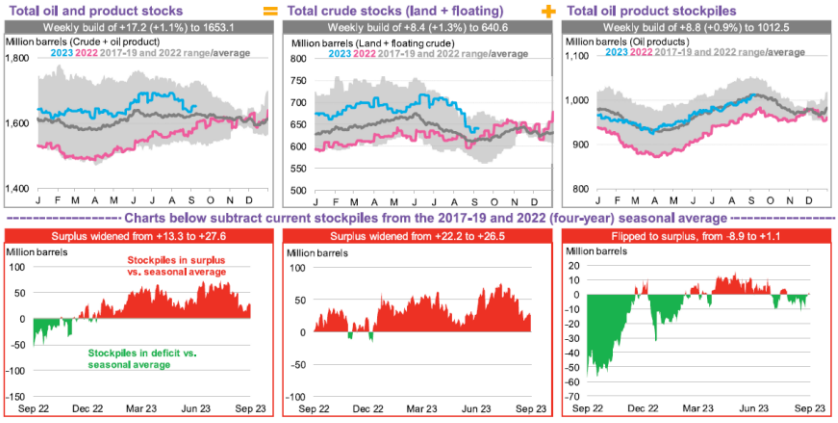
Vortexa Crude Oil Floating Storage by Region (mmb)				Original Posted	Recent Peak	
Region	Sept 22/23	Sept 15/23	WoW	Sept 15/23	Jun 23/23	Sept 22 vs Jun 23
Asia	47.88	49.33	-1.45	45.20	72.53	-24.65
Europe	9.31	6.21	3.10	5.97	6.51	2.80
Middle East	6.68	4.36	2.32	4.24	7.03	-0.35
West Africa	13.48	10.54	2.94	9.84	7.45	6.03
US Gulf Coast	0.00	0.79	-0.79	0.73	0.97	-0.97
Other	14.27	15.19	-0.92	15.08	37.30	-23.03
Global Total	91.62	86.42	5.20	81.06	131.79	-40.17
Vortexa crude oil floating storage posted on Bloomberg 9am MT on Sept 23						
Source: Vortexa, Bloomberg						

Source: Bloomberg, Vortexa

Oil: BNEF – global oil and product stocks surplus widened WoW to 27.6 mmb

Please note that the BloombergNEF global oil and products stocks estimate are for the week ending Sept 8, which is a week earlier than the EIA US oil inventory data that is for the week ending Sept 15. So, the BloombergNEF global oil stocks data won't include the US crude oil inventory draw of -2.06 mmb for the week ending September 15. On Tuesday, BloombergNEF posted its "Oil Price Indicators" weekly, which provides good charts depicting near-term global oil demand and supply indicators. (i) Note BloombergNEF uses different periods to determine the surplus/deficit, sometimes using a four-year average for 2017-2019 + 2022, and other times using a five-year average 2016-2019 + 2022. In both cases they do not include 2020 and 2021 in the averages. (ii) The global stockpile for crude oil and products surplus widened from 13.3 mmb to 27.6 mmb for the week ending Sept 8. (iii) Total crude inventories (incl. floating) increased by 1.3 % WoW to 641 mmb, widening the surplus from +22.2 mmb to +26.5 mmb. (iv) Land crude oil inventories decreased by 2.8% WoW to 548.5 mmb, widening the deficit to narrowing the deficit to 22.9 mmb against the five-year average (2016-2019 + 2022). (v) The gas, oil, and middle distillate stocks increased by +2.8 % WoW to 156.5 mmb/d, with the deficit against the four-year average narrowing to -19.3 mmb. Jet fuel consumption by international departures for the week of September 18 is set to decrease by -28,400 b/d WoW, while consumption by domestic passenger departures is forecast to increase by +16,900 b/d WoW. Below is a snapshot of aggregate global stockpiles.

Figure 45: Aggregate Global Oil and Product Stockpiles



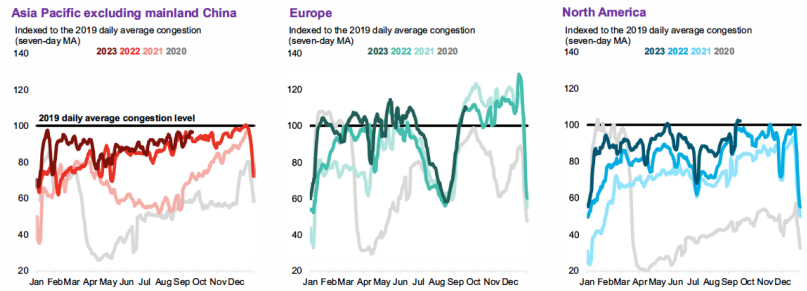
Source: BloombergNEF

Oil: TomTom mobility indicators: NA increases, along with EU and Asia Pacific

Global road traffic indicators

On Thursday, BloombergNEF posted its Global Road Traffic Indicators Weekly report, which recaps traffic indicators in all the major economic regions of the world i.e. mobility indicators like TomTom. For the week ending September 19, North American traffic levels increased by +2.0% WoW, while Europe and Asia Pacific (ex-China) traffic level increased +5.4% and +2.6% WoW, respectively. Traffic levels in Europe, North America, and Asia Pacific (ex-China) traffic are +9.8%, +2.2% and -3.5% compared to the 2019 average and are +0.8%, +5.5% and +5.8% YoY, respectively. Traffic in Europe has recovered to pre-summer levels while Asia Pacific (ex-China) is still increasing steadily. It is worth noting that TomTom data on congestion levels now reflects daily average congestion compared to peak congestion previously. The change in methodology took effect from January 19.

Figure 46: Mobility Indicators



	Week-on-week (2019 average = 100)				Year-on-year (same week last year = 100)			
	Latest week: Sep 19	Δ vs. Sep 12	4-week MA	Δ vs. Sep 12	Latest week: Sep 19	Δ vs. Sep 12	4-week MA	Δ vs. Sep 12
Asia Pacific ex-China	96.5	+2.4 (2.6%)	93.9	+0.9 (1.0%)	105.8	+7.1 (7.2%)	100.4	+1.1 (+1.1%)
Europe	109.8	+5.6 (5.4%)	95.5	+11.7 (13.9%)	100.8	+2.2 (2.2%)	99.4	+1.0 (+1.1%)
North America	102.2	+2.0 (2.0%)	94.9	+2.6 (2.8%)	105.5	+3.2 (3.1%)	102.4	+0.3 (+0.3%)

Source: BloombergNEF calculations based on TomTom data. Note: ***Data updated to September 19, 2023.*** *Δ = change. MA = moving average.*

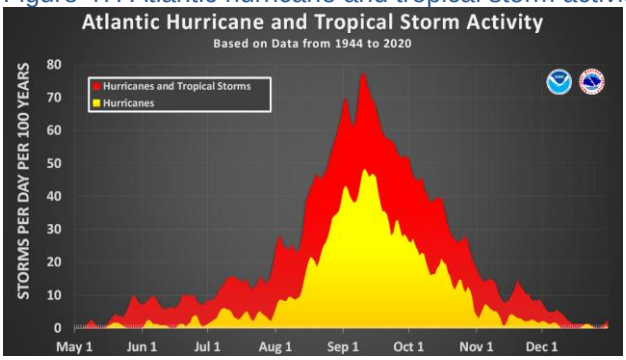
Source: BloombergNEF

Oil & Natural Gas: 90% of Atlantic hurricanes are after Aug 1, peak is mid-Sept

Peak hurricane season is mid-Aug to mid-Oct

Atlantic hurricanes/tropical storm activity continues to be on the Atlantic side and not in the Gulf of Mexico. Its now Sept 24 so the normal peak for Atlantic hurricane season has justs passed, but there normally continues to be active hurricane activity in October. So far this season, there have been a lot of hurricanes but, to the most part, they have stayed in the Atlantic Ocean and not having huge impact in the Gulf of Mexico and oil, natural gas and LNG production and infrastructure, or even along the Atlantic Coast. No two hurricane seasons are identical and there will always be items that make a hurricane season not the norm. But, our Aug 6, 2023 Energy Tidbits memo reminded that 90% of Atlantic hurricanes come after Aug 1, and the peak is normally mid-Sept. We reminded that July and early Aug may well the hottest time of the year, but 90% of Atlantic hurricanes typically come after Aug 1. So 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 47: Atlantic hurricane and tropical storm activity by month



Source: NOAA

Oil & Natural Gas: Alberta wildfires up small, BC wildfires down

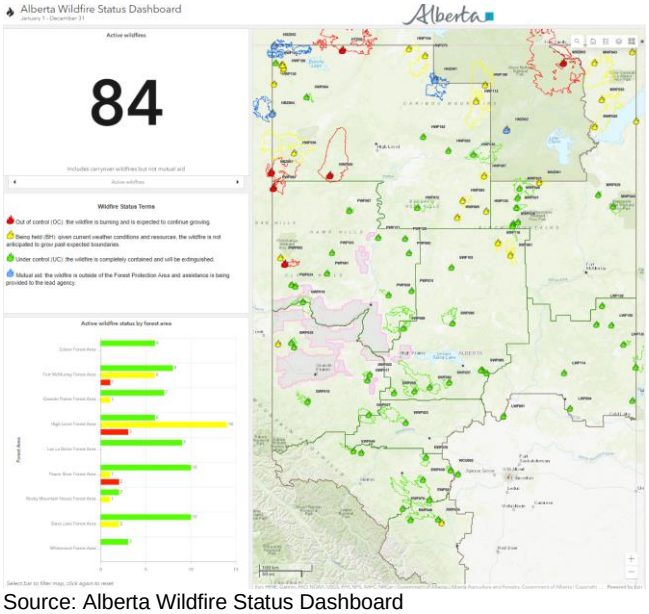
BC and Alberta Wildfires

Alberta wildfires were up small, but precipitation in BD led to a reduction in BC wildfires. As of 7pm MT last night, there were 84 Alberta wildfires including 3 Out of Control, which compares to a week ago at 79 Alberta wildfires including 3 Out of Control. In BC, there was some precipitation that helped lead to a decline in BC wildfires. As of 7pm MT last night, there were 385 BC wildfires including 138 Out of Control, which compares to a week ago at 398 BC wildfires including 151 Out of Control.

Links to Alberta and BC wildfire status maps

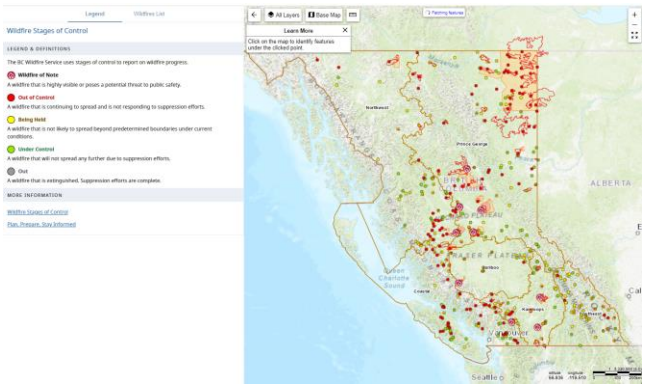
We recommend bookmarking the starting points for wildfire information are the Alberta Wildfire Status interactive map [LINK] and the BC Active Wildfires interactive map [LINK]. Please note these links have changed over the past few years. Both maps are interactive and open up for the information on any particular fire. Here are the wildfire maps as of 7pm MT last night.

Figure 48: Alberta wildfire map as of 7pm MT on Sept 23



Source: Alberta Wildfire Status Dashboard

Figure 49: BC wildfire map as of 7pm MT on Sept 23



Source: BC Wildfire Service

Energy Transition – Sunak highlights UK GHG down 50% since 1990, its natural gas

UK GHG down with natural gas

One of the advantages of following data for years is that items jump out that may not be of interest to others. It didn't get any headlines from UK PM Sunak's Wednesday speech but we were reminded of how important natural gas has been to the UK in the last 30 years. On Wednesday, we tweeted [LINK] "*Thank you #NatGas. Today, UK PM Sunak brags UK leadership in the fastest reduction in GHG since 1990. See 👇01/01/20 tweet. #1 reason for GHG reduction is #NatGas from 0.1% of #Electricity mix in 1990 to 38.4% in 2019, same 38.4% in 2022. #NatGas is needed for longer. .#OOTT."* For almost four years, we have highlighted how increasing natural gas power generation to replace coal generation has been

the biggest factor to the UK reducing emissions. This week's tweet linked to our Jan 1, 2002 tweet and item in our Jan 3, 2020 Energy Tidbits memo on natural gas increasing from 0.1% of the fuel source for UK electricity in 1990 to 38.4% in 2019. Renewables increase was strong but less than natural gas plus natural gas was needed to provide 24/7 power to replace 24/7 coal power. Here is the transcript we made of Sunak's comments "At 5:50 min mark. Sunak *".. that's especially true because we are so far ahead of every other country in the rest of the world. We've had the fastest reduction in greenhouse gas emissions in the G7. Down almost 50% since 1990. France 22%. The US, no change at all. China, up by 300%. And when our share of global emissions is less than 1%, how can it be right that British citizens are now being told to sacrifice even more than others*."

Natural gas was the big winner in UK's electricity fuel mix for 1990 thru 2019

Comparing UK's electricity by fuel for 2019 vs 1990, Zero carbon electricity was +24.1% of the energy mix from 24.4% to 48.5%. That was strong, but much less than natural gas that was +38.3% of the energy mix from 0.1% to 38.4%. Here is what we wrote in our Jan 5, 2020 Energy Tidbits memo that highlighted the *UK National Grid's Jan 1 press release "Britain hits historic clean energy milestone as zero carbon electricity outstrips fossil fuels in 2019" [LINK] that highlighted "2019 was the cleanest year on record for Britain as, for the first time, the amount of zero carbon power outstripped that from fossil fuels for a full twelve months. This historic milestone comes as we enter the mid-point between 1990 and 2050 – the year in which the UK has committed to achieve at least a 100% reduction in emissions based on 1990 levels. Data released by National Grid shows a combination of wind farms, solar and nuclear energy, alongside energy imported by subsea interconnectors, delivered 48.5% of Britain's electricity in 2019 compared to 43% generated by fossil fuels. The remaining 8.5% was generated by biomass." It was a short release but, in their excitement on reaching this milestone, they failed to mention the big winner in the last 30 years power transition was natural gas. Our Jan 1, 2020 tweet [LINK] said "Until challenge is solved to provide reliable, available, affordable power for all power requirements (ie. making steel), #NatGas is big winner in transition to clean energy. UK 1990-2019 power mix, #NatGas from 0.1% in 1990 to 38.4% to 2019 market share."*

Figure 50: UK Power Generation By Fuel 2019 Vs 1990

Generation source	Coal + Other	Gas	Nuclear	Wind + Solar + Hydro	Biomass & Waste	Imports	Fossil fuels	Zero carbon	Biomass & Waste
1990	75.0%	0.1%	18.8%	2.3%	0.0%	3.8%	75.5%	24.4%	0.1%*
2019	2.1%	38.4%	16.8%	26.5%	8.2%	8.0%	43.0%	48.5%	8.5%

*Note actual figure is 0.02% rounded to 0.1%.

Source: National Grid (UK)

Energy Transition: UK PM Sunak backtracks on EVs, heat pumps & energy efficiency

Sunak's backtrack

As promised this summer, UK PM Sunak started to roll out his major new initiatives for the energy transition and that these new initiatives were backtracking on some key items like EVs, heat pumps for homes and energy efficiency in homes as well as reaffirming that oil and gas will continue in the North Sea. The significance of Sunak's changes is that he is going after the major pushes in the UK – EVs and heat pumps. Plus a number of items that were proposed but not yet law/regulations like Sunak scrapping proposal on how many passengers you can have in your car, the proposal to have seven different disposal bins in home, the proposal to tax meat, etc. Our Supplemental Documents package includes the Sunak speech.

Ban on new ICE sales pushed back, for now, to 2035

PM Sunak's speech got the most coverage for his views and law changes on EVs and ICE vehicles – he pushed back the date from 2030 to 2035 for the ban of new ICE vehicle sales. And one interesting comment was how after 2035, people will still be able to buy and sell second-hand ICE vehicles. We didn't realize that there was a risk on second-hand car deals. On Wednesday, we tweeted [LINK] "*UK PM Sunak on #EVs. "still be able to buy petrol and diesel cars & vans until 2035". "even after that, you will still be able to buy & sell them second hand" [was this a risk?] #EnergyTransiton will take longer = #Oil will be needed for longer. See 👇SAF transcript. #OOTT."* Note at the time of our tweet, the UK govt had not posted a transcript of Sunak's speech. Here is the transcript we created of Sunak's EV comments. "10:35 min mark. Sunak *"… that starts with Electric Vehicles. We're working hard to make the UK a world leader. I'm proud that we've already attracted billions of new investments from companies like Tata's Jaguar gigawatt factory. And I expect that, by 2030, the vast majority of cars sold will be electric. Why? Because the costs are reducing. The range is improving. The charging infrastructure is growing. People already are choosing electric vehicles to such an extent that we're registering a new one every 60 seconds. But I also think that, at least for now, it should be you, the consumer that makes that choice, not government forcing you to do it. Because the upfront cost still is high, especially for families struggling with the cost of living. Small businesses are worried about the practicalities. And we've got further to go to get the charging truly nationwide. And we need to strengthen our own auto industry so we aren't reliant on heavily subsidized carbon intensive imports from countries like China. In order to give us more time to prepare, I am announcing today that we're going to ease the transition to electric vehicles. You will still be able to buy petrol and diesel cars and vans until 2035. Even after that you will still be able to buy and sell them second hand.".*

Sunak relaxing on heat pumps

The big home push for reducing emissions is the UK's push to replace gas boilers with heat pumps and Sunak is responding to the biggest criticism from people – heat pumps cost homeowners more to heat their homes. UK will not be forcing anyone to switch from a gas boiler to a heat pump even upon a replacement not before 2035. And even after 2035, there will be an exemption from households from ever having to make the switch. Sunak said "*But we need a balance. Between incentivising businesses to innovate, so heat pumps become even cheaper, more effective, and*

more attractive. But without imposing costs on hard-pressed families, at a time when technology is often still expensive and won't work in all homes. For a family living in a terraced house in Darlington, the upfront cost could be around £10,000. Even the most committed advocates of Net Zero must recognise that if our solution is to force people to pay that kind of money support will collapse, and we'll simply never get there. So, I'm announcing today that we will give people far more time to make the necessary transition to heat pumps. We'll never force anyone to rip out their existing boiler and replace it with a heat pump. You'll only ever have to make the switch when you're replacing your boiler anyway, and even then, not until 2035. And to help those households for whom this will be hardest I'm introducing a new exemption today so that they'll never have to switch at all. Now, this doesn't mean I'm any less committed to decarbonising our homes. Quite the opposite. But rather than banning boilers before people can afford the alternative; we're going to support them to make the switch. I'm announcing today, that the Boiler Upgrade Scheme which gives people cash grants to replace their boiler, will be increased by 50% to £7,500. There are no strings attached. The money will never need to be repaid."

Sunak scraps forced energy efficiency upgrades on homes

Another big change was Sunak is scrapping any forced energy efficiency upgrades to homes. This isn't a delay, but a scrapping. Sunak said "*Next, energy efficiency. This is critical to making our homes cheaper to heat. That's why we've got big government grants like the Great British Insulation Scheme. But under current plans, some property owners would've been forced to make expensive upgrades in just two years' time. For a semi-detached house in Salisbury, you could be looking at a bill of £8,000. And even if you're only renting, you'll more than likely see some of that passed on in higher rents. That's just wrong. So those plans will be scrapped, and while we will continue to subsidise energy efficiency - we'll never force any household to do it."*

Won't ban "new" oil and gas in the North Sea

It wasn't a surprise, but it is important to remember that Sunak is including "new" oil and gas in the North Sea ie. there will be ongoing lease sales in the North Sea and ongoing new oil and gas exploration. Sunak said "*And nor will we ban new oil and gas in the North Sea which would simply leave us reliant on expensive, imported energy from foreign dictators like Putin*.

Energy Transition: 02/08/23, New Zealand priority cost of living, not energy transition

New Zealand priority is cost of living

UK PM Sunak's pivot to focus on the cost of living was direct and much like the Feb 8, 2023 shift by the then new New Zealand PM Chris Hipkins new direct to focus on the cost of living and not the energy transition. Sunak though was clearer that he didn't want to impose higher costs from the green priorities. Here is what we wrote in our Feb 12, 2023 Energy Tidbits memo. "*New Zealand new priority is cost of living, not energy transition. 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." Our Supplemental Documents package includes the Hipkins new direction.}"

Both fits our 2022 Prediction, leaders admit energy transition isn't working

UK PM Sunak was clear that he didn't want to impose higher green costs, whereas New Zealand PM Hipkins didn't blame the energy transition on New Zealand's cost of living crisis. But he did admit the biofuels mandate was only going to hurt New Zealand. Both Sunak and Hipkins are good examples of what we called our #1 prediction for 2022. Here is what we wrote in our Dec 12, 2021 Energy Tidbits memo. "*Its December and so analysts will soon be coming out with 2022 predictions, so we thought we would beat them with one of our main 2022 predictions. On Thursday, we tweeted [LINK] "Time for #2022Predictions. My #1 is more #EnergyTransition #NetZero leaders come out of closet, have a #MacronMoment ie. have "transition" not self inflicted shortage so 2021 energy crisis isn't every year. A return to #EnergySecurity = #Oil #NatGas #LNG strong thru 2030. #OOTT." This should not surprise readers as we have been noting the start of energy transition leaders starting to admit, in a politician's manner, that the energy transition isn't working as per aspirations and energy costs will be a lot higher than aspired. We have said for years that the energy transition will happen, but it will take longer, be bumpy road and cost more than the aspirations. Last week's (Dec 5, 2021) Energy Tidbits wrote on the ADNOC CEO speech There was much more in the speech, which is why we tweeted [LINK] "If more leaders have a "Macron Moment" in 2022, maybe COP28 UAE in 2023 can be catalyst for getting down to work on practical, commercial, sustainable energy solutions: pro climate/pro growth? See SAF Group transcript of @SultanAhmedalj8 #ADIPEC keynote. #EnergyTransition #OOTT." We do wonder if we will see more world leaders accept that the energy transition isn't working according to their aspirations and that there is an increasing risk of a decade of energy crisis like seen in Europe in H2/21 unless the world puts in an achievable energy transition plan." We think COP26 will turn out to be turning point, but a turning point to force energy transition leaders into changing their plan. It why we think we will more of the energy transition leaders come out of the closet and admit this in*

2022. But what got us to tweet this week was after seeing Saudi Aramco CEO Nasser speech at the WPC in Houston. Nasser said "There is one more thing that can no longer remain unsaid. A majority of key stakeholders agree with these realities as much as they believe in addressing climate change. We know this, because they say so in private. They should say it publicly too. I understand their dilemma. Publicly admitting that oil and gas will play an essential and significant role, during the transition and beyond, will be hard for some." So our #1 2022 Prediction is that we will see leaders come out of the close and admit, in a politician's way, that the energy transition plan needs to be changed. The key result will be that fossil fuels are needed for way longer and the outlook for oil, natural gas and LNG will be stronger thru 2030 and beyond.

A #MacronMoment can take three forms

We also wrote in our Dec 12, 2021 Energy Tidbits. "*We use the term "Macron Moment" and the #MacronMoment as when an energy transition leaders come to the realization that the energy transition will take longer, be bumpy and cost more ie. it just won't be ready for prime time and they need to change their plans on how quickly they get rid of oil and natural gas. We are already seeing politicians start to publicly have a #MacronMoment but, so far, it has come in three forms of admission as noted below*.

First, a direct #MacronMoment clearly saying it isn't working as planned

We aren't picking on Macron, but he recently said it the clearest when he warned the energy transition aspiration has to be modified/reduced or else there will be years of an energy crisis. And, even more importantly, he wants to bring a more pragmatic Energy Transition plan to the EU. On Nov 9, we tweeted [LINK] on Macro's address to the nation [LINK] that closed with his call for a more practical approach to the CO2 emissions and one that will include Europe. Macron said "But France will not be strong alone. With the European Union: ➜ We will be able to build a credible strategy for reducing our CO2 emissions, compatible with our industrial and technological sovereignty." The Macron release had at the bottom a reminder "Next January, it is a new model of investment and growth that the President will defend with the French presidency of the Council of the European Union." The day before COP26 started, we tweeted [LINK] on Macron's comments to the FT [LINK] that was a clear view on higher fossil fuel prices for the foreseeable future. Macron said "on demand for fossil fuels isn't going away for the foreseeable future. Macron said "What is happening now is ironic, because we are building a system where in the medium and long term fossil energy will cost more and more, that's what we want [to fight climate change]." he said." Japan is another calling for a pragmatic time frame ie a change in the plan. Our Supplemental Documents package includes the FT Macron report from Oct 30.

Second, Japan says must have a "pragmatic time frame" for decarbonization

No one should is surprised to see how Japan says their #MacronMoment. They don't say it isn't working, they don't say energy costs are way higher than expected. But they do clearly make the point. They say it important to have a pragmatic time frame for decarbonization. That sounds like Japan-speak for the energy transition aspirations plan isn't working and needs to be changed. On November 9, Japan and

the IEA issued a press release and we tweeted [LINK] "Today's Japan "go slow" getting rid of #Oil #NatGas fits Japan's Nov 9 on acceleration of decarbonization that must have "the importance of measures with pragmatic time frame". Japan is having a "Macron Moment". See Nov 9 tweet [LINK] #OOTT." On Nov 9, we tweeted [LINK] on Japan's release [LINK] on its conference with IEA Executive Director Faith Birol. Japan wrote "The two sides also exchanged views on acceleration of decarbonization efforts following COP26, and shared the importance on measures with pragmatic time frame based on individual circumstances that each countries face including its renewable energy potentials". A pragmatic time frame or a go slow process, whatever you want to call it, it means the same thing – Japan doesn't want to get rid of fossil fuels too quickly."

Third, US doesn't say it isn't working, just higher energy costs for yrs to come

US Energy Secretary Granholm has shown the third way of admitting the energy transition plan isn't working. She doesn't say specifically the energy transition plan isn't working or needs to be changed. She just avoids saying that. But she puts on the record that high energy costs are here for years. No one ever heard the Biden sales pitch on accelerating the push to Net Zero and reducing emissions including the warning that this will mean higher energy prices are here for years. That wasn't in the sale pitch. Here is what we wrote in our November 14, 2021 Energy Tidbits "Last week's (November 7, 2021) Energy Tidbits noted Biden seemed to also acknowledge a longer life for oil and natural gas. On Oct 31, we tweeted [LINK] "Is #Biden following #Macron & finally realizing demand for #Oil #NatGas is going to be more for 2020s than in his #NetZero aspiration? Oops, cancel #KeystoneXL, do zero to support US oil supply growth, etc. 2020s will be very good for #Oil #NatGas prices & #OPEC+. #OOTT." Biden wasn't as direct as Macron the week before on demand (see our Oct 31, 2021 Energy Tidbits), but seemed to be acknowledging demand for oil isn't going away as fast as he had planned. And, as everyone now knows, supply has been hurt by lack of oil investment so its sets up the tighter oil market for the 2020s. In his closing G20 press conference, Biden said "Well, on the surface, it seems like an irony, but the truth of the matter is — you've all known; everyone knows — that the idea we're going to be able to move to renewable energy overnight and not have — from this moment on, not use oil or not use gas or not use hydrogen is just not rational." Energy Secretary Granholm was on MSNBC Morning Joe on Monday. We tweeted [LINK] on her comments and noted she that US/Can voters weren't warned in the recent elections that the Energy Transition will happen but will lead to higher prices on oil, natural gas and electricity for years to come. We created a transcript of her saying "So the long term strategy is that. and yes we have a short term cost issue because the economy is still coming back on . we have a supply, demand that does not, the supply doesn't meet the demand. that is an issue we are going through. The president is all over this both in the short term and in the long term."

Energy Transition: UK PM Sunak says can buy/sell used ICE vehicles after 2035

There was something in UK PM Sunak's speech that we hadn't thought about before on used ICE vehicles – will there be restrictions on used ICE vehicles buying and selling. Our Wednesday tweet noted above was [LINK] "*UK PM Sunak on #EVs. "still be able to buy*

Used ICE deals post 2035

petrol and diesel cars & vans until 2035". "even after that, you will still be able to buy & sell them second hand" [was this a risk?] #EnergyTransiton will take longer = #Oil will be needed for longer. See 👇SAF transcript. #OOTT." We put in our tweet was this a risk? What got our attention was Sunak's comment "*So, to give us more time to prepare, I'm announcing today that we're going to ease the transition to electric vehicles. You'll still be able to buy petrol and diesel cars and vans until 2035. Even after that, you'll still be able to buy and sell them second-hand."* It's something to keep in mind as we see more countries move to ban the sale of new ICE vehicles – what do they do to restrict used ICE vehicles? Can they be bought and sold? Are they forced to be replaced/junked within a time period as the UK had planned on gas boilers before backing off? These questions will be the key to how quickly EVs do what they are assumed to do – every new EV replaces the miles driven by an ICE.

Energy Transition: India to add more coal than planned to supply electricity for growth

India to add even more coal

Last Saturday, there was breaking news on India saying they would need more than planned coal fired generation. Here is what we wrote in last week's (Sept 17, 2023) Energy Tidbits memo. "*India is a good reminder that the energy transition isn't the priority to many parts of the world as it is to the wealthy western leaders. Yesterday, we tweeted [LINK] "India says need more #Coal power than under construction and planned. "We will make available the electricity required for our growth and we are not going to default on that". Priority is reliable, affordable & available power, which means more coal. #EnergyTransition #OOTT." You have to give India credit as they don't make any secrets about their plans. Last year, the western leaders were trying to get India to not take Russia crude oil and India was clear they were going to get oil from whoever gave them the best deal. On Friday, India's Power Minister RK Singh spoke at an industry conference and made a clear statement that they are going to add even more coal power than planned. We have to believe that India's response to any western pressure to not add more coal than already planned will be much like their response to the cut off Russia oil request – India will do what is best for them economic growth and that is reliable, available and affordable electricity ie. coal. The Economic Times (India) reported [LINK] "India may need to add 25-30 GW of thermal power capacity over the 49 GW already planned or under construction to meet future requirements, power minister RK Singh said on Friday. The country's electricity demand is rising and will continue to grow, he said. "We will make available the electricity required for our growth and we are not going to default on that," Singh added." Our Supplemental Documents package includes the Economic Times report."*

Energy Transition – Saudi Energy Minister Abdulaziz reality check on energy transition

Saudi Energy Minister

No one should have been surprised by Saudi Energy Minister Abdulaziz's energy transition comments from Calgary on Monday. We tweeted [LINK] "*Reality check. KSA Energy Min Abdulaziz to @CroftHelima. Need energy security, affordability, & doesn't act as impediment to economic growth. if not "I'm sorry, but i don't think you can attend to climate change issues" #Oil #NatGas needed for longer. 👇SAF transcript. #OOTT."* Abdulaziz has a simples message, if you don't have energy security and affordability for the energy transition, you won't be able to have an energy transition. Our tweet included the transcript we made of his comments. SAF Group created transcript of comments by HRH Prince Abdulaziz Bin Salman, Minister of Energy Saudi Arabia with Helima Croft (RBC) at World Petroleum Congress in Calgary on Sept 18, 2023 [LINK]. Items in "*italics"* are SAF Group created transcript. At 32:35 min mark, Abdulaziz "…. *If we really want to be faithful to the idea that we will be transitioning, we have to also make sure that transitioning happens you are attending*

to energy security. Ensuring energy is still affordable and does not act as an impediment to economic prosperity and growth. And if you don't do all of the above, I'm sorry, but I don't think you can attend to climate change issues. You will even be deprived of income and revenue to spend on these things. So to be faithful, you have to do all of the above. And if you are really want to do it, you should not focus on today, this year, next year, but you have to have a longer horizon, which is the 20 years, the 30 years. And ask yourself the tough question. When you stand in front of a mirror, ask yourself the question, as a politician, am I being honest to people or not. If you are not, you have to change your narrative and you have to come to a sensibilities of what is the art of the possible."

Energy Transition – Aramco CEO, green hydrogen is expensive, CCS is needed

Green hydrogen is expensive

As noted above, our tweet on the Saudi Aramco CEO Nasser speech was [LINK] "*Reality checks from @aramco CEO today. Headlines "many shortcomings in the current transition approach" "aggregation of unrealistic scenarios". #GreenHydrogen costs $200-$400/boe. "#CCS can no longer be the bridesmaid" And more! #Oil #NatGas will be needed for longer. #OOTT."* (ii) No one should be surprised that Nasser highlighted that green hydrogen is expensive and no buyers have stepped up to commit to buy any commercial sized quantities of hydrogen. Nasser said "*Then there is Green Hydrogen. Today, "production" costs are in the range of $200 to $400 per barrel of oil equivalent, which is why commercial offtake agreements are hard to come by. I want to stress that alternatives like wind, solar, and hydrogen are considered to be the bedrock of transition."* (iii) Nasser also highlighted how CCS is a must have for the energy transition. Nasser said "I *think it is time the world also gave greater attention to man-made carbon sinks, particularly CCS. It could be deployed in a variety of sectors, including hard-to-abate industries, power plants using coal and gas, biomass-based power stations, and even through Direct Air Capture. The potential climate gains would likewise be large. One scenario suggests that integrating CCS with cement plants might capture and store about 95% of CO2 emissions from the entire sector by 2050. But some estimates suggest that CCS capacity needs to grow 120 times by 2050 for countries to meet their net-zero commitments. CCS can no longer be the bridesmaid of transition; it is central to our industry's future, but even more importantly global climate goals. Last but not least, steel, aluminum, and cement account for about 20% of global CO2 emissions. In fact, if the cement industry were a country, it would be the third-largest emitter of CO2!"*

06/11/23 Saudi Energy Minister offtakers aren't stepping up to buy hydrogen

Here is what we wrote in our June 11, 2023 Energy Tidbits. "*Today is day 1of the Arab-China Business Conference in Riyadh and Saudi Arabia Energy Minister Abdulaziz once again reminded of the problem holding back scaling up hydrogen – there aren't buyers. Earlier this morning, we tweeted [LINK] "Reality Check holding back #Hydrogen at scale.Just now Saudi Energy Minister Abdulaziz "people talk a lot about hydrogen. But, again, i would stress where are the incentives that will make the offtaker commit to the offtake" #OOTT #EnergyTransition."*

05/23/23. No EU, Japan, Korea off-takers stepping up for Saudi blue hydrogen

Here is what we wrote in our May 28, 2023 Energy Tidbits memo. "*No one should be surprised to have seen Saudi Energy Minister Abdulaziz's comments on Monday that there haven't been any European, Japanese or Korea buyers willing to step up to be*

a long-term off-taker for a blue hydrogen development. And the problem is that, with the huge relative cost to produce hydrogen, it needs long-term off-taker commitments for the hydrogen supplier, in this case Saudi Arabia, step up with the billions of dollars of investment needed to get a commercial project. Early Monday morning, we tweeted [LINK] "Hydrogen, the fuel of the future, can't take off until there are buyers. Saudi Energy Minister Abdulaziz "who is going to be the off-taker?" no clear policies for off-taker to step up & pay the price needed for producer to develop the #hydrogen.no surprise, see 👇05/10/23 tweet, #SaudiAramco CEO said #BlueHydrogen cost $250/boe & can't identify EU, Japan, Korea customers to step up. #EnergyTransition is happening but will take way, way longer than aspirations. #NatGas #LNG will be needed for a very long time. #OOTT, Our tweet included a transcript we made of Saudi Energy Minister Abdulaziz comments at the Qatar Economic Forum on May 23, 2023. [LINK] Items in "italics" are SAF Group created transcript. At 40:00 min mark, Abdulaziz "… including by the way hydrogen. People talk about hydrogen as the fuel of the future. I ask you who is going to be the off-taker. And where is the price for hydrogen today? We go around, you go around talking about blue, green, purple, pink hydrogen but, in the final analysis, who is going to be the off-taker, what would be the price of hydrogen. We're not talking oil. We're not talking gas. We're talking about THE so-called cleanest of cleanest future fuel of the future. And yet you don't have the off-takers. But again there are no clear policies for the off-taker to say I have been given an incentives package that will enable me to buy that hydrogen, even green hydrogen for that price for producers to produce it. If this is happening to hydrogen . And what we saw in Europe in terms of power, last autumn, rescued by a gift of god that winter was not as cold as was projected. How in earth one can envisage an energy future with all this uncertainty and, more important, with all these big questions that are not being answered,"

01/08/23, Norway minister, hydrogen light years away from being reasonable

In January, Norway came out with very blunt comments that hydrogen is "light years away from being justifiable of reasonable". Here is what we wrote in our Jan 15, 2023 Energy Tidbits memo. "*Earlier this morning, we tweeted [LINK] on Norway cabinet minister Moe's common sense approach as to why hydrogen is "light years away from being justifiable or reasonable". Moe said "And we must have a proven relationship with simple factors such as resource efficiency and effectiveness". He just wants to go with the economics as known. We also earlier tweeted [LINK] "Inmate escaping or crazyman? See 👇Norway cabinet minister Moe 01/08 posting. Hydrogen has large energy losses at both ends of the process, "in my opinion, light years away from being justifiable or reasonable". Energy will be $$$$ in the #EnergyTransition. #OOTT #NatGas ." Our tweet referenced a Facebook Jan 8 posting by Norway cabinet minister Moe. Moe is currently Minister of Research and Higher Learning, but was previously Minister of Petroleum and Energy from 2011 to 2013. Moe went thru his analysis of the energy losses in hydrogen and why he says "It is, in my opinion, light years away from being justifiable or reasonable." Here is his math on why hydrogen doesn't' make sense. This is from Google Translate "Hydrogen is certainly good for many things, but the fact is that it is a highly explosive storage medium with large energy losses at both ends of the process. If you use 100 kwh of electricity to produce hydrogen, you will be left with an amount of energy in*

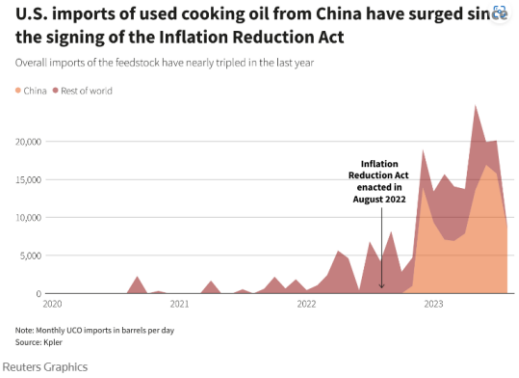
hydrogen corresponding to 50 kwh. In other words, half of the energy is lost. If you are going to use this hydrogen in a fuel cell, you lose a further 50%. If you run it in a turbine to produce electricity, you lose 70%. In other words, you get a utilization rate in a car of about 25% or 25 kwh of the original 100 kwh due to energy loss in the processes. In a simple turbine, the loss is even greater. Alternatively, this current/energy could have been used directly all the time it is taken from the grid in Norway with a utilization rate for, for example, heating, production or transport of 90-100%! If Statkraft together with NEL succeeds in establishing 2 gw electrolysis of hydrogen in Norway, this corresponds to an energy quantity of approximately 17.5 twh, or approximately 12-13% of all power production in Norway." Our Supplemental Documents package includes Moe's Facebook posting and the Google Translate thereof."

Energy Transition: Post IRA, US importing used China cooking oil for renewable diesel

Used China cooking oil

On Friday, we tweeted [LINK] "*Here's why renewable diesel costs more! US spent $390 mm to import (say ~8,000 b/d) of Chinese USED cooking oil for renewable diesel. Call it >$125/b. Hard to believe full cycle 83% GHG saving for USED cooking oil imported from China. Thx @AndrewHayley95 @Kpler.* #OOTT." On Friday, Reuters reported how the incentives in the Inflation Reduction Act has been the key catalyst for US starting to import significant quantities of used China cooking oil. Reuters reports "U*.S. incentives to boost consumption of more environmentally friendly fuel has created a new market for used Chinese cooking oil, worth almost $390 million in the last 12 months and growing rapidly, China's customs data shows."* "*In the first eight months of 2023, Chinese exports of used cooking oil (UCO) to the U.S. totalled almost 384,000 metric tons, customs data shows. That accounted for around 65% of U.S. imports through August, data from ship tracking firm Kpler showed. Used cooking oil can be refined into fuels such as biodiesel and SAF, which can be blended with conventional fuels to reduce carbon emissions. It is also a feedstock for renewable diesel, which is chemically equivalent to petroleum-based diesel."* The Reuters graph seems to indicate there were no or almost no imports of used China cooking oil before 2023. Our rough math was the US spending $390 mm in the last 12-months to import ~8,000 b/d works out to a price >$125/b and that wouldn't include the cost of shipping, distribution, etc within the US. Our tweet also noted Reuters writing *"Biodiesel produced from UCO has slightly lower energy content than petroleum diesel but cuts greenhouse gas pollution by as much as 83%, according to a 2022 study by the Argonne National Laboratory in the U.S*." We did not go back to the Argonne study but we have to believe the 83% GHG cut isnt' a full-cycle comparison. Our Supplemental Documents package includes the Reuters report.

Figure 51: US imports of used China cooking oil



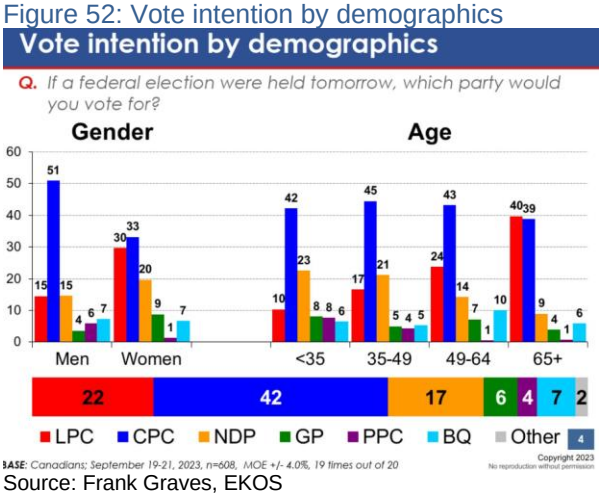
Source: Reuters

Energy Transition: Brutal polls = why Trudeau to increase pressure on oil and gas

Brutal polls for Liberals

We can't help think that, with a maximum of 2 years until a Canada national election to be called, the brutal polling numbers are going to be forcing PM Trudeau's Liberals to find places to attack and the always constant target is the oil and gas sector. We expect this targeting to increase over the next 12 months as Trudeau waits for interest rates, inflation and food costs to drop. Politicians always need a target and the logical target is the existing target – the oil and gas sector. If the economy isn't working, he has to go hard on the one area that he sees as appealing more to younger and women – climate change and hope the economy changes well before the next election so Canadians don't have recent memories of 2022/2023. On Friday, EKOS Research founder, Frank Graves, tweeted [LINK] the below graph of EKOS new polling data that shows the Liberals behind in gender and every age group other than 65+. Perhaps the most surprising categories are the Liberals trailing with women at 30 to the CPC 33 and, even more surprising, the <35 with the Liberals treailing 10 to the CPC 42. Below is the Frank Graves tweeted graph.

Figure 52: Vote intention by demographics



Source: Frank Graves, EKOS

Energy Transition: Microsoft looking at mini-nukes (SMRs) to power data centers

Mini-nukes for data centers

Mini-nukes or Small Modular Reactors (SMRs) are not a new idea. Long term readers might remember we first wrote on using mini-nukes to power the oil sands in the early 2000's when the former Cameco CFO told me this was something they were trying to get people up in Fort McMurray to do to power the oil sands. There was some interest, but there was more fear on nuclear at that time. At that time, the economic reason was that natural gas had gone crazy high and mini-nukes made sense to replace natural gas. Mini nukes make a lot of sense in various settings. And this is increasingly so in the world where more electricity is being supplied by interruptible solar and wind generation. This increases the need for mini-nukes as a key source of 24/7 electricity. A good example was the Friday report by Data Center Dynamics [LINK] "*Microsoft Cloud hiring to "implement global small modular reactor and microreactor" strategy to power data centers. Microsoft is hiring for a principal program manager of nuclear technology to "be responsible for maturing and implementing a global small modular reactor (SMR) and microreactor energy strategy."* They don't specifically say they need mini-nukes instead of interruptible solar/wind, but say "*With grids around the world struggling, power availability has become a critical bottleneck for data center builders and delayed projects around the globe - most notably in the sector's densest region, Northern Virginia. The lack of clean power is even more of a challenge as data center companies try to shift to renewable sources."* Our Supplemental Documents package includes the Data Center Dynamics report.

Capital Markets: German house prices continue to get hit hard

German house prices

One of the early Friday morning Bloomberg reports was on the Destatis German house price data for Q2/23. Bloomberg provided the below graph on the Destatis data. Destatis wrote [LINK] "*In the 2nd quarter of 2023, the prices of residential property (house price index) in Germany decreased by an average of 9.9% compared with the 2nd quarter of 2022. This was the largest decline in residential property prices from the same quarter of the previous year since the beginning of the time series in 2000, according to the Federal Statistical Office (Destatis). The house price index reached an all-time high in the 2nd quarter of 2022. Since then, residential property prices have been declining quarter on quarter. At -1.5% on the first quarter of 2023, the decline in the 2nd quarter of 2023 was not as steep as in the two previous quarters, however (1st quarter of 2023: -2.9% on the previous quarter, 4th quarter of 2022: -5.1% on the previous quarter)."*

Figure 53: German house prices are slumping

Source: Bloomberg

Capital Markets: Will a big flu season have any impact on markets?

A big flu season?

Unfortunately, we feel it's at least worth mention the headline out of Japan yesterday because Covid is still in everyone's mind even if not a concern. It looks like there is the set up for a big flu season, at least in Japan. And the logic, lower immunity post Covid, makes sense to be a factor in other countries. Yesterday, Japan Times reported [LINK] "*Unseasonal flu surges across Japan amid lower immunity post-COVID. The number of new influenza cases reported at designated medical institutions in Japan has surged 57% over the past week, health ministry data has shown, marking an unusual trend for a virus usually prevalent during winter. Health experts attribute the prolonged spread of infections to a combination of factors, including low immunity stemming from a fall in new flu cases when government coronavirus measures were in place."* And "*Despite the flu season in Japan usually ending in spring, the weekly average number of cases per medical facility has continued to exceed typical levels well into the summer this year, even increasing from late August*."

Demographics: Japan's population: 10.1% are ≥ 80 ys, 29.1% are ≥ 65 yrs old

Japan's >80 yr olds

The beauty of demographics is that they provide predictable trends as they can't change quickly. And the best example is how populations age. And Japan is the poster child for an aging population that is providing the look ahead to what will be in happening in China and South Korea. On Monday, Japan Times reported [LINK] that "*People age 80 and over topped 10% of Japan's population for the first time, government data showed Sunday, as the country with the world's highest proportion of older people continues to grapple with a rapidly aging society. The number of people in the age bracket swelled by 270,000 from the previous year to 10.1% of Japan's total population of around 124.6 million, the Ministry of Internal Affairs and Communications said ahead of Monday's Respect for the Aged Day. In another record, those age 65 and older, defined as the elderly in Japan, accounted for 29.1% of the total population at 36.2 million, meaning the country continues to have the largest proportion of this age group worldwide, the data showed as of Friday. Italy and Finland rank second and third, with those age 65 and over accounting for 24.5% and 23.6% of their respective populations."* And "*Those age 75 and older accounted for 16.1% of the total population, or 20.05 million people, surpassing the 20 million mark for the first time. This is apparently because some of the postwar baby boomers, born between 1947 and 1949, had reached 75.*" And no surprise, more older people are having to work. Japan Times wrote "M*eanwhile,*

25.2% of older people in Japan were employed in 2022, with the number rising for the 19th-straight year to 9.12 million, another record. The elderly compose 13.6% of the country's total workforce." Our Supplemental Documents package includes the Japan Times report.

Twitter: Look for our first comments on energy items on Twitter every day

@Energy_Tidbits on Twitter

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

Look for energy items 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].

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 Calgary items.

Bob Ross, PBS Joy of Painting, first painting being offered for $9.85 million

We heard this on the radio and had to look online to see the reports that the first painting on the TV show by Bob Ross (PBS Joy of Painting) was being offered for $9.85 million. Surely this is not a serious offer? CTV New wrote [LINK] "*What would Bob Ross think? The artist who brought painting to the people, with works completed for PBS viewers in less than a half-hour with little more than a large bristle brush, putty knife and plenty of encouragement, certainly wouldn't have envisioned one of his works going up for sale for nearly US$10 million. But that's the price a Minneapolis gallery is asking for "A Walk in the Woods," the first of more than 400 paintings that Ross produced on-air for his TV series "The Joy of Painting."*

Figure 54: Bob Ross "A Walk in the Woods"

Source: People

08/14/22: Goodfood's commercial take off on Bob Ross, PBS Joy of Painting

We actually wrote about Bob Ross before, in our Aug 14, 2022 Energy Tidbits memo after we saw a commercial with a spoof on Ross. The commercial is still available at [LINK]. Here is what we wrote in our Aug 14, 2022 Energy Tidbits memo. *"Doubt many of all ages, including many baby boomers, will immediately draw the takeoff of the new goodfood.ca commercial "The Joy of Dinner with Goodfood" that we saw at least twice this weekend on CTV national news. Saw this commercial on Friday. But for those who watched PBS in the 80s will immediately see the Goodfood commercial takeoff on PBS painter, Bob Ross, from the Joy of Painting. It was an instructional painting show on PBS. And bob was recognizable for a couple of physical items – his big hair and very calm, soft speaking manner. The Goodfood commercial is a play on his show. The Joy of Painting ran on PBS from 1983 thru 1994. Bob Ross passed away at the young age of 53 in 1995. Here is a link to a Season 10 episode [LINK].*

Figure 55: Goodfood commercial and Bob Ross Joy of Painting

Source: Goodfood, Joy of Painting 1990

Nottingham Forest's "pizzadog"

Normally, our comments on snack food served at the EPL (English Premier League) football matches served at the stadiums or stadium fan zones is on what a rip-off they are for the prices. Maybe the locals will consider this a rip-off but it didn't seem so bad. The Sun report "*PIZ-A THIS Premier League club splits opinion with unique 'Pizzadog' dubbed 'the combo I didn't know I needed'*" [LINK] was on the 'pizzadog' being served at Nottingham Forest matches by Working Man's Kitchen inside the club's fan zone at the City Ground. The Sun says "*The snack appears to include a narrow margarita pizza with a long frankfurter sausage on top. The savory treat will set fans back £7, however, they will not be on sale during the match against Burnle*y." That's about $11.50 Cdn. So it probably a little pricey but didn't seem seem as bad as some of the other high priced food snacks we have seen at EPL matches. Maybe because it's at Nottingham Forest and not one of EPL teams in London or Manchester.

Figure 56: Nottingham Forest's "Pizzadog"

Source: The Sun

Best sports food was Winnipeg Blue Bombers "Walby Burger" from 2019

The Winnipeg Blue Bombers are noted for having some WOW snack and this year it is their "Yard Dog", which is a 32 inch hot dog that is loaded with perogies, bacon bits and other items plus has a big order of fries. It is $45 Cdn. But the best was the Walby Burger from a few years ago that $45 Cdn. It was named after former offensive tackle Chris Walby. The Walby Burger had six burger patties, six chicken tenders, six hot dogs, six pieces of bacon, cheese, fries and all the other normal toppings.

Figure 57: Winnipeg Blue Bombers "Yard Dog" and "Walby Burger"

Source: Sportstalkwpg, Winnipeg Blue Bombers

Only 6 NFL teams since 1979 have started 0-3 and made the playoffs

It's only week 3 of the NFL seasons but, in a relatively short 17-game season that sees 14 or 32 teams make the playoffs, every game counts. Especially since there have only been six NFL teams start 0-3 and make the playoffs. The most recent 0-3 team to make the playoffs was the Texans in 2018 who finished at 11-5 and lost in the Wild Card round to the Colts. There are nine teams that are 0-2 and there will be at least one team go 0-3 as two of the teams (Chargers at Vikings) play each other. That is unless they have one of the rare tie games. The other 0-2 teams are noted first and then their opponent. Based on the opponent and location, we would think there is a good chance to see six 0-3 teams at the end of weekend. Texans at Jaguars. Broncos at Dolphins. Patriots at Jets. Panthers at Seahawks. Bears at Chiefs. Cardinals at home with Cowboys. Bengals at home with Rams.

The amazing waitresses of Oktoberfest

Oktoberfest started last Sat Sept 16 and runs thru Tues Oct 3. We have no idea what it's like in the last 30 years but had the chance to be on business in Munich in the early 1990s during Oktoberfest. And if it is anything like that, it's definitely worth experiencing Oktoberfest in Munich. Perhaps the most impressive part of Oktoberfest is how the waitresses carry more than 10 beers at a time and not on a tray. Here is a picture of one carrying 13 beers.

Figure 58: Oktoberfest waitress carrying 13 beers

Source: Twitter

Cdn football fans may remember the 1998 Bills started 0-3 made the playoffs

Others may remember the 0-3 Bufalo Bills that ended up 10-6 to but lost in an exciting game to the Dolphins. Prior to the 1998 season, the Bills traded high draft capital to acquire Rob Johnson, who they saw as their QB for a long time. The Bills under Johnson started 0-3, rallied to get to 2-3. Johnson got hurt in Game 6 and Doug Flutie took over. The Bills won Game 6, and Flutie then led them to a 7-3 record over the next 10 games to make the playoffs. The Bills played the Dan Marino led Dolphins and lost a tough game 24-17. The Bills had a couple of tough fumbles deep in Dolphins territory that made the difference. This included with the Bills on the 5-year line in 1st and goal with 17 seconds on the clock to tie the game. Flutie got blindsided in the pocket and fumbled to end the game.