

Energy Tidbits

October 29, 2023

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Shouldn't US Shooting Down Houthis 4 Cruise/30 Drones in Red Sea Bring Risk to Tanker Transit in Red Sea/Bab el Mandeb?

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. We are surprised markets don't seem concerned about tanker/cargo traffic in the Red Sea after US shoots down Houthis 4 cruise missiles/30 drones. [click here]
- 2. We still wonder where in Saudi airspace was the Houthi cruise missile shot down by KSA and how does US/Israel know the low-flying cruise missile was targeting Israel? [click here]
- 3. Last night, Netanyahu said now in the second stage of their second War of Independence and Raisi warned Israel has crossed red lines, "which may force everyone to take actions." [click here]
- 4. Vortexa's crude oil floating storage was up to 75.27 mmb but that is still very low and only five weeks have been less than 70 mmb since Covid. [click here]
- 5. COP28 is now a month away and all of the key Net Zero items (EVs, offshore wind, hydrogen, sustainable aviation fuels) are nowhere near plans/aspirations. [click here]
- 6. Note we had an early news cut off last night as of 10pm due to travel early this morning.
- 7. Please follow us on Twitter at <a>[LINK] for breaking news that ultimately ends up in the weekly Energy Tidbits memo that doesn't get posted until Sunday noon MT.
- 8. For new readers to our Energy Tidbits and our blogs, you will need to sign up at our blog sign up to receive future Energy Tidbits memos. The sign up is available at [LINK].

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Natural Gas: +74 bcf build in US gas storage; now +313 bcf YoY surplus

For the week of October 20, the EIA reported a +74 bcf build (below expectations of a +80 bcf build), and a YoY increase compared to the +52 bcf build reported for the week of October 21, 2022. Total storage is now 3.700 tcf, representing a surplus of +313 bcf YoY compared to a surplus of +300 bcf last week. Total storage is +183 bcf above the 5-year average, up from the +175 bcf surplus last week. Below is the EIA's storage table from its Weekly Natural Gas Storage report [LINK].

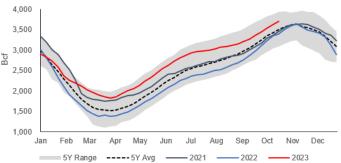
US gas storage +313 bcf YoY surplus

Figure 1: US Natural Gas Storage

						Historical C	ompanso	ns
		billion	Stocks cubic feet (Bcf		ear ago 0/20/22)	5-year average (2018-22)		
Region	10/20/23	10/13/23	net change	implied flow	Bcf	% change	Bcf	% change
East	908	896	12	12	823	10.3	872	4.1
Midwest	1,075	1,050	25	25	1,004	7.1	1,035	3.9
Mountain	252	248	4	4	198	27.3	208	21.2
Pacific	283	280	3	3	248	14.1	277	2.2
South Central	1,182	1,152	30	30	1,114	6.1	1,124	5.2
Salt	299	285	14	14	276	8.3	286	4.5
Nonsalt	883	868	15	15	837	5.5	838	5.4
Total	3,700	3,626	74	74	3,387	9.2	3,517	5.2

Source: EIA

Figure 2: US Natural Gas Storage - Historical vs Current



Source: EIA, SAF

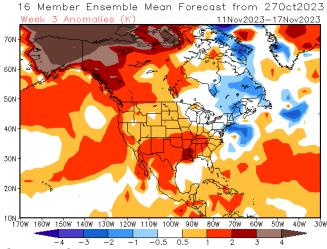
Natural Gas: NOAA forecasts warmer than normal mid to late Nov

Nov 1 is the start of the natural gas withdraw season in North America. Early Nov is typically not a big natural gas withdraw season but at least the weather is normal to below normal temperatures in the Great Lakes and the NE US. The first non-scientific natural gas mood test has tended to be the NFL football games in late Nov, especially on US Thanksgiving weekend, and if the fans are dressed for cold. Unforrtunately, at least as of now, NOAA is still expected warmer than normal temperatures in mid to late Nov. Below are NOAA's Friday temperature forecasts for Nov 11-17 and Nov 18-24. [LINK]

Warmer than normal late Nov

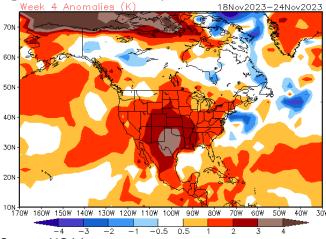


Figure 3: NOAA Mean Temperature Forecast Nov 11-17



Source: NOAA

Figure 4: NOAA Mean Temperature Forecast Nov 18-24



Source: NOAA

Natural Gas: EQT sees Lower 48 gas supply exit 2023 flat or slightly down vs Q3/23 On Thursday, EQT held its Q3 call. EQT is viewed as the top US natural gas producer and produces over 5 bcf/d so has a great window on the US natural gas supply and demand market. We recommend their corporate presentations as they normally have in-depth views on supply and demand. The hold back to US natural gas prices in 2023 has been twofold: the warm winter 2022/23 (the 20th hottest in the last 129 years) and the strong YoY increase in US Lower 48 natural gas production. At least for now, the forecasts are for another warm winter. But EQT is seeing a rollover in Lower 48 natural gas supply. On Friday, we tweeted [LINK] "#EQT sees Lower 48 #NatGas volumes exit 2023 flat to slightly down vs Q3/23, further decline from the 1st half of 2024 as impact of gas rigs decline flows thru. #NatGas consumers better hope forecasts for warm start to winter in US, EU & Asia come true.

EQT on US gas supply



#OOTT." EQT said "Second, while we do expect some incremental supply from associated gas in connection with new Permian pipeline capacity commencing in the 4th quarter, we see lower 48 volumes exiting this year flat to slightly down compared to Q3 of 2023. And we see further decline from the first half of 2024 as the impact from a 25%-plus drop in gas rigs since March begins to set in, especially in the high-decline Haynesville play where the rig count remains well below maintenance levels. Third, the progress demonstrated commissioning the Golden Paths and Plaquemines LNG facilities has been encouraging and will create structural tailwinds allow an LNG demand to reach a record 15 Bcf per day, even before the facilities are fully operational. Fourth, we expect natural gas power generation to continue taking away share from coal as the investment case for coal weakens further, with the market increasingly turning to cleaner burning natural gas."

10/11/23: EIA STEO increased US gas production forecast for 2023, 2024
On Oct 11, the EIA released its monthly Short Term Energy Outlook for October 2023 [LINK]. The EIA increased its forecast of US natural gas production +1.0 bcf/d for 2023 and +0.2 bcf/d for 2024. (i) The EIA increased its 2023 US natural gas production to 103.7 bcf/d (was 102.7), which, on a full year average basis, gives solid YoY growth of +4.1 bcf/d from 2022. The EIA's increased 2023 forecast increases estimates for H2/23. The revisions by quarter were Q1/23 +0.3 bcf/d to 102.4 bcf/d, Q2/23 +0.4 bcf/d to 103.2 bcf/d, Q3/23 +1.7 bcf/d to 104.4 bcf/d, and Q4/23 exit +1.8 bcfb/d to 104.9 bcf/d. (ii) The EIA increased its 2024 forecast to 105.1 bcf/d (was 104.9), which, on a full year average basis, is up vs 2023 forecast of 103.7 bcf/d. The EIA did not comment on the changes in their natural gas consumption forecast.

Figure 5: EIA STEO Natural Gas Production Forecasts

bcf/d	2021	Q1/22	Q2/22	Q3/22	Q4/22	2022	Q1/23	Q2/23	Q3/23	Q4/23	2023	Q1/24	Q2/24	Q3/24	Q4/24	2024
Oct-2023	94.6	96.6	98.9	101.2	101.6	99.6	102.4	103.2	104.4	104.9	103.7	104.7	104.8	104.8	106.1	105.1
Sep-2023	94.6	95.1	97.6	99.5	100.3	98.1	102.1	102.8	102.7	103.1	102.7	104.3	104.7	104.9	105.9	104.9
Aug-2023	94.6	95.1	97.6	99.5	100.3	98.1	102.1	102.8	103.4	103.6	103.0	104.0	103.9	104.0	104.6	104.1
July-2023	94.6	95.1	97.6	99.5	100.3	98.1	102.0	102.2	103.0	102.2	102.4	101.8	101.5	102.5	103.7	102.4
June-2023	94.6	95.1	97.6	99.5	100.3	98.1	102.0	103.7	103.4	101.9	102.7	102.8	102.8	103.0	103.6	103.0
May-2023	94.5	95.1	97.6	99.5	100.3	98.1	102.1	101.9	99.9	100.4	101.1	100.7	101.1	101.4	101.8	101.2
Apr-2023	94.5	95.1	97.6	99.5	100.2	98.1	101.6	100.5	100.5	100.9	100.9	101.2	101.5	101.8	101.8	101.6
Mar-2023	94.5	95.1	97.6	99.5	100.2	98.1	101.0	100.2	100.6	101.0	100.7	101.4	101.4	102.0	102.0	101.7
Feb-2023	94.6	95.1	97.6	99.5	100.1	98.1	99.9	100.0	100.3	100.9	100.3	101.2	101.6	102.0	101.9	101.7
Jan-2023	94.6	95.1	97.6	99.4	99.9	98.0	100.8	99.9	100.1	100.6	100.3	101.1	101.8	102.7	103.6	102.3
Dec-2022	93.6	95.1	97.6	99.2	100.5	98.1	99.9	99.5	100.5	101.6	100.4					
Nov-2022	93.6	95.1	97.6	99.4	100.1	98.1	99.0	99.4	100.0	100.3	99.7					
Oct-2022	93.6	95.1	97.6	98.5	99.1	97.5	99.2	99.6	99.7	100.0	99.6					
Sep-2022	93.6	94.6	96.9	97.9	99.0	97.1	99.7	100.5	100.6	100.7	100.4					
Aug-2022	93.6	94.6	96.6	97.0	98.1	96.6	98.9	100.1	100.5	100.5	100.0					

Natural Gas: EQT's Cost of Supply and Return Curves for Appalachia & Havnesville

There was a good food for thought slide about EQT's estimates of the needed HH gas price

Source: EIA, STEO

to meet the marginal cost of supply and to generate corporate returns to 10% of EV. We weren't surprised by EQT's having right among the lowest needed HH price, but we would have thought the required HH price might be a little lower. It's a great slide and we recommend reading their transcript on their comments because there is good insight on the economics of the two major shale gas basins – the Appalachia and the Haynesville. EQT said "First, the marginal molecule of US gas supply is coming from the Haynesville, requiring a natural gas price of approximately \$3.50 per MMBtu to even begin generating cashflow in

maintenance mode, meaning below this price, no shareholder value is being created and inventory optionality is being depleted. On the other hand, EQT is at the low end of the cost of supply curve, which translates to structurally more durable through the cycle free cash flow

US cost of supply and return curves



generation and returns for our shareholders and also less need to defensively hedge away gas price upside. Further, we see the price required to generate corporate return for Haynesville producers already at north of \$4 per MMBtu based on current market valuations. On the other hand, EQT shares are pricing in a level embedding a mid \$3 gas price, providing a superior entry point to gain exposure to natural gas prices and in a superior risk adjusted manner due to EQT's lower cost of supply." We haven't seen any similar analysis for Cdn natural gas producers but, if we had to guess, we would think the required prices are a little lower. Our Supplemental Documents package includes excerpts from the EQT call transcript.

EQT is at the Low End of Both the Cost of Supply and Return Curves

Structurally positioned to provide investors the optimal combination of downside protection and upside price exposure

NYMEX GAS PRICE NEEDED TO GENERATE CORPORATE RETURNS(I)

51.00

MARGINAL COST OF SUPPLY TO GENERATE CORPORATE RETURNS(I)

52.00

S1.00

A EQT C C Cost of Supply(2)

MARGINAL COST OF SUPPLY TO GENERATE CORPORATE RETURNS(I)

Cost of Returns(I)

NYMEX Gas Price Needed to Generate Corporate Returns(I)

Cost of Supply(2)

A MARGINAL COST OF SUPPLY TO GENERATE CORPORATE RETURNS(I)

Cost of Returns(I)

Cost of Returns(I)

A Cost of Returns(I)

Cost of Returns(I)

A Cost of Returns(I)

Cost of Returns(I)

Cost of Returns(I)

A Cost of Returns(I)

Figure 6: EQT's estimated cost of supply and return curves

Source: EQT

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

On Friday, Pemex posted its natural gas production data for September. [LINK]. Pemex does not provide any commentary on the data but reported September 2023 natural gas production of 4.969 bcf/d, which was +3.6% YoY and +0.4% MoM. The big picture story for Mexico natural gas is, at least for now, still unchanged – for the past six years, Mexico natural gas production has been stuck right around 5 bcf/d, and that means any increased domestic natural gas consumption has been met by US natural gas imports. Below is our ongoing table of Pemex reported monthly natural gas production.

Mexico natural gas just below 5 bcf/d

Figure 7: Mexico Natural Gas Production

Natural Gas Production bcf/d	2017	2018	2019	2020	2021	2022	22/21	2023	23/22
Jan	5.326	4.910	4.648	5.005	4.848	4.713	-2.8%	4.955	5.1%
Feb	5.299	4.853	4.869	4.942	4.854	4.646	-4.3%	4.979	7.2%
Mar	5.383	4.646	4.857	4.946	4.839	4.766	-1.5%	5.035	5.6%
Apr	5.334	4.869	4.816	4.827	4.671	4.740	1.5%	5.095	7.5%
May	5.299	4.827	4.841	4.460	4.730	4.702	-0.6%	5.034	7.1%
June	5.253	4.840	4.843	4.754	4.727	4.744	0.4%	5.035	6.1%
July	5.216	4.856	4.892	4.902	4.725	4.815	1.9%	4.936	2.5%
Aug	5.035	4.898	4.939	4.920	4.656	4.796	3.0%	4.947	3.1%
Sept	4.302	4.913	5.017	4.926	4.746	4.798	1.1%	4.969	3.6%
Oct	4.759	4.895	4.971	4.928	4.718	4.795	1.6%		
Nov	4.803	4.776	5.015	4.769	4.751	4.845	2.0%		
Dec	4.811	4.881	5.024	4.846	4.697	4.845	3.2%		

Source: Pemex, SAF



US pipeline exports are now up to Mexico at 6.7 bcf/d in July

The issue for increasing US natural gas exports to Mexico has been driven by when Mexican natural gas infrastructure can be built out. We report on the EIA's monthly data on US natural gas pipeline exports to Mexico. Here is what we wrote in our Oct 1, 2023 Energy Tidbits memo. "The EIA Natural Gas Monthly also provides its "actuals" for gas pipeline exports to Mexico [LINK], which were 6.7 bcf/d in July, down -0.1 bcf/d MoM from 6.8 bcf/d in June and is up +0.6 bcf/d YoY from 6.1 bcf/d in July 2022. The EIA doesn't provide explanations for the numbers but the increase should be linked to some recent infrastructure increases. Mexico's relatively unchanged domestic production over the past seven years has created the need for increased US pipeline exports as Mexico builds out its domestic natural gas infrastructure. Below is our table of the EIA's monthly gas exports to Mexico."

Figure 8: US Pipeline Exports to Mexico

bcf/d	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Jan	1.7	2.2	3.2	3.9	4.4	4.9	5.2	5.6	5.7	5.3
Feb	1.8	2.3	3.5	4.0	4.5	4.8	5.4	4.9	5.5	5.4
March	1.9	2.4	3.3	4.2	4.3	4.8	5.4	5.9	5.5	5.7
Apr	1.9	2.6	3.5	3.7	4.4	4.7	4.6	6.1	5.9	5.6
May	2.0	2.8	3.7	4.0	4.4	5.0	4.7	6.2	6.0	6.3
June	2.2	3.0	3.9	4.5	4.6	5.2	5.4	6.6	6.1	6.8
July	2.2	3.3	4.0	4.4	4.9	5.4	5.8	6.4	6.1	6.7
Aug	2.1	3.3	4.3	4.4	5.0	5.4	6.0	6.2	5.8	
Sept	2.2	3.3	4.1	4.2	5.0	5.4	6.1	6.0	5.6	
Oct	1.9	3.2	4.2	4.2	4.9	5.5	6.0	6.0	5.5	
Nov	1.9	3.0	4.0	4.5	4.7	5.3	5.5	5.5	5.4	
Dec	2.1	3.2	3.6	4.4	4.5	4.9	5.3	5.4	5.1	
Average	2.0	2.9	3.8	4.2	4.6	5.1	5.5	5.9	5.7	6.0

Source: EIA, SAF

TC Energy sees Permian natural gas +3 bcf/d to Mexico by 2030

Here is another item from our Oct 1, 2023 Energy Tidbits memo on looking ahead to 2030 for the increased natural gas infrastructure buildout. "Looking ahead to rest of the 2020s, one of the big positives for North America natural gas is the continued strong growth in US LNG capacity that sets up increasing LNG exports ie. demand for US natural gas. On a lesser, but still significant added demand factor is the increasing buildout by TC Energy of natural gas infrastructure in Mexico that sets up that sets up increased demand for US natural gas. Here is what we wrote in our Dec 4, 2022 Energy Tidbits. "One overlooked upside to US natural gas in the 2020s is that the growth Mexico infrastructure projects are starting to kick in. Yesterday, we tweeted [LINK] "Positive for US #NatGas for 2020s. It's not just increasing #LNG exports, it's also Mexico. Mexico #NatGas demand from 9 bcfd to 12 bcfd in 2030. @TCEnergy expects MEX #NatGas pipeline imports from Permian +45% from 6 bcfd in 2022 to 9 bcfd by 2030. #OOTT." The growth in Mexico natural gas demand is a big plus to the Permian. For the last few years, every time we write on Mexico's natural gas production, we say it is still stuck below 5 bcf/d and that any increase in Mexico natural gas demand has to be met by increasing natural gas or LNG imports. For the past 5+ years, other than a few months, Mexico gas production was below 5 bcf/d. Mexico's natural gas demand growth and growing infrastructure was one of the key growth themes at TC Energy's investor day on Tuesday. Mgmt's slide deck included the below slide and mgmt said "We expect Mexican natural gas demand to increase by 3% per year across the country from 9 Bcf to 12 Bcf in 2030, with



strategic government projects creating over 1 Bcf a day of incremental gas demand in the southeast alone by 2025. Now given Mexico's limited natural gas production, this increase in demand will likely be served by supplies in the U.S. and more specifically the Permian as we believe Mexican imports from the Permian are likely to increase by 45% from 6 Bcf a day in 2022 to 9 Bcf by 2030."

Figure 9: TC Energy Sees US Natural Gas Imports TO Mexico +45% to 2030



Source: TC Energy

Natural Gas: Baker Hughes maintains bullish outlook for LNG FIDs to 2030

We don't understand why but for some reason Baker Hughes CEO Simonelli decided to drop some of his bullish LNG FID outlook out of his normal quotes in the Q3 release and save it for the earnings call. On Wed morning, Baker Hughes reported Q3 and once we saw the release, we tweeted [LINK] "See - as always wonder why items dropped vs Q2 message, \$BKR Q3 drops specifics on #LNG FIDs in 23/24 & mention of LNG cycle extending for several yrs. Hope analysts drill down on his LNG outlook past 23 in Q3 call as will give insight to overall LNG market. #NatGas #OOTT." Our tweet included Simonelli's message in Q3 vs Q2 vs Q1 release and we noted the lack of LNG outlook to 2030, which has been a key and very bullish part of his normal message. In his prepared remarks and in the Q&A, Simonelli continued with the same bullish outlook for expected FIDs for LNG supply to 2030. As a reminder, Baker Hughes is the most involved services company in global LNG projects so knows basically every LNG project and what is being discussed. His prior forecast was for 65 MTPA of new FIDs in 2023 and in 2024. In the Q3 call, he said there was 53 MTPA FID so far in 2023 and he still sees 65 MTPA for 2024. In the Q2 call, he expected 65 MTPA in both 2023 and 2024. And he had not change as he looked out to 2025 and 2026 and confirmed that he stills sees FIDs as stated previously at the rate of 30 to 60 MTP, and that the outlook continues to point to the 800 MTPA of LNG supply that is needed by 2030. Our Supplemental Documents package includes the Baker Hughes President message from the Q1, Q2 and Q3 reports, and excerpts from the Q3 call transcript.

Baker Hughes bullish LNG FID outlook



Natural Gas: ENI and QatarEnergy sign 27-year LNG deal for 0.13 bcf/d

On Monday, Qatar announced they signed a long-term 27-year LNG supply deals with Eni [LINK] that Eni will use to supply LNG to Italy. The deal is set to begin in 2026, with ENI purchasing ~0.13 bcf/d. It's a 27-year deal and the term of the SPA extends through 2053. Minister of State for Energy Affairs and CEO of QatarEnergy, His Excellency Mr. Saad Sherida Al-Kaabi, said "Today, we are taking another important step in strengthening our partnership with Eni that will foster our mutual cooperation for many years to come. Our partnership with Eni has borne fruitful results including LNG deliveries through the Fluxys LNG terminal in Belgium's Zeebrugge port and upstream exploration projects in various locations around the world. This agreement further builds on Eni's first entry in the upstream sector in the State of Qatar through our partnership in the historic North Field East expansion project". Our Supplement document package contains the QatarEnergy news release.

There have been 18.34 bcf/d of long-term LNG supply deals since July 1, 2021 We first highlighted this abrupt shift to long term LNG supply deals in our July 14, 2021 8-pg "Asian LNG Buyers Abruptly Change and Lock in Long Term Supply – Validates Supply Gap, Provides Support For Brownfield LNG FIDs". We included a table of the deals done in that short two week period. We continue to update that table, which now shows 18.34 bcf/d of long-term LNG deals since July 1, 2021. 60% of the deals have been by Asian LNG buyers, but we are now seeing rest of world locking up long term supply deals post Russia/Ukraine. Note in our non-Asian LNG deals will major LNG players (ie. Chevron, Shell, etc) buying for their LNG portfolio supply. China has been particularly active in this space, accounting for 65% of all Asian LNG buyers in long term contracts since July 1, 2021. Below is our updated table of Asian and Europe LNG buyers new long-term supply deals since July 1, 2021. Our Supplemental Documents package includes our July 14, 2021 blog.

Long-term LNG deal



Figure 10: Long-Term LNG Buyer Deals Since July 1, 2021

Date	yer Deals Since July 1, Buyer	Seller	Country	Volume	Duration	Start	End
sian LNG Deals			Buyer / Seller	(bcf/d)	Years		
ul 7, 2021	CNOOC	Petronas	China / Canada	0.30	10.0	2022	2032
lul 9, 2021	CPC	QatarEnergy	Taiwan / Qatar	0.16	15.0	2022	2037
ul 9, 2021	Guangzhou Gas	BP	China / US	0.13	12.0	2022	2034
lul 12, 2021	Korea Gas	QatarEnergy	Korea / Qatar	0.25	20.0	2025	2045
Sep 29, 2021	CNOOC	QatarEnergy	China / Qatar	0.50	15.0	2022	2037
Oct 7, 2021	Shenzhen	BP	China / US	0.04	10.0	2023	2032
Oct 11, 2021	ENN	Cheniere	China / US	0.12	13.0	2022	2035
Nov 4, 2021	Unipec	Venture Global LNG	China / US	0.46	20.0	2023	2043
Nov 4, 2021	Sinopec	Venture Global LNG	China / US	0.53	20.0	2023	2043
Nov 5, 2021 Nov 22, 2021	Sinochem Foran	Cheniere Cheniere	China / US China / US	0.12 0.04	17.5 20.0	2022 2023	2040
Nov 22, 2021 Dec 6, 2021	Guangdong Energy	Cheniere QatarEnergy	China / US China / Qatar	0.04	10.0	2023	2043
Dec 8, 2021	S&T International	QatarEnergy	China / Qatar	0.13	15.0	2024	2034
Dec 10, 2021	Suntien Green Energy	QatarEnergy	China / Qatar	0.13	15.0	2022	2037
Dec 15, 2021	SPIC Guangdong	BP	China / US	0.03	10.0	2022	2037
Dec 20, 2021	CNOOC Gas & Power	Venture Global LNG	China / US	0.26	20.0	2023	2043
Dec 29, 2021	Foran	BP	China / US	0.01	10.0	2023	2032
Jan 11, 2022	ENN	Novatek	China / Russia	0.08	11.0	2024	2035
lan 11, 2022	Zhejiang Energy	Novatek	China / Russia	0.13	15.0	2024	2039
Feb 4, 2022	CNPC	Gazprom	China / Russia	0.98	30.0	2023	2053
Var 24, 2022	Guangdong Energy	NextDecade	China / US	0.20	20.0	2026	2046
Mar 29, 2022	ENN	Energy Transfer	China / US	0.36	20.0	2026	2046
Apr 1, 2022	Guangzhou Gas	Mexico Pacific Ltd	China / Mexico	0.26	20.0	n.a.	n.a.
Apr 6, 2022	ENN	NextDecade	China / US	0.26	20.0	2026	2026
Apr 22, 2022	Kogas	BP	Korea / US	0.20	18.0	2025	2043
May 2, 2022	Gunvor Singapore Pte	Energy Transfer LNG	Singapore / US	0.26	20.0	2026	2046
May 3, 2022	SK Gas Trading LLC	Energy Transfer LNG	Korea / US	0.05	18.0	2026	2042
May 10, 2022	Exxon Asia Pacific	Venture Global LNG	Singapore / US	0.26	n.a.	n.a.	n.a.
May 11, 2022	Petronas LNG	Venture Global LNG	Malaysia / US	0.13	20.0	n.a.	n.a.
May 24, 2022	Hanwha Energy	TotalEnergies	Korea / France	0.08	15.0	2024	2039
May 25, 2022	POSCO International	Cheniere	Korea / US	0.05	20.0	2026	2036
June 5, 2022	China Gas Holdings	Energy Transfer	China / US	0.09	25.0	2026	2051
Jul 5, 2022	China Gas Holdings	NextDecade	China / US	0.13	20.0	2027	2047
Jul 20, 2022	PetroChina	Cheniere	China / US	0.24	24.0	2026	2050
lul 26, 2022	PTT Global	Cheniere	Thailand / US	0.13	20.0	2026	2046
lul 27, 2022	Exxon Asia Pacific	NextDecade	Singapore / US	0.13	20.0	2026	2046
Sep 2, 2022	Woodside Singapore	Commonwealth	Singapore / US	0.33	20.0	2026	2046
Nov 21, 2022	Sinopec	QatarEnergy	China / Qatar	0.53	27.0	2026	2053
Dec 26, 2022	INPEX	Venture Global LNG	Japan/US	0.13	20.0	n.a.	n.a.
Dec 27, 2022	JERA	Oman LNG	Japan/Oman	0.11	10.0	2025	2035
Jan 19, 2023	ITOCHU	NextDecade	Japan / US	0.13	15.0	n.a.	n.a.
Feb 7, 2023 Feb 23, 2023	Exxon Asia Pacific China Gas Holdings	Mexico Pacific Ltd Venture Global LNG	Singapore / Mexico China / US	0.26 0.26	20.0	n.a. n.a.	n.a. n.a.
Mar 6, 2023	Gunvor Singapore Pte	Chesapeake Energy	Singapore / US	0.26	15.0	n.a. 2027	n.a. 2042
viar 6, 2023 Apr 28, 2023	JERA	Venture Global LNG	Japan/US	0.26	20.0	n.a.	n.a.
Apr 28, 2023 May 16, 2023	KOSPO	Cheniere Global LNG	Korea/US	0.13	19.0	n.a. 2027	n.a. 2046
Jun 1, 2023	Bangladesh Oil	QatarEnergy	Bangladesh/Qatar	0.05	15.0	2027	2040
Jun 21, 2023	Petro Bangle	Oman	Bangledesh/Oman	0.24	10.0	2026	2036
Jun 21, 2023	CNPC	QatarEnergy	China/Quatar	0.53	27.0	2020	2054
Jun 26, 2023	ENN LNG	Cheniere	Singapore / US	0.33	20.0	2027	2046
Jul 5, 2023	Zhejiang Energy	Mexico Pacific Ltd	China / Mexico	0.24	20.0	2020	2040
Aug 8, 2023	LNG Japan	Woodside	Japan / Australia	0.13	10.0	2026	2036
Sep 7, 2023	Petrochina	ADNOC	China / UAE	n.a.	n.a.	n.a.	n.a.
	yers New Long Term C			11.02			
Non-Asian LNG Dea	ıls						
lul 28. 2021	PGNIG	Venture Global LNG	Poland / US	0.26	20.0	2023	2043
Nov 12, 2021	Engle	Cheniere	France / US	0.11	20.0	2021	2041
Mar 7, 2022	Shell	Venture Global LNG	US / US	0.26	20.0	2024	2044
Mar 16, 2022	NFE	Venture Global LNG	US / US	0.13	20.0	2023	2043
Mar 16, 2022	NFE	Venture Global LNG	US / US	0.13	20.0	2023	2043
May 2, 2022	Engie	NextDecade	France / US	0.23	15.0	2026	2041
May 17, 2022	PGNIG	Sempra Infrastructure		0.40	20.0	n.a.	n.a.
May 25, 2022	RWE Supply & Trading	Sempra Infrastructure	Germany / US	0.30	15.0	n.a.	n.a.
lun 9, 2022	Equinor	Cheniere	Norway / US	0.23	15.0	2026	2041
lun 21, 2022	EnBW	Venture Global LNG	Germany / US	0.20	20.0	2026	2046
lun 22, 2022	INEOS Energy	Sempra Infrastructure	UK / US	0.21	20.0	2027	2047
lun 22, 2022	Chevron	Venture Global LNG	US / US	0.26	20.0	n.a.	n.a.
lun 22, 2022	Chevron	Cheniere	US / US	0.26	15.0	2027	2042
lul 12, 2022	Shell	Mexico Pacific Ltd	US / Mexico	0.34	20.0	2026	2046
lul 13, 2022	Vitol	Delfin Midstream	US / US	0.07	15.0	n.a.	n.a.
Aug 9, 2022	Centrica	Delfin Midstream	UK / US	0.13	15.0	2026	2041
Aug 24, 2022	Shell	Energy Transfer	US / US	0.28	20.0	2026	2046
Oct 6, 2022	EnBW	Venture Global LNG	Germany / US	0.26	20.0	2022	2042
Dec 6, 2022	ENGIE	Sempra Infrastructure	France / US	0.12	15.0	n.a.	n.a.
Dec 20, 2022	Galp	NextDecade	Portugal / US	0.13	20.0	n.a.	n.a.
Dec 20, 2022	Shell	Oman LNG	UK/Oman	0.11	10.0	2025	2035
an 25, 2023	PKN ORLEN	Sempra Infrastructure	EU//US	0.13	20.0	2027	2047
an 30, 2023	BOTAS	Oman	Turkey / Oman	0.13	10.0	2025	2035
Mar 27, 2023	Shell	Mexico Pacific Ltd	UK / Mexico	0.15	20.0	2026	2046
Apr 24, 2023	Hartree Partners LP	Delfin Midstream	US / US	0.08	20.0	n.a.	n.a.
lun 21, 2023	Equinor	Cheniere	Norway / US	0.23	15.0	2027	2042
lun 22, 2023	SEFE	Venture Global LNG	EU//US	0.30	20.0	2026	2046
lul 14, 2023	ONEE (Morocco)	Shell	Africa/US	0.05	12.0	2024	2036
lul 18, 2023	IOCL	Adnoc	India/UAE	0.16	14.0	2026	2040
lul 28, 2023	OMV	BP	Austira/UK	0.13	10.0	2026	2036
Aug 4, 2023	ConocoPhillips	Mexico Pacific Ltd	US/Mexico	0.29	20.0	2025	2045
Aug 22, 2023	BASF	Cheniere	Germany / US	0.10	17.0	2026	2043
Aug 30, 2023	Shell	Oman LNG	US / Oman	0.11	10.0	2025	2035
Oct 11, 2023	TotalEnergies	QatarEnergy	France / Qatar	0.46	27.0	2026	2053
	Shell	QatarEnergy	Netherlands / Qatar	0.46	27.0	2026	2053
Oct 18, 2023							
Oct 18, 2023 Oct 23, 2023	ENI IG Buyers New Long Te	QatarEnergy	Italy / Qatar	0.13 7.32	27.0	2026	2053

Source: SAF



Natural Gas: India September natural gas production up +3.3% MoM to 3.73 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 Monday, India's Petroleum Planning and Analysis Cell released their monthly report for September's natural gas and oil statistics [LINK]. India's domestic natural gas production for August was 3.73 bcf/d, which was +3.33% MoM from 3.61 bcf/d in August. On a YoY basis, natural gas production was up +11.01% from 3.36 bcf/d in September 2022. Our Supplemental Documents package includes excerpts from the PPAC monthly.

Natural Gas: India LNG imports up MoM at 2.68 bcf/d in September

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 Monday, India's Petroleum Planning and Analysis Cell released their monthly report for September'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, September's LNG imports were 2.68 bcf/d, which is up MoM from 2.54 bcf/d in August. LNG imports are now up 21.30% YoY from 2.21 bcf/d 2022. Our Supplemental Documents package includes excerpts from the PPAC monthly.

India LNG imports up YoY

Natural Gas: Japan forecast above normal temperatures through November

We continue to stress that it's hard to catch up from a warm start to winter in natural gas regions. And if there is a warm start to winter, it means it has to be cold in Jan/Feb. It looks like the warm weather so far this fall will continue through November. Every Thursday, the Japan Meteorological Agency updates its 30-day outlook [LINK]. The October 26 update calls for a warmer than normal November (especially in the northern prefectures) which means, for Tokyo in November, daily highs in the 16-21C and nighttime lows of around 9-13C. This shouldn't generate much natural gas demand for air conditioning. Rather it's what we call "leave the windows open" weather. Below is the JMA's 30-day temperature probability forecast for Oct 28 – Nov 27.

Japan's 30-day temperature forecast







Source: Japan Meteorological Agency

Natural Gas: Japan LNG stocks up WoW, but still down YoY and above 5-yr average It was hot in Japan through September and we saw Japan was drawing on its LNG stock in Sept for power generation, which took LNG stocks below year ago and the 5-yr average. We have been expecting Japan to build back LNG stocks in Oct for the winter and that was the case this week with another build, which is still below 2022 levels but now above the 5-year average. On Wednesdays, Japan's METI releases its weekly LNG stocks data [LINK]. LNG stocks on Oct 22 were 107.1 bcf, up +3.7% WoW from Oct 15 of 103.7 bcf, down -11.9% YoY from 121.5 bcf a year earlier, but above the 5-year average of 96.5 bcf. METI did not comment on the WoW increase. Below is the Japanese LNG stocks graph from the METI weekly report.

Japan LNG stocks up +3.7% WoW

Figure 12: Japan LNG Stocks



Natural Gas: Natural gas fills the gap left by renewables in Europe

On Friday, we tweeted [LINK] "#NatGas 101. #Solar #Wind are intermittent and #NatGas is always needed to fill any gap. Biggest factor as to how much #NatGas needed is weather. EU winter 22/23 was 2nd hottest on record ie. lower total electricity needed = less #NatGas to fill gap. Thx @Kpler #OOTT." We forwarded a Kpler tweet that included the below chart. Kpler shows the total consumption of solar generation, offshore wind generation, onshore

Natural gas fills renewable gap



wind generation and natural gas generation from Jan 1, 2020. The graph was a good reminder that natural gas isn't going away even with the big ramp up in Europe's solar and wind generation. And even with the big ramp up, solar and wind are intermittent so there is always need for natural gas to fill the gap. The graph shows the natural gas generation has been lower in 2023 but we included the reminder that the biggest factor driving how much residual balancing natural gas is needed is weather. The required natural gas to fill the gap has been low because Europe just came off the 2nd hottest winter on record.

Solar Generation Wind Offshore Generation Wind Onshore Generation Gas Generation

Gas Generation

Gas Generation

Jan 2020

Ja

Figure 13: Renewables and the effect on gas-to-power demand

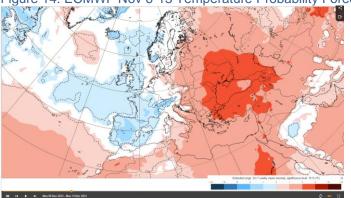
Source: Kpler

Natural Gas: Looking to move from warm now to more normal temps in mid-Nov Our concern for near-term natural gas and LNG prices is that it's been months of above normal temperatures and that there will be a holdback until markets start to see a move to normal temperatures. As seen with winter 2022/23, when it starts warm, it's hard to catch up. For terminology, much of Europe uses Oct 1 as the start of winter natural gas season. We tend to focus more on Nov as to when we might expect to see the start of weather driven natural gas demand. The ECMWF provides daily short- term forecasts. ECMWF is European Centre for Medium Range Forecasts. Right now, its warmer than normal in most of Europe but yesterday's ECMWF's near term forecast calls for a return to more normal temperatures in most of Europe for the mid Nov. For perspective, we looked at AccuWeather daily forecasts for this period. For Berlin, AccuWeather calls for daily highs 9-12C and overnight lows 3-9C. For Paris, AccuWeather calls for daily highs 11-14C and overnight lows 5-10C. So not really big natural gas demand weather.

Europe mid Nov forecast

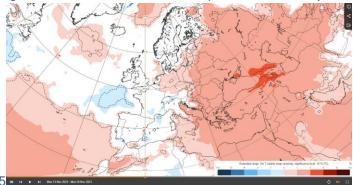


Figure 14: ECMWF Nov 6-13 Temperature Probability Forecast



Source: ECMWF

Figure 15: ECMWF Nov 13-20 Temperature Probability Forecast



Source: ECMWF

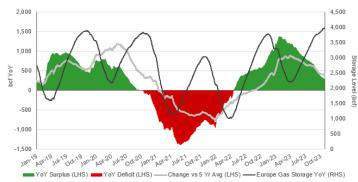
Natural Gas: Europe storage entered winter full at almost 99% full

Please note that Europe generally refers to the start of winter natural gas withdraw season as starting Oct 1, whereas North America refers to the start of winter natural gas season as starting Nov 1. Europe storage stayed above the 98% full level this week so they entered winter at close to full levels. This week, Europe storage increased by +0.60% WoW to 98.76% on Oct 26. Storage is now +4.85% greater than last year's levels of 93.91% and is +8.71% above the 5-year average of 90.05%. 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.

Europe gas storage



Figure 16: European Gas Storage Level



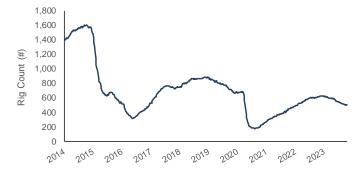
Source: Bloomberg, SAF

Oil: US oil rigs +2 WoW at 504 rigs, US gas rigs -1 WoW to 117 rigs

On Friday, Baker Hughes released its weekly North American drilling rig data. (i) Total US oil rigs were up +2 rigs WoW at 504 total rigs and are down -106 rigs YoY for the week of October 27. This is up +23 rigs from the 2022 low of 481 rigs in January. (ii) On a per basin basis, there were a few changes in the major US basins for the week of October 27. The Permian was up +1 rig WoW to 306 rigs, Ardmore Woodford was down -1 rig WoW at 1 rig, Cana Woodford was down -1 rig WoW at 14 rigs, and Eagle Ford was up +1 rig WoW at 47 rigs. Williston, Granite Wash, Mississippian, and DJ Niobrara were flat WoW at 33, 6, 1 and 14 rigs respectively. Others were up +2 rigs WoW at 82 oil rigs. (iii) The Permian is near its lowest level since March 18, 2022, and is down -51 rigs from its recent high of 357 rigs on April 28, 2023. (iv) Gas rigs were down -1 rig WoW to a total of 117 rigs and have now decreased -39 rigs YoY. On a per basin basis, Haynesville was down -1 rig WoW at 39 rigs. We expect to see modest increases in US rigs for the next three weeks up until US Thanksgiving and then rigs will start their normal seasonal decline. Below is our graph of total US oil rigs.

US oil rigs up WoW

Figure 17: Baker Hughes Total US Oil Rigs



Source: Baker Hughes, SAF

Oil: Total Cdn rigs -2 WoW at 196 total rigs

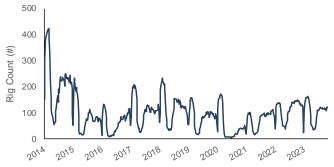
For the week of October 27, total Cdn rigs were -2 rigs WoW at 196 rigs. BC was flat WoW at a total of 19 rigs and Alberta was down -3 rigs to a total 138 rigs. Saskatchewan was up +1

Cdn total rigs down WoW



rig for a total of 34 rigs, Manitoba was flat WoW at 4 rigs and Newfoundland was flat WoW at 1 offshore rig. We still expect to see a normal modest increase up until the week or two before Christmas. Cdn oil rigs were up +1 rig WoW to 122 rigs, Cdn gas rigs decreased -3 rigs to 74 rigs, and Cdn offshore rigs were flat at 1 rig. Cdn oil rigs are down -23 rigs YoY, while gas rigs are up +7 rigs YoY. Below is our graph of total Cdn oil rigs.

Figure 18: Baker Hughes Total Cdn Oil Rigs



Source: Baker Hughes, SAF

Oil: US weekly oil production estimates flat WoW at 13.200 mmb/d

Two weeks ago there was a second big adjustment to the EIA's weekly oil production estimates. The first was in August, when our Aug 13, 2023 Energy Tidbits memo highlighted the EIA increased their weekly US oil production estimates by +0.4 mmb/d. Our Oct 15th Energy Tidbits memo highlighted the EIA's second big, another +0.4 mmb/d, adjustment to the weekly production estimates. Two weeks ago, the EIA wrote "Crude Oil Production Rebenchmarking Notice: When we release the Short Term Energy Outlook (STEO) each month, the weekly estimates of domestic crude production reported in the Petroleum Supply Monthly (PSM) and other current data. If we find a large difference between the two series, we may rebenchmark the weekly production estimate on weeks when we release STEO. This week's domestic crude oil production estimate incorporates a rebenchmarking that increased estimated volumes by 370,000 barrels per day, which is about 2.8% of this week's estimated production total." This week, the EIA's production estimates were flat WoW at 13.200 mmb/d for the week ended October 20 [LINK]. Alaska was up +0.013 mmb/d WoW to 0.430 mmb/d. Below is a table of the EIA's weekly oil production estimates.

US oil production flat WoW

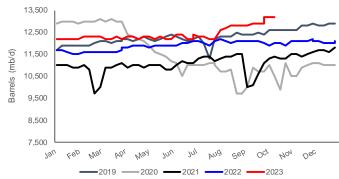


Figure 19: EIA's Estimated Weekly US Field Oil Production

	Weel	k1	Wee	k 2	Weel	k 3	Wee	k 4	Week 5		
Year-Month	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	09/22	12,900	09/29	12,900	
2023-Oct	10/06	13,200	10/13	13,200	10/20	13,200					

Source: EIA

Figure 20: EIA's Estimated Weekly US Oil Production



Source: EIA, SAF

Oil: Matador says Horseshoe drilling technique brings big value add to Permian

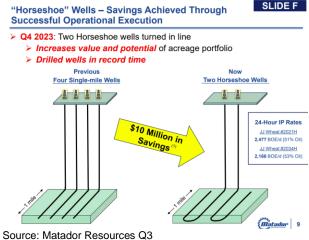
On Wednesday night, Matador Resources reported its Q3 and it included a new slide on their Horseshoe drilling technique being used in the Permian and how it is adding big value to their Permian. Note that Matador calls the drilling technique a Horseshoe but others, including ourselves, have previously referred to it as a "U-Turn". The Horseshoe and U-Turn refer to the wells being drilled horizontally in one direction and then dong a U-Turn and coming back in a reverse horizontal leg. On Thursday, we tweeted [LINK] "\$MDTR Q3: Horseshoe drilling success in Permian brings big value add. Other E&Ps are also Horseshoe/U-Turn drilling. See - SAF Group 04/30/23 Energy Tidbits re prior \$MDTR disclosure & \$PTEN saying they were doing U-Turn/Horseshoe drilling for a "few different E&Ps". #OOTT." Matador included the below slide in their Q3 slide deck and wrote "In October 2023, Matador turned to sales its first two 'horseshoe' wells in our Wolf asset area in Loving County, Texas (see Slide F). We are pleased to announce that these two horseshoe wells have 24-hour initial production test results of 2,477 BOE per day (51% oil) and 2,166 BOE per day (53% oil), respectively, and have high initial flowing casing pressures between 3,650 and 4,100 pounds per square inch. We are encouraged by the early initial production from the horseshoe wells, which is comparable to or better than traditional two-mile lateral wells drilled in the Wolf asset area.

Horseshoe/U-Turn drilling success



We estimate that we achieved approximately \$10 million in cost savings by drilling two horseshoe two-mile lateral wells as compared to four one-mile lateral wells in this section.":

Figure 21: Matador "Horseshoe" wells in Permian



04/26/23: Matador highlighted its Horseshoe drilling success in Permian

Our Thursday tweet included what we wrote about Matador's Horseshoe drilling technique and reminded that Patterson UTI said they were doing this drilling technique for other E&Ps. Here is what we wrote in our April 30, 2023 Energy Tidbits memo. "Matador horseshoe/U-turn drilling in Permian, wonder what basin will be next? We recommend reviewing Matador Resources new horseshoe or U-Turn drilling in the Permian as we have to believe this drilling technique will be tried in many basins. (i) Whenever we see a new drilling technique, we can't help remember how new drilling techniques always get applied to other plays and basins especially when the other produces see the big cost savings. We can't remember when a drilling technique only applied to a single company or play. So this horseshoe or Uturn drilling technique will be at least tried and it seems logical it will apply to other plays. Note in the Q&A, Matador mgmt. said this new drilling technique was being done in South Texas and we assume that it is likely a reference to the Eagle Ford. (ii) Matador drilled what they called a horseshoe well (see below graphic). They drill two wells that have horizontal legs that do a U-Turn to replace 4 horizontal wells. Their graphic says up to 50% time savings, >\$10 mm cost savings, and increases value of the acreage. (iii) Matador held its Q1 call on Wednesday and provided more color on the benefits. The big cost savings is from steel casing savings. Horizontal wells start with a vertical section before turning to go horizontal. Matador saves by not having to drill vertical sections for four wells, only two wells. There are two benefits - saves time in drilling and using less steel casing. In the Q&A, mgmt said "Obviously, we recognize and realize there is a time savings component to this of if you drill four single-mile wells versus two U-turns. We've calculated it's about a 50% reduction. So not only is there a cost savings associated with that, but you're bringing offset wells that you've shot in, you're bringing these wells to production faster. And so there's a time savings component to that, but then also a cost savings. We've documented it's



about \$10 million in estimated savings that we're going to realize. When you think about the amount of steel that's needed to case a four-string well if you're doing four single-mile laterals versus two U-turn horseshoes, we're actually saving about 10 miles of casing basically by reducing two vertical portions of these wells." \$10 million looks to be a big cost savings. Then later in the Q&A, mgmt. gave detail on the casing savings, they replied "And, with that steel price, that's a big thing with those Uturn wells, we've been talking about the horseshoe wells, because eliminating 50,000 feet of casing, drilling those two wells versus four wells, that does a big savings. That alone was \$4 million savings there." (iv) Matador doesn't expect any difference in productivity. Mgmt was asked "Are you guys expecting the productivity of those wells to be in line with kind of a normal two-mile lateral? Are there any changes in productivity per foot as you factor in the U-shape?" Mgmt replied "Hey, Kevin. It's Glenn Stetson. So, we are -- the short answer is that we're expecting the same kind of BO per foot, as you would a two-mile well. We're basing that of off -- there's not a whole lot of U-turn wells that are producing today. There's a few in South Texas, and then there are four in the Permian within a 20-mile kind of radius of where we're drilling these wells. And so, we do feel very confident in and again from the technical aspect to get these wells completed, and we'll wait and see. But for our projections, it's just a similar performance on a per-foot basis."

Figure 22: "Horseshoe" wells in Permian

"Horseshoe" Wells: 2-Mile Value in 1-Mile Section

"Up to 50% time savings(1)

"Increases value of the acreage

"Increases value of the acreage

"Increases value of the acreage

Source: Matador Resources Q1

04/27/30: Patterson-UTI says drilling U-Turn wells for a "few different E&Ps"

Here is another excerpt from our April 30, 2023 Energy Tidbits memo. "There was a good reminder from Patterson-UTI that they are going the U-Turn wells for other E&P companies besides Matador. Patterson-UTI held its Q1 call on Thursday. PTEN said "We have established ourselves as leaders in conventionally drilling U-turn wells, which involves utilizing a high-performance mud motor to drill complex wells shaped like a U, enabling clients to drill 10,000 foot laterals within a single 5,000 foot section. We've even successfully drilled a well in a W shape for a customer recently." In the Q&A, mgmt. was asked "how broad based is this trend?". Mgmt replied "Yeah, for the jobs that I know of that we're doing the hydraulic fracturing on the U-shaped



wells, I'm not aware of any difference on how we operate those versus just a straight lateral. And we've done the U shaped for a few different E&Ps, certainly the public data out there that shows that we work for Matador and really pleased to have them as a customer."

Oil: Halliburton reminds on the challenge of high decline rates in shale

ON Tuesday, Halliburton held its Q3 call. Halliburton is the big player in the US shale fracking/completion business. Halliburton CEO Miller reminded of the number one challenge for US shale – there is a very high first year decline rate and that means US shale players have to do more just to keep production flat. On Tuesday, we tweeted [LINK] "Oil 101 - shale/tight wells have very high 1st year decline rate. "And, also just the decline rates in North America, so the reality is that you have to do more work in order to stay flat." \$HAL CEO Miller on just ended Q3 call. #OOTT #Oil." Our tweet included the transcript we made of Miller's comments ""... as we go into the 1st half of next year, I think that we're going to clearly see North America up from here. Maybe that's the color that wasn't clear when I answered the last question. But in terms of where the commodity price is and also, not as dependent on that, but really what we're seeing in terms of customer's plans. And also just the decline rates in North America, so the reality is that you have to do more work in order to stay flat. So I suspect we will see some of that as well."

10/02/23: Halliburton CEO highlighted difficulty to produce oil and gas in US Earlier in Oct, Halliburton CEO Miller spoke o how difficult it was to produce oil and gas in North America. Here is what we wrote in our Oct 8, 2023 Energy Tidbits memo. "On Monday, Bloomberg interviewed Halliburton CEO Jeff Miller on the sidelines at ADIPEC 2023. We tweeted [LINK] "Is US shale #Oil growth much less than most expect? "realizing how difficult it is to produce oil and gas, particularly as North America, you know wrestles with where their production is going to land" \$HAL CEO to @youseftv. Positive for #Oil. #OOTT." Miller did not specifically say US growth is challenged. Rather he was talking about the reality that it is difficult to product oil and gas and he highlighted in North America. He didn't say US couldn't grow its oil production, but looks to be pointing to a lesser level of growth than most expect. Our tweet included our transcript of Miller's full comment. SAF Group created transcript of comments by Halliburton CEO Jeff Miller with Bloomberg's Yousef Gamal El-Din on the sidelines at ADIPEC 2023 on Oct 2, 2023. Items in "italics" are SAF Group created transcript. Miller "Oil and gas probably is tight, and I think that's growing demand and we see growing demand .expect that continues. As far as overtightening, I think the price of oil is going to be a function of supply and demand. And so I think that what we're seeing, realistically is that it's difficult to produce oil and gas. And I think that we're remembering that or realizing how difficult

Oil: US gasoline prices -\$0.05 this week to \$3.50

the world."

As expected, US gasoline prices were down this week, in great part driven by continuing lower California gasoline prices. Yesterday, AAA reported that US national average prices were down \$0.05 this week to \$3.50 on Oct 28, which is also down \$0.34 MoM and down

it is to produce oil and gas, particularly as North America, you know, wrestles with where their production is going to land. And meanwhile, we see lots of activity around Halliburton on shale decline rates

US gasoline prices

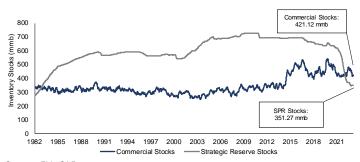


\$0.26 YoY vs year ago of \$3.76. Remember US gasoline prices started to ease below \$4 in August 2022 and were helped in Q4 by the SPR releases.

California gasoline prices down big after Newsom allowed move to winter gas The big reason for the drop in US gasoline prices over the past month weeks was the expected big drop in California gasoline prices following the four weeks ago Gov Newsom move to immediately switch to cheaper winter blend gasoline. AAA reported California average gasoline prices were down \$0.15 WoW to \$5.31 and are now down \$0.3372 MoM from mnth ago of \$5.79.6.03. Here is what we wrote in our Oct 1, 2023 Energy Tidbits memo. "California gasoline prices to drop as Newsom allows move to winter gas. We expect California gasoline prices to be down this week given Gov Newsom, on Thursday night, has moved an immediate switch to cheaper winter blend fuels. The San Diego Tribune reported [LINK] "In an attempt to curb a recent spike in gasoline prices, Gov. Gavin Newsom late Thursday instructed California regulators to speed the delivery of less expensive winter-blended gas to stations across the state. Winter-blended gas is about 20 to 25 cents per gallon cheaper than summer-blended gas and fuel analysts expect the waiver put in place by the California Air Resources Board at Newsom's behest will lead to a dip in prices within a few days. "This waiver will affect wholesale gas prices probably on Friday," said Patrick De Haan, head of petroleum analysis at GasBuddy, a tech company that helps drivers across the country find the cheapest places to buy gas. "But there's only one day left in the trading week. That may seque into another drop on Monday and theoretically retailers could be passing that along in lower prices this weekend, but it's not going to be much at first."

Oil: US SPR reserves now -69.846 mmb lower than commercial crude oil 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 widened this week after a build in commercial oil
stocks of +1.372 mmb. The EIA's weekly oil data for October 20 [LINK] saw the SPR
reserves stay flat WoW at 351.274 mmb, while commercial crude oil reserves increased
+1.372 mmb to 421.120 mmb. There is now a -69.846 mmb difference between SPR
reserves and commercial crude oil reserves. The below graphs highlight the difference
between commercial and SPR stockpiles.

Figure 23: US Oil Inventories: Commercial & SPR

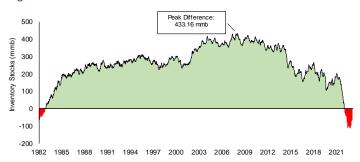


Source: EIA, SAF

US SPR reserves



Figure 24: US Oil Inventories: SPR Less Commercial



Source: EIA, SAF

Oil: Crack spreads decreased \$1.34 WoW to \$20.47

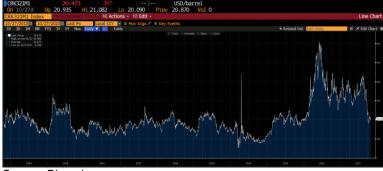
This week, crude oil into refineries were down 0.207 mmb/d WoW, which followed last week's +0.193 mmb/d WoW, and the prior weeks were down 0.399 mmb/d WoW, down 0.463 mmb/d WoW, down 0.239 mmb/d WoW and down 0.496 mmb/d WoW. We remind that oil demand is driven by refiners and their ability to make money 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, crack spreads were down \$1.34 WoW to \$20.47 on Oct 27, which followed \$21.81 at Oct 20, \$20.73 on Oct 13, \$19.28 on Oct 6, \$22.35 on Sept 29, \$26.07 on Sept 22, and \$32.48 on Sept 15. Crack spreads at \$20.47 are at the high end of the more normal pre-Covid that was more like \$15-\$20.

Crack spreads up this week

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 \$20.47 as of the Friday Oct 27, 2023 close.

Figure 25: Cushing Crude Oil 321 Crack Spread Oct 27, 2013 to Oct 27, 2023



Source: Bloomberg

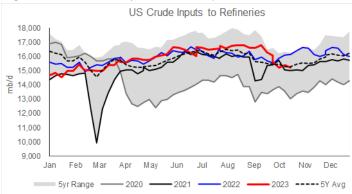


Oil: Refinery inputs down -0.207 mmb/d WoW to 15.189 mmb/d

The EIA's crude oil inputs into refineries for the week ended October 20 [LINK] were impacted by an unplanned shutdown of Pemex's large 270,000 b/d crude distillation unit at its Deer Park refinery (Texas) on Oct 16. There are always unplanned issues that impact crude oil inputs into refineries, but refineries around the world follow seasonal patterns for their maintenance. There was the normal summer ramp up that lasted a little longer than normal given the big crack spreads. We saw the decline in crude oil inputs for the fall turnarounds, but it looks like US refineries are mostly coming out of turnarounds so we should start to see a steady increase in crude inputs. On Wednesday, the EIA released its estimated crude oil input to refinery data for the week ended October 20 [LINK]. The EIA reported crude inputs to refineries were down -0.207 mmb/d this week to 15.189 mmb/d and are down -0.247 mmb/d YoY. Refinery utilization was down -0.5% WoW to 85.6%, which is -3.3% YoY. We likely hit the seasonal peak in refining last month.

Refinery inputs -0.207 mmb/d WoW

Figure 26: US Refinery Crude Oil Inputs



Source: EIA, SAF

Oil: US net oil imports +0.539 mmb/d WoW as oil exports down -0.468 mmb/d WoW The EIA reported US "NET" imports were up +0.539 mmb/d to 1.180 mmb/d for the October 20 week. US imports were up +0.071 mmb/d to 6.013 mmb/d, which is around the bottom for the last few months. But the big increase in "net" US oil imports was driven by US exports being down -0.468 mmb/d WoW to 4.833 mmb/d. (i) Venezuela weekly imports. We know why the EIA doesn't have any data in the row for Venezuela weekly oil imports but we still don't know if the weekly oil imports are off or if Venezuela is included in the weekly oil imports in the Others number. But we do know that Chevron continues to import >100,000 b/d from Venezuela into the Gulf Coast. 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. ii) The WoW increase in US imports was driven mostly by "Top 10". Top 10 was up +0.278 mmb/d. Some items to note on the country data: (i) Canada was down -0.336 mmb/d to 3.387 mmb/d. (ii) Saudi Arabia was up +0.228 mmb/d to 0.436 mmb/d. (iii) Mexico was up +0.005 mmb/d to 0.614 mmb/d. (iv) Colombia was down -0.004 mmb/d to 0.146 mmb/d. (v) Iraq was up +0.055 mmb/d to 0.182 mmb/d. (vi) Ecuador was up +0.092 mmb/d to 0.092 mmb/d. (vii) Nigeria was up +0.041 mmb/d to 0.089 mmb/d.

US net oil imports



Figure 27: US Weekly Preliminary Imports by Major Country

(thousand b/d)	Aug 4/23	Aug 11/23	Aug 18/23	Aug 25/23	Sep 1/23	Sep 8/23	Sep 15/23	Sep 22/23	Sep 29/23	Oct 6/23	Oct 13/23	Oct 20/23	WoW
Canada	3,466	3,505	3,832	3,405	3,679	3,645	3,287	3,880	3,291	3,544	3,723	3,387	-336
Saudi Arabia	330	285	221	462	567	383	383	383	291	67	208	436	228
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	667	901	780	437	699	1,095	603	844	524	656	609	614	5
Colombia	296	75	290	295	300	211	287	286	143	289	150	146	-4
Iraq	305	304	283	232	100	248	233	280	306	247	127	182	55
Ecuador	142	363	192	328	99	0	134	167	125	0	0	92	92
Nigeria	237	307	89	144	220	219	0	3	0	46	48	89	41
Brazil	280	130	198	245	68	545	209	240	209	362	63	221	158
Libya	87	83	85	0	90	0	0	0	89	88	47	86	39
Top 10	5,810	5,953	5,970	5,548	5,822	6,346	5,136	6,083	4,978	5,299	4,975	5,253	278
Others	872	1,205	963	1,069	948	1,236	1,381	1,146	1,237	1,030	967	760	-207
Total US	6,682	7,158	6,933	6,617	6,770	7,582	6,517	7,229	6,215	6,329	5,942	6,013	71

Source: EIA, SAF

Oil: Mexico oil production including partner volumes just below 1.6 mmb/d

On Friday, Pemex posted its September 2023 oil production data. [LINK] Pemex does not provide any commentary on the data, but reported September oil production, including partners, was 1.593 mmb/d, which was -5.5% YoY and -0.6% MoM. The big picture story remains the same - Mexico (Pemex) oil production is stuck around 1.6 mmb/d for the last three years. Pemex has been unable to grow Mexico oil production, which means that any increase in Pemex Mexico refineries crude oil input will result in less Mexico oil for export including to the US Gulf Coast. And it also means that if Mexico has refinery issues in a month, there will be more Mexico oil for export in a month. Below is our table tracking Pemex oil production.

Pemex September oil production

Figure 28: Pemex (Incl Partners) Mexico Oil Production

Oil Production (thousand b/d	2016	2017	2018	2019	2020	2021	2022	2023	23/22
Jan	2,259	2,020	1,909	1,623	1,724	1,651	1,705	1,584	-7.1%
Feb	2,214	2,016	1,876	1,701	1,729	1,669	1,684	1,582	-6.1%
Mar	2,217	2,018	1,846	1,691	1,745	1,697	1,696	1,597	-5.8%
Apr	2,177	2,012	1,868	1,675	1,703	1,693	1,686	1,608	-4.6%
May	2,174	2,020	1,850	1,663	1,633	1,688	1,690	1,611	-4.7%
June	2,178	2,008	1,828	1,671	1,605	1,698	1,702	1,609	-5.5%
July	2,157	1,986	1,823	1,671	1,595	1,701	1,707	1,573	-7.9%
Aug	2,144	1,930	1,798	1,683	1,632	1,657	1,691	1,602	-5.3%
Sept	2,113	1,730	1,808	1,705	1,643	1,709	1,685	1,593	-5.5%
Oct	2,103	1,902	1,747	1,655	1,627	1,692	1,698		
Nov	2,072	1,867	1,697	1,696	1,633	1,691	1,706		
Dec	2,035	1,873	1,710	1,706	1,650	1,694	1,576		

Source: Pemex, SAF

Oil: Mexico exports 1.119 mmb/d of oil in September, +4.0% MoM

On Friday, Pemex posted its oil exports for September. [LINK] Pemex does not provide any commentary on the data but reported September oil exports were 1.119 mmb/d, which was +9.5% YoY and +4.0% MoM vs 1.076 mmb/d in August. Pemex oil exports were up 0.043 mmb/d MoM overall but its exports to the US was relatively unchanged in September at 0.771 mmb/d vs 0.772 mmb/d in August. The US tends to be a higher margin market so Pemex typically prioritizes oil exports to the US. Please note that Mexico oil exports are expected to decline over the coming months with the start up of their new 340,000 b/d Olmeca (formerly known as Dos Bocas) refinery. Below is our table of the Pemex oil export data.

Pemex September oil exports



Figure 29: Pemex Mexico Oil Exports

Oil Exports (thousand b/d)	2016	2017	2018	2019	2020	2021	2022	2023	23/22
Jan	1,119	1,085	1,107	1,071	1,260	979	832	980	17.8%
Feb	1,241	1,217	1,451	1,475	1,093	1,006	925	949	2.6%
Mar	1,062	1,001	1,176	1,150	1,144	925	905	971	7.3%
Apr	1,081	1,017	1,266	1,023	1,179	923	1,024	989	-3.4%
May	1,204	958	1,222	1,205	1,062	1,031	965	1,087	12.6%
June	1,098	1,157	1,110	995	1,114	1,106	1,029	1,203	16.9%
July	1,146	1,255	1,156	1,079	1,051	1,173	1,062	1,052	-0.9%
Aug	1,261	1,114	1,181	1,082	1,190	1,099	915	1,076	17.6%
Sept	1,425	1,159	1,206	995	1,023	983	1,022	1,119	9.5%
Oct	1,312	1,342	1,027	963	908	935	971		
Nov	1,273	1,388	1,135	1,114	1,171	1,025	893		
Dec	1,115	1,401	1,198	1,115	1,243	1,037	900		

Source: Pemex, SAF

Oil: Norway September oil production of 1.644 mmb/d, down -8.2% MoM

On Monday, the Norwegian Petroleum Directorate released its September production figures [LINK]. It reported oil production of 1.644 mmb/d, down -8.2% MoM from 1.790 mmb/d in August and +0.2% YoY from 1.640 mmb/d in September 2022. September's production actuals came in -4.8% (0.082 mmb/d) over the forecast volumes of 1.726 mmb/d. The NPD does not provide any explanations for the changes but we expect it was likely due to some platform maintenance.

Norway September oil production

Figure 30: Norway September 2023 Production

		Oil mill bisidey	Sum liquid mit tol/day	Gas MSm ² /day	Total MSm² calday 0.486	
Production	September 2023	1,644	1.802	199.8		
Forecast for	September 2023	1,726	1.929	319.1	0.626	
Deviation from forecast		-0.082	-0.127	-119.4	-0.140	
Deviation from forecaset in %	19	48%	-6.6 %	-37.4%	-22.4%	
Production	August 2023	1,790	2.013	312.2	0.632	
Deviation from	August 2023	-0.146	-0.211	-112.5	-0.146	
Deviation in % from	August 2023	-8.2%	-10.5 %	-36 %	-23.1%	
Production	September 2022	1.640	1.835	303.3	0.595	
Deviation from	September 2022	0.004	-0.033	-103.6	-0.101	
Deviation in % from	September 2022	0.2 %	-1.8%	-342%	-183 %	

Source: Norwegian Petroleum Directorate

Oil: Russia oil shipments now +220,000 vs commit to cut shipments by 300,000 b/d It was the second consecutive week for Russian crude oil shipments to be higher than its commitment for a voluntary cut to its shipments by 300,000 b/d thru year end. The Bloomberg crude oil shipments tracking shows Russia has met its commitments on 50% of the time over the last 12 weeks. Note there should be some reduction of exports in the coming weeks with Russia oil refineries coming off maintenance. On Wednesday, we tweeted [LINK] "Time for another Saudi reminder to Russia to get back in line. @JLeeEnergy 's weekly Russia seaborne crude oil shipments for week ended Oct 22. Highest since June, +610,000 b/d past 2 months, 4-week average +220,000 b/d vs its commitment to reduce exports by 300,000 b/d. #OOTT." Bloomberg reported on Russia crude oil shipments for the week ended Oct 22. Bloomberg reported "Russia's oil flows are climbing steadily as Moscow's adherence to a pact with Saudi Arabia to keep barrels off the global market shows

Russia oil shipments above commitment



signs of waning. About 3.53 million barrels a day of crude was shipped from Russian ports in the week to Oct. 22, an increase of 20,000 barrels a day from the previous seven days, tanker-tracking data monitored by Bloomberg show. That lifted the less volatile four-week average to 3.5 million barrels a day, the highest since June, and up by about 610,000 barrels a day in the past two months. The small weekly gain reflected increases in flows from the Baltic and Pacific, which more than offset a drop in shipments from the Black Sea. Deputy Prime Minister Alexander Novak said in early August that Moscow would prolong export restrictions at a reduced level of 300,000 barrels a day below their May-June average until the end of the year. Bloomberg calculations indicate that shipments through ports should be running now at about 3.28 million barrels a day. Four-week average volumes have been rising relative to the reduced shipments target since the start of September, exceeding it by about 220,000 barrels a day in the most recent period." Our Supplemental Documents package includes the Bloomberg report.

Seaborne Crude
Russia's seaborne crude shipments

Seaborne crude exports / Four-week average

5 million barrels a day

4

Jan 2 Feb 27 Apr 24 Jun 19 Aug 14 Oct 9 Dec 4 Jan 29 Mar 26 May 28 Jul 23 Oct 22

Week ending

Source: Vessel tracking data monitored by Bloomberg

Bloomberg

Figure 31: Russia's seaborne crude shipments thru Oct 22 week

Source: Bloomberg



Figure 32: Exports Against Targets Last 12 Weeks thru Oct 22 week

Source: Bloomberg

Oil: Russia oil refineries coming off maintenance, should reduce exports

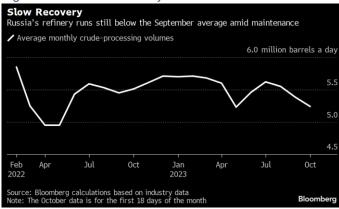
Assuming Russia doesn't increase oil production, there should be some natural reduction of its oil shipments to export markets as Russian oil refineries are coming off fall maintenance. On Monday, we tweeted [LINK] "Less #Oil processed thru Russian refineries = more Russian

Russia oil refineries coming off maintenance



oil for export. See @ja_herron Russian refinery runs graph, Oct 1-18 was 133,000 b/d below Sept. He also reports @Kpler Viktor Katona: mid-Nov should see ~200,000 b/d capacity coming back after maintenance. #OOTT." Our tweet reminds that's when Russia refinery maintenance periods free up more crude for oil export and that has been a factor in October. On Monday, Bloomberg posted the below graph and wrote "Russia's oil-processing in the period Oct. 1-18 was 133,000 barrels a day below the average for September, Bloomberg calculations show. "Mid-November will be the watershed moment for Russia's refining as refiners aim to ramp up production into the winter months," with some 200,000 barrels a day of capacity set to return on completion of planned maintenance, Katona said." Our Supplemental Documents package includes the Bloomberg report.

Figure 33: Russia's refinery runs



Source: Bloomberg

Oil: Markets still aren't pricing in Israel/Hamas war expanding to a regional war We don't have the capabilities to provide any blow-by-blow update on the Israel/Hamas war. But, like others, have had our TVs on at least 16 hours a day mostly flipping among CNN, MSNBC, BBC and Al Jazeera for their 24/7 coverage. But we do try to focus on items that may be of particular impact on oil and gas markets. We have to wonder if last night's Netanyahu announcement that Israel has entered the "second stage" where they will "fight on land, sea and in the air" and Iran's President's tweet last night [LINK] that "Zionist regime's crimes have crossed the red lines, which may force everyone to take action. Washington asks us to not do anything, but they keep giving widespread support to Israel. The US sent messages to the Axis of Resistance but received a clear response on the battlefield" will see an increasing risk to the war expanding. However so far, it really hasn't as despite the Israel expanded attacks on Hamas, some escalation of rocket exchange in the north, rockets hitting Egypt, multiple rock attacks on US forces in Iraq and Syria, US attacks at targets in Syria, Iran's continued warning to the US, and the US navy and Saudi Arabia intercepting Houthi cruise missiles and drones that Israel and the US say were potentially targeting Israel, markets aren't pricing in the Israel/Hamas war expanding to a regional war and markets aren't pricing in interruption risk to tanker traffic thru the Bab El Mandeb or Strait of Hormuz.

Markets not

escalation

pricing in regional

Oil: More questions on the Houthi cruise missiles & drones shot down by US/KSA We may be the only ones but we do wonder if the Houthi cruise missiles and drones shot down by the US and Saudi Arabia were, as being said by US and Israel, potential targeting

Houthi missiles & drones



Israel. We had this question in last week's (Oct 22, 2023) Energy Tidbits memo and still have it especially in light of we saw a bit of a peeling the onion with more disclosures than first given in the Pentagon briefing. (i) Original briefing. Last week's (Oct 22, 2023) Energy Tidbits memo highlighted the Thursday breaking news that that the US intercepted multiple cruise missiles and drones launched from Yemen going north in the Red Sea. We tweeted [LINK] Breaking! Add to #Oil geopolitical risk premium. @wolfblitzer reports US navy warship shot: down missiles & drones launched from Yemen and potentially headed to Israel. #OOTT." And then 40 minutes later [LINK] "Houthi missiles POTENTIALLY at Israel, where if not there? @ErinBurnett missile path up Red Sea. Really hope Houthis haven't decided to reopen KSA attacks after months of relative calm. But huge Red Sea path target would be Aramco oil export terminal, refineries at Yanbu. #OOTT." The media reports quoted Pentagon's Brigadier General Patrick Ryder ""We cannot say for certain what these missiles and drones were targeting, but they were launched from Yemen, heading north along the Red Sea, potentially towards targets in Israel." (ii) Defense secretary Austin 10/22/23 update. Austin was on the ABC Sunday cable news and gave a different version that we thought was significant. Last Sunday night, we tweeted [LINK] "Were Houthi missiles/drones "heading towards one of our DDGs, one of our destroyers" as SecDef Austin said? or "heading north along the Red Sea potentially towards target in Israel" as Pentagon said? If it's Austin, would seem to add risk to Red Sea #Oil tanker transit. #OOTT." Austin didn't say the Houthis missile and drones were heading along the Red Sea to Israel, rather they were heading towards one of the US destroyers. He certainly seemed to suggest the Houthis were target the US navy and that, to us, was a significant disclosure. Because if so, then the US would have likely don't more than just shoot down missiles targeting them. (iii) WSJ says way more missiles and drones, and one shot down by Saudi over the air space. On Friday, we tweeted [LINK] "Peeling the onion? WSJ: Houthis launched 5 cruise & ~30 drones (vs 3 & several drones per Pentagon). US shot down 4 cruise. "5th cruise missile was intercepted by KSA as it protected its airspace." airspace over land or hugging coast? Was it on different flight path? Houthis can add big risk to tanker/cargo via connected Bab el Mandeb/Red Sea/Suez Canal. #OOTT [LINK]. The WSJ sources said way more cruise missiles and drones. But then one new tidbit that the Saudis shot down one cruise missile over the air space. We reached out to the WSJ reporters to see if they had any color on where over Saudi Arabia was it shot down but they didn't respond. So it isn't clear if the cruise missile was shot down in Saudi air space over land or hugging the coast. And we don't know why one cruise missile appears to be on a separate path somewhat to the east than the other four cruise missiles. The other other thing we don't understand is how the US and Israel know low flying cruise missiles and drones are potentially targeting Israel and not a closer target. Don't' forget Austin said they were going towards the destroyer. The Saudi air space comment is definitely worth knowing more. Our Supplemental Documents package includes the Pentagon original briefing, the transcript of Secretary Austin's comments on ABC, and the WSJ report.

Oil: Surprised markets not focused on tanker/cargo travel thru Red Sea/Bab el Mandeb As a reminder, every tanker or cargo ship that goes thru the Suez Canada has to go thru the Red Sea and Bab el Mandeb strait to get to the oceans. We are surprised that tanker and cargo ship risk thru the Red Sea and Bab el Mandeb Strait haven't been a market focus following the US navy shooting down 4 cruise missiles and around 30 drones in the Red Sea. It should be a big focus if Secretary Austin is saying the missiles/drones were going at the US destroyer but even if they were just shot down in the Red Sea potentially going north to Israel. This is happening in the Red Sea, which is major tanker travel lane as well as for

Houthi missiles & drones in Red Sea



cargo ships as basically everything that goes the Suez Canal has to go thru the Red Sea and Bab el Mandeb.

Houthis have attacked Saudi supertankers in the Red Sea

Long term readers know that we have followed the Saudi/Houthis war pretty closely for the last several years because of the potential risk to oil markets. Here is an item from our Aug 1, 2021 Energy Tidbits memo. "Saudi traffic halted in Red Sea for 8 days in 2018 after tankers attacked. The significance this week is that Saudi noted it was a drone attack that was thwarted. Over the past few years, the Houthi attacks on ships in the Red Sea have reportedly been carried out by mines or small boats laden with explosives. However, three years ago, we posted our SAF Group July 25, 2018 blog "Major Global Oil Supply Chain Hit, Saudi Arabia Stops Oil Shipments Thru Red Sea Following Houthi Attack On A SuperTanker" that said "There is big news in oil markets tonight with Saudi Arabia announcing at 5:20pm EDT that it was temporarily halting all oil tanker shipments thru the Red Sea. This was in response to the Houthis attack on two Very Large Crude Carriers (VLCCs) that each has capacity of 2 million barrels of oil. Saudi Arabia said one of the ships sustained "minimal damage", but did not disclose the nature of the attack ie. mine, boat, missile, rocket or drone." The Saudis never did disclose the attack method, however our July 29, 2018 Energy Tidbits noted "The think tank Washington Institute said "The Arsan was struck at the stern above the waterline, with imagery analysis showing an impact hole two to three meters wide and minor scorching damage on the outer hull. The most likely cause was a large unguided rocket fired from a fastattack craft following behind the tanker. Less likely, it could have been a seaskimming antiship missile such as Yemen's C-801 or Iranian-origin C-802, or perhaps a large, explosive-laden aerial drone. The warhead may have detonated inside the vessel's large aft ballast tank, with some signs of smoke damage around a door on the deck above." At that time, we also reported on the unconfirmed speculation that the Houthis may have hit a Saudi frigate and not a tanker, which s also why we wonder about what type of commercial vessel was attacked. Saudi resumed tanker traffic 8 days later."

Over 6 mmb/d of oil & products is tankered thru the Bab el-Mandeb

Here is another item from our Aug 1, 2021 Energy Tidbits memo. "The Bab el-Mandeb is one of the world's most significant chokepoints for moving oil and petroleum products. The EIA Aug 27, 2019 brief "The Bab el-Mandeb Strait is a strategic route for oil and natural gas shipments" reminds "The Bab el-Mandeb Strait is a sea route chokepoint between the Horn of Africa and the Middle East, connecting the Red Sea to the Gulf of Aden and Arabian Sea. Most exports of petroleum and natural gas from the Persian Gulf that transit the Suez Canal or the SUMED Pipeline pass through both the Bab el-Mandeb and the Strait of Hormuz." And the EIA estimates "In 2018, an estimated 6.2 million barrels per day (b/d) of crude oil, condensate, and refined petroleum products flowed through the Bab el-Mandeb Strait toward Europe, the United States, and Asia, an increase from 5.1 million b/d in 2014. Total petroleum flows through the Bab el-Mandeb Strait accounted for about 9% of total seaborne-traded petroleum (crude oil and refined petroleum products) in 2017. About 3.6 million b/d moved north toward Europe; another 2.6 million b/d flowed in



the opposite direction mainly to Asian markets such as Singapore, China, and India". Our Supplemental Documents package includes the EIA brief [LINK].

Figure 34: Bab el-Mandeb Strait, a world oil chokepoint



Source: EIA

Oil: Iran still warning, but not yet getting drawn directly into the Israel/Hamas war

Iran continues to warn of the risk with escalation of Israel's attacks on Hamas but, as of our 10pm MT news cut off last night, still have not see any reports that expecting Iran's warnings into Iran joining the warm. However, Iran's potential involvement is still the major risk for Israel and its allies. We still don't think markets are reflecting any probability for Iran to directly enter the war otherwise there would be a big risk premium in oil prices. We agree that no one knows what would play out and for how long. And who would be involved if somehow Iran gets directly involved. But the potential risk to oil supply is huge if oil, petroleum products and LNG shipments get interrupted/stopped in the Strait of Hormuz, or if there are missile/attacks on Iran and other Persian Gulf oil wells, production facilities or export terminals. This would be brutal. The risk is there that Iran gets drawn in or decides it is obligated to join in.

The Strait of Hormuz is the most important oil/LNG chokepoint

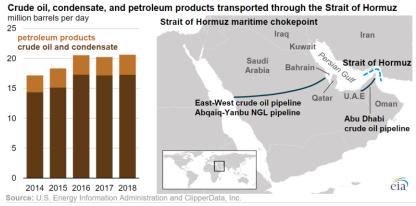
On Oct 15, we tweeted [LINK] "Reminder any military conflict that interrupts tankers via Strait of Hormuz will have a huge impact. It is the most important tanker transit chokepoint for #Oil #PetroleumProducts #LNG tankers. See 👇 @EIAgov Strait of Hormuz, it's 4-yrs old but still makes the point. #OOTT." The Strait of Hormuz is the most important chokepoint for global oil and LNG shipping. This EIA blog is four years old, but still provides an excellent recap of the significance of the Strait of Hormuz. We recommend adding the June 20, 2019 EIA brief "The Strait of Hormuz is the world's most important oil transit chokepoint" to reference libraries. The brief reminds that 17.3 mmb/d of crude oil and condensate flows thru the Strait of Hormuz, but also highlights there is 3.3 mmb/d of petroleum products and over 11 bcf/d of LNG flows thru the Strait. The significance is that the EIA the liquids flows are "equivalent of about 21% of global petroleum liquids consumption". This is of total global consumption, not of global oil import/export volumes. The brief also notes "There are limited options to bypass the Strait of Hormuz. Only Saudi Arabia and the United Arab Emirates have pipelines that can ship crude oil outside the Persian Gulf and have the additional pipeline capacity to circumvent the Strait of Hormuz. At the end of 2018, the total available crude oil pipeline capacity from the two countries

Will Iran be drawn in?



combined was estimated at 6.5 million b/d. In that year, 2.7 million b/d of crude oil moved through the pipelines, leaving about 3.8 million b/d of unused capacity that could have bypassed the strait. Our Supplemental Documents package includes the EIA brief.

Figure 35: Crude oil, Condensate & Petroleum Products Flows Thru Strait of Hormuz



Source: EIA

Oil: Still no visibility to when restart Kurdistan/Iraq oil via Turkey

No one should be surprised that with the Israel/Hamas war taking all the attention of countries in the region that there are no indications of any move to resolve the Turkey, Iraq, Kurdistan disputes that have shut in Kurdistan oil. WE checked Kurdistan and Iraqi news over the week and again last night and there are no reports of any discussions to resolve any issues. Our view is unchanged from before Israel/Hamas war that it seems like this could last for longer than expected. And that there are two deals, not one deal to be made. We have highlighted for weeks that Turkey has an ask on what they want, and we have seen no indication that Iraq and Turkey have reached a deal. And then there is still a Iraq/Kurdistan deal that still is unresolved. It seems like it's in Baghdad's hands and our concern remains that the OPEC+ quotas are to run thru Dec 2024 so Iraq can't crank up production. Iraq's oil exports are flat and it's Kurdistan oil that is being shut-in so, under the continued OPEC+ quota, Baghdad isn't being disadvantaged.

Kurdistan oil via Turkey

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

As of our 4am MT news cut off, the latest NOC production update was posted on the Libya National Oil Corporation Tiwtter [LINK] and Facebook. Tuesday. The Google Translate was "Crude oil production reached 1,215,000 barrels per day, and condensate production reached 54,000 barrels per day during the past 24 hours." This is unchanged from the ~1.2 mmb/d levels over the past several months.

Libya oil stable at 1.2 mmb/d

Israel oil is almost all from Organization of Islamic Cooperation members Israel isn't a market for Libya crude. But last week's memo highlighted Iran's call for all Islamic countries to stop exporting oil to Israel. Here is what we wrote in last week's (Oct 22, 2023) Energy Tidbits memo. "On Wednesday, we tweeted [LINK] "Geopolitical risk for oil. See @@icgnana tweet, ex Brazil, all other Israel #Oil



sources are @OIC_OCI members. OIC 11:45am MT, still blames Israel "strongly condemned the horrific massacre perpetrated by the Israeli occupation by bombing the Baptist Al-Ahli Hospital" #OOTT" Our concern was that, despite what the US was saying, the OIC was still blaming Israel for the hospital bombing. Our tweet included the below Platts graph that noted Israel's oil imports by country and we noted that all, but Brazil, were members of the OIC. Our tweet also included the OCI's member country listing. Our Supplemental Documents package includes the OCI member country listing.

Israel's recent crude imports by source

(000 b/d)

Others/Unkown

Egypt

Brazil

Nigeria

Gabon

Azerbaijan - Azeri Light

Iraq - Kurdish Blend

Kazakh - CPC Blend

Source: S&P Global Commodities at Sea

Figure 36: Israel's recent crude oil imports by source

Source: Platts

The Arab Oil Embargo Oct 19, 1973 was THE defining oil event

Libya's eastern parliament call to stop supplying oil to supporters of Israel is what happened in 1973 that led to the Arab Oil Embargo of 1973/74. Here is what we put in our Oct 15, 2023 Energy Tidbits memo. "Before the Hamas terrorist attack in Israel, our Oct 1, 2023 Energy Tidbits memo highlighted the anniversary of the Yom Kippur War, which was the catalyst for THE defining oil event in history – the Arab Oil Embargo 1973-74. We have highlighted the Arab Oil Embargo since we first started our Energy Tidbits memos 25 yeas ago. It was the most significant game changer to oil market. Here is what we have included in prior Energy Tidbits going back over the years/decades. "We normally include a reminder of the 1973-1974 Arab Oil Embargo because it was "THE" game changer to oil markets. Most weren't born or too young or not in the US to remember the 1973/1974 Arab oil embargo that hammered the US economy and moved oil prices from ~\$3 to ~\$12. It forced the US and other western countries to have their first real look at oil security. There is no question that having an immediate cut off of oil forced change. Change always happens when something is cut off rather than just becomes more expensive. It was "THE" game changer to the oil and gas industry that led to lasting trends such as the 1976 election of Jimmy Carter (who introduced the first tax credits to kickstart the US shale gas/oil revolution), the creation of Strategic Petroleum Reserves, the International Energy Agency, the push to find oil outside the Middle East in regions, the US govt push to begin to import LNG, etc . It was also a game changer for consumers and led to the move to fuel efficient cars like the Honda Civic (don't forget made in Japan wasn't a good brand in the 60's). The big reason for this was that the Arab Oil Embargo led to an immediate rationing of gasoline in many parts of the US - it was immediate. And to the famous multi block long lineups to buy gasoline. I was in college in St. Louis (Missouri) at the time and the pictures, like the one below, were



reality of line ups for gasoline. In. St. Louis, it immediately had restrictions on how many gallons of gasoline on day 1, and by day 2 they had switched to only allowed restricted volumes of gasoline to be purchased on odd days if your license plate ended in odd number and vice versa for even days. Don't forget there was no self-service gas stations so you couldn't fill up in violation of the restrictions. In areas like St. Louis that had poor access to gasoline, it was common to line up for an hour for gasoline with your car in neutral and turned off, and taking turns with your friends to push your car to the gas station. The end of the oil embargo was on March 17, 1974."

Figure 37: Gas Station Line Up During Arab Oil Embargo 1973-74



Source: Time

Oil: Libya's eastern parliament calls for cut oil to Israel supporters

The internationally recognized government and the government n charge of Libya's National Oil Corporation is in Tripoli, not in eastern Libya. And we have check Tripoli-based Libya Observer news multiple times each week and we have not seen any indication that the Tripoli-based internationally recognized government is considering the eastern parliament's demand that Libya oil exports be halted to any countries that support Israel. They didn't mention any specific countries, but Bloomberg reported that the eastern parliament was indirectly referring to the US, the UK, France and Italy.

Oil: Foreign funds continue to be net sellers of China stocks

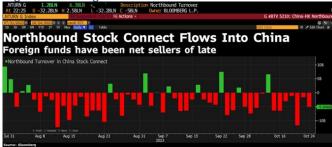
China continues to be in the "show me" position for foreign investors, who, to the most part, seems to be content to wait on the sidelines until there is some evidence that the bottom is behind them. On Tuesday night, one of the Bloomberg TV Asian open shows put up the below graph. We have referenced this graph in prior memos as it shows if being net buyers or net sellers of Chinese stocks. On Tuesday, we tweeted [LINK] "Still net selling of Chinese stocks by foreigners. @business earlier tonight "Northbound Stock Connect Flows Into China. Foreign funds have been net sellers of late". #OOTT."

Libya's eastern parliament

Foreign funds sell China stocks



Figure 38: Foeign funds have been net sellers of late in China stocks



Source: Bloomberg

Oil: China scheduled domestic flights back down to pre-summer levels

On Monday, we tweeted [LINK] "Negative. China scheduled domestic flights back to presummer holiday levels. Domestic flights -6.9% WoW to 92,638 flights, back to Jun 13-19 level of 92,568. Thx @BloombergNEF Claudio Lubis. #OOTT." (i) On Monday morning, BloombergNEF posted its Aviation Indicators Weekly Oct 23. (ii) Negative. We think the takeaway is negative from China's scheduled domestic flights. The message from the "actuals" for China domestic scheduled flights is that the # of flights is back to pre-summer holiday levels, and we would have expected to see higher than that given China's economy has been looking more like it was bottoming whereas it was very uncertain in mid-June plus China's international flights are up since mid-June which would increase the need for more domestic flights. China scheduled domestic flights for the Oct 17-23 week were -6.9% WoW to 92,638 flights, which puts domestic scheduled flights back to pre-Summer holiday levels of 92,568 flights for the June 13-19 week. The lookahead to the next four weeks of scheduled domestic flights looks strong but it has been revised down by 23.3% vs last week's lookahead next four weeks. The lookahead next four weeks is interesting but given that the Oct 17-23 week is right back to pre-summer holiday levels, most will ignore the lookahead until the actuals start to show this big growth. (iii) China scheduled domestic flights were -6.9% WoW to 92,638 flights for the Oct 17-23 week, which followed 99,490 flights for the Oct 10-16 week, 101,120 flights for the Oct 3-9 week, 97,009 flights for Sept 26-Oct 2 week and start of Golden Week travel, 95,742 flgiths for the Sept 19-25 week. The decrease was more than we would have expected. Last week was down small after the end of the big 12-day holiday from the combined Mi-Autumn festival and Golden Week. And some decrease this week would not have surprised. However, the big WoW decline puts domestic scheduled flights right back to pre-summer mid-June levels of 92,568 for the June 13-19 week. Whereas we would have expected something a little higher than mid—June given the economy seemed to be finding a bottom and, more importantly, international flights are up and more international flights means more domestic feeder flights. (iv) The lookahead for the next four weeks scheduled domestic flights have been reduced by 6.1% or by 8,431 scheduled domestic flights. The lookahead still shows big growth as this week, BloombergNEF's "the number of scheduled domestic flights is set to grow by 39.3% over the next four weeks to 129,038". But the 129,038 is 6.1% or 8,431 flights less than in the scheduled next four weeks # of flights. Last week, we highlighted that there was a big surprise on what we called a crazy high number of scheduled flights. It turns out it was crazy high. This week, BloombergNEF's "the number of scheduled domestic flights is set to grow by 39.3% over the next four weeks to 129,038". " Last week's report had "number of scheduled domestic flights is set to grow by 38.2% over the next four weeks to 137,469". BloombergNEF warns that the number of

China scheduled domestic flights



scheduled domestic flights may not materialize and that "China has routinely cut several thousand scheduled flights about a week or so before the intended departure date." The lookahead +39.3% to 129,038 is still big growth and big growth should be expected given the expected continued ramp up in international flights as more international flights means more domestic feeder flights. BloombergNEF writes "the combined number of international flights for seven major airlines Will rise by more than 225 a week to around 2,640 by the second week of November." Note this is for international flights out of China so a good indicator for the Chinese consumer wanting to travel abroad. However the 2,640 international flights by the second week of November is down 23.3% from last week's report that had scheduled international flights reported "will rise by more than 335 a week to around 3,440 by the first week of November." Below is our running WoW changes from the prior BloombergNEF reports and the BloombergNEF charts from the Oct 23 report.

Figure 39: China scheduled domestic flights from BNEF Aviation Indicators Weekly reports

Oct 10-16: -1.6% WoW to 99.490 Oct 3-9: +4.2% WoW to 101,120 Sept 26-Oct 2: +1.3% WoW to 97,009 Sept 19-25: essentially flat WoW to 95,742 Sept 12-18: -2.7% WoW to 95,853 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 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 Ian 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

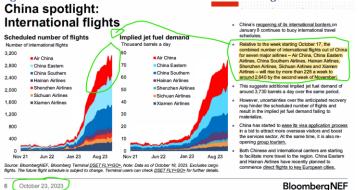
Figure 40: China scheduled domestic air flights as of Oct 23



Source: BloombergNEF



Figure 41: China scheduled international air flights as of Oct 23



Source: BloombergNEF

Oil: US approves more weekly China/US flights

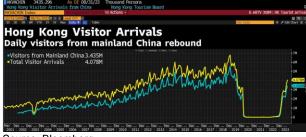
Yesterday, we tweeted [LINK] "Approved increase in China flights to/from US. More international flights = more domestic feeder flights. @USDOT approved # of weekly round trips, in aggregate, for major China airlines. Today: 18 wkly round trips. Oct 29: 24. Nov 9: 35. Thx @AirEVthingTRNSP @luzdingyu. #OOTT." On Friday, the US Dept of Transportation posted its order [LINK] that approved new increases, in aggregate, for the China major airlines in weekly round trips between China and the US. The weekly round trips, in aggregate fo the major China airlines went from 18 the other day to 24 as of today and then up to 35 on Nov 9. And as we always remind – more international flights means the need for more domestic feeder flights. Our Supplemental Documents package includes the DOT order.

More China/US flights

Oil: Visitors to Hong Kong, from mainland China and elsewhere well below pre-Covid We try to catch Bloomberg TV in the evenings for their shows on the Asian markets open and inevitably they have good reminder charts like the one on Tuesday night that Hong Kong visitor arrivals are still down about 40% for both visitors from mainland China and elsewhere vs pre-Covid. On Tuesday night, we tweeted [LINK] "Still a long way to go for recovery of travel in China. @business visitors to Hong Kong from Mainland China and in total still down ~40% vs Pre-Covid. Less travel = less consumption of #JetFuel #Diesel #OOTT." It's a good reminder that most visitors from Hong Kong come from mainland China, who will travel by air, train and car. And also a reminder that there is a lot of cash not flowing thru the economy.

Hong Kong visitors still down

Figure 42: Hong Kong Visitor Arrivals



Source: Bloomberg

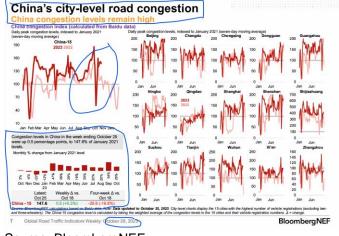


Oil: Baidu China city-level road congestion now at 113% of Oct 2021 levels

The headlines from the BloombergNEF Global Road Traffic Indicators Oct 26 report were "China congestion levels remain high" and "Traffic levels in October eclipse those of the same month in 2023". (i) On Thursday, we tweeted [LINK] "Positive China mobility indicator. China Baidu city-level road congestion MTD Oct 25 for Top 15 cities are now 113% of Oct 2021 levels. Up big YoY as still had Covid restrictions in Q4/22. Thx @BloombergNEF. #OOTT." (ii) For the week ended Oct 25, Baidu data for China city-level road congestion was +0.3% WoW to 147.6 of Jan 2021 levels. Two weeks ago, there was the big +65.1% WoW jump post the 12-day Golden Week holidays. Prior to the huge drop in city-level road congestion during the 12-day national holidays, there had been eight consecutive WoW increases in city-level road congestion as summer holiday season ended and people returned to cities and back to work. For the Top 15 Cities in aggregate, for the first 25-days of Oct, they are at 113% of Oct 2021 levels Vs Oct 2022 that was only 90% of Oct 2022 levels. (iv) As noted above, the Baidu data is to the end of Oct 25. (i)) For the Top 15 cities in aggregate, Oct 2023 to date is 113% of Oct 2021 levels vs Oct 2022 that was 90% of Oct 2021 levels. (ii) Twelve of the top 15 cities are higher YoY and 3 are lower YoY. The 3 lower YoY cities are Ningbo (10 mm population, port city ~220 km south of Shanghai), Qingdao (11 mm population, port city across Yellow Sea from South Korea), and Suzhou (13 mm population, right to the west of Shanghai). (iii) Compared to Oct 2021, 12 of the top 15 cities are higher and 3 are lower. The 3 lower cities vs Oct 2021 are Ningbo, Suzhou and Zhengzhou (13 mm population, inland in central China.)

China city-level traffic congestion

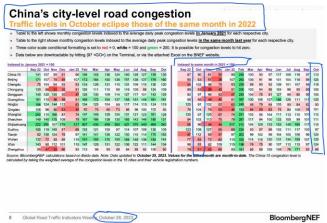




Source: BloombergNEF



Figure 44: China city-level road congestion for the week ended Oct 25



Source: BloombergNEF

growth of the middle class."

Oil: Rich people everywhere, incl in China, who shop at Hermes are still spending We like to look at a range of earnings calls, including global retailers, such as Hermes Q3 on Tuesday. In the Hermes case, we were looking for any indication of weakness in the rich Chinese consumer. Hermes had a great Q3 and their message was the customers were strong everywhere in the world, including China. On Tuesday night, we tweeted [LINK] "One China consumer group doing as well as in EU, US, Japan is the small # of rich people who shop at Hermes. All regions +20%, incl China. Hermes says not as exposed to geopolitical risks due to "very low customer base, high-quality customers in all of our geographies." Hermes said "Asia excluding Japan (+21%) continued its strong momentum. Sales were robust in Greater China, Singapore, Thailand, Australia and Korea. As a reminder, the third quarter in 2022 was exceptional following the lifting of health measures in China." Hermes noted that this was done without the benefit of price increases. Rather Hermes said "This growth is particularly virtuous, because it's based, I remind you, on organic growth without any new price increases since the start of the year. All regions show strong performance, with growth above 20%." Hermes also sees a strong outlook for China including growth of the middle class. Hermes said "In spite of macroeconomic difficulties that China is encountering in the short term, our view is potential for development continues to be

Hermes spending up everywhere

Oil: Vortexa crude oil floating storage est 75.27 at Oct 28, +4.09 mmb WoW

We are referencing the Vortexa crude oil floating storage data posted on the Bloomberg terminal as of 9am MT yesterday. Note that these estimates get revised over the course of the week and the revisions can go back months. We do not check daily for the revisions, so our comments on the new estimates are compared to the prior week's Vortexa estimates posted on Bloomberg on Oct 21at 9am MT. (i) Our tweet yesterday [LINK]said "Floating #Oil storage up but 70s is still low. Only been 4 wks <70 mmb since Covid. Plus maybe US GC revised down next wk, 6.64 mmb vs normal ~1 mmb? 10/27: 75.27 mmb. 10/20: 71.76, revised +6.91. 10/13: 68.98, rev -2.78. 10/06: 66.23, rev -3.32. 09/29: 88.58, rev -2.06. 09/22: 90.42, rev -2.92. Recent 06/23/23 peak 134.21mmb. Thx @Vortexa @business #OOTT." Note our tweet should have said only been 5 weeks, not only 4 weeks. The

very strong in the medium and long term. There'll be resumption of growth and also further

Vortexa floating storage



headline will be oil floating storage is up but oil floating storage in the 70s is still low. Oct 20 was revised up but the other 6 of last 7 weeks were revised down. To put in perspective, there have only been four weeks with floating storage below 70 mmb since Covid. (ii) As of 9am MT yesterday, Bloomberg posted Vortexa crude oil floating storage estimate for Oct 27 at 75.27 mmb, which is +4.09 mmb WoW to upwardly revised Oct 20 of 71.18 mmb. Note Oct 20 was revised +6.91 mmb vs the 64.27 mmb originally posted at 9am on Oct 21. (iii) Revisions. There were a mix of +/- revisions. The revisions from the estimates posted yesterday at 9am MT vs the estimates posted on Bloomberg at 9am MT on Oct 21 are as follows: Oct 20 revised +6.91 mmb. Oct 13 revised -2.78 mmb. Oct 6 revised -3.32 mmb. Sept 29 revised -2.06 mmb. Sept 22 revised -2.92 mmb. Sept 15 revised -1.11 mmb. -0.48 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 78.23 mmb vs last week's then seven-week average of 81.65 mmb. The decrease is due to the dropping of a higher 92.79 mmb in the average and the downward revisions for six of the last seven weeks. (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) Oct 27 estimate of 75.27 mmb is -26.22 mmb YoY vs Oct 28, 2022 of 101.49 mmb. (viii) Oct 27estimate of 75.27 mmb is -145.04 mmb vs the Covid peak of 220.31 mmb on June 26, 2020. (ix) Oct 27 estimate of 75.27 mmb is +9.66 mmb vs pre-Covid Feb 28, 2020 of 65.61 mmb. (x) Below are the last several weeks of estimates posted on Bloomberg as of 9am MT Oct 28, 9am MT Oct 21, and 9am MT Oct 14.

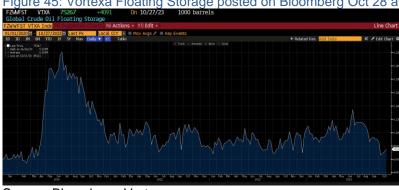


Figure 45: Vortexa Floating Storage posted on Bloomberg Oct 28 at 9am MT

Source: Bloomberg, Vortexa



Figure 46: Vortexa Estimates Posted 9am MT on Oct 28, Oct 21, and Oct 14
Posted Oct 28, 9am MT Oct 21, 9am MT Oct 14, 9am MT

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Fr	10/20	/202	3		71176		Fr	10/1	3/20	23		7	1763			10/0	6/20	23		7380	1
Fr	10/13	/202	3	6	68984		Fr	10/0	6/202	23		6	9549			09/2	9/20	23		8413	19
Fr	10/06	/202	3		56231		Fr	09/2	9/20	23		8	7637			09/2	2/20	23		9581	4
Fr	09/29	/202	3	8	35578		Fr	09/2	2/20:	23		5	3341			09/1	5/20	23		9035	2
Fr	09/22	/202	3	9	90415		Fr	09/1	5/20	23		9	1699			09/0	8/20	23		9179	21
Fr	09/15	/202	3	9	90585		Fr	09/0	8/20	23		9	3267			09/0	1/20	23		9311	6
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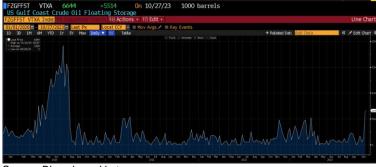
Source: Bloomberg, Vortexa

Oil: Oil floating storage in Gulf Coast likely much lower next week

There was one number that jumped out at us this week in the Vortexa data – the very high floating oil storage in the US Gulf Coast. Vortexa estimated floating oil storage in the Gulf Coast was +5.51 mmb/ WoW to 6.64 mmb. That is a very big number for the Gulf Coast, which isnormally around 1 mmb. We couldn't figure out what may have caused that much oil to be considered in floating storage. There was an unplanned of the 270,000 b/d CDU unit at Pemex's Texas refinery, but that shouldn't have cause that much of a backup. It's why we tweeted [LINK] "Here's why floating #Oil storage in Gulf Coast is either set for downward revision next week or it's an unusual one-time spike. Other than during Covid or some unusual refinery issues, sitting in floating storage in the Gulf Coast isn't the norm. Thx @Vortexa @business. #OOTT".

Vortexa floating storage by region

Figure 46: Vortexa crude oil floating in US Gulf Coast



Source: Bloomberg, Vortexa

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, Oct 20, in total, was revised +6.91 mmb. The main revisions in a region vs the originally posted (as of

Vortexa floating storage by region



9am Oct 21) floating oil storage for Oct 20 were Asia revised +4.00 and Europe +3.10 mmb. +4.13 mmb. (ii) Total floating storage was +4.09 mmb WoW. There were WoW changes in most regions. The major WoW changes by region were Other -6.26 mmb WoW, Asia +5.88 mmb WoW, US Gulf Coast +5.51 mmb WoW (US Gulf Coast was 6.64 mmb and that is a high number), Middle East was -3.47 mmb WoW. Europe was +3.40 mmb WoW. (iii) Oct 27 of 75.27 mmb is down a whopping 58.94 mmb vs the recent June 23, 2023 peak of 134.21 mmb. The major changes by region vs the recent June 23 peak are Asia -33.60 mmb, Other -28.18 mmb and US Gulf Coast +5.67 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 Oct 20 that was posted on Bloomberg at 9am MT on Oct 21.

Figure 47: Vortexa crude oil floating by region

Vortexa Crude Oil Floating	Storage by Region	(mmb)		Original Posted	Recent Peak	
Region	Oct 27/23	Oct 20/23	WoW	Oct 20/23	Jun 23/23	Oct 27 vs Jun 23
Asia	40.91	35.03	5.88	31.03	74.51	-33.60
Europe	6.22	2.82	3.40	2.07	6.52	-0.30
Middle East	5.32	8.79	-3.47	5.69	7.18	-1.86
West Africa	7.20	8.17	-0.97	8.38	7.87	-0.67
US Gulf Coast	6.64	1.13	5.51	1.10	0.97	5.67
Other	8.98	15.24	-6.26	16.00	37.16	-28.18
Global Total	75.27	71.18	4.09	64.27	134.21	-58.94
Vortexa crude oil floating st	orage posted on	Bloomberg 9am	MT on Oct 28			
Source: Vortexa, Bloomberg	3					

Source: Bloomberg, Vortexa

Oil: TomTom mobility indicators: EU increases, Asia-Pacific and NA decrease WoW

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 Oct 24, EU traffic levels increased by +2.1% WoW, while Asia Pacific (ex-China) and North American traffic levels decreased by -4.6% and -0.1% WoW, respectively. Traffic levels in Europe, North America, and Asia Pacific (ex-China) traffic are +10.0%, +0.0% and -11.2% compared to the 2019 average and are +4.7%, +5.1% and -2.1% YoY, respectively. Traffic in Europe has recovered to pre-summer levels while Asia Pacific (excluding mainland China) is still below pre-Covid levels. 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 48: Mobility Indicators



Source: BloombergNEF



Oil: Truck tonnage index in September -1.1% MoM, gives up gains since April We look to items like truck tonnage for indicators on the US economy, and the September truck tonnage is in line with the expectations for a slowing US economy. Truck tonnage decreased -1.1% MoM and is down -4.1% YoY from September 2022. The American Trucking Association released its seasonally adjusted Truck Tonnage Index for September last Tuesday [LINK]. Chief Economist Bob Costello noted "After hitting a bottom in April, tonnage increased in three of the previous four months, gaining a total of 2.2% before September's drop...However, this freight market remains in flux, and the index contracted by 1.1% in September, which erased half of those gains. Additionally, the year-over-year decrease was the largest drop since November 2020 on a very difficult comparison -September 2022 – which was the previous cycle high. While it is likely a bottom has been hit in truck freight tonnage, there could still be choppy waters ahead as the freight market remains volatile". Trucking serves as a barometer of the U.S. economy, representing 72.6% of tonnage carried by all modes of domestic freight transportation, including manufactured and retail goods. Trucks hauled 11.46 billion tons of freight in 2022. Motor carriers collected \$940.8 billion, or 80.7% of total revenue earned by all transport modes. Our Supplemental Documents package includes the ATA release.

September
Truck Tonnage
-1.1% MoM





Source: ATA

Oil: Group 1 sees average miles driven of cars +2,000 miles/yr & going increasing
On Wednesday, Group 1 Automotive CEO Daryl Kenningham was on CNBC Squawk Box
following their Q3 release. Kenningham reminded of one overlooked factor – the average
miles driven by cars is increasing and still going higher. We tweeted [LINK] "support for
#Gasoline consumption. ave age of ICE on the road is 12 yrs & climbing. ave miles driven of
cars thru their service is up 2,000 miles per yr and expect miles driven only increases
Group 1 CEO to @JoeSquawk @SquawkCNBC. #OOTT." Our tweet included a ideo clip of
his interview. Kenningham reminded that the average age of ICE vehicles on the road today
is over 12 years and "still climbing". The average age of ICE vehicles is generally well
known but what many may not realize is that the miles driven keeps going higher.

Average miles driven of cars going higher



Kenningham said "And average miles driven is increasing. Our average miles driven cars that come through our service drive is up 2,000 miles year over year. Which means more service work, potential service work. As we look out into the future, we think that miles driven only increases for consumers based on the trends that are out there and the use of fleets in the industry. So certainly, I don't see an end to that."

Oil & Natural Gas: Halliburton CEO "conviction in the long duration of this upcycle"
On Tuesday, Halliburton released Q3 and held its Q3 call. Earlier in the memo, we noted Halliburton CEO Miller's comments on decline rates in shale oil. But he also reiterated his conviction in the long duration of this upcycle. On Tuesday, we also tweeted [LINK] "Everything I see today strengthens my conviction in the long duration of this upcycle" \$HAL CEO. Not pointing to a big ramp in fracking. "I am pleased with the stability of our NA business" Like \$SLB, it's international ",,,the profitability of our International growth" \$OOTT." Miller said ""Halliburton delivered an impressive third quarter and our margin strength demonstrated the power of our strategy. I am pleased with the stability of our North America business and the profitability of our International growth," commented Jeff Miller,

Chairman, President and CEO. "Everything I see today strengthens my conviction in the long duration of this upcycle. Against this backdrop, we expect continued demand growth for Toilfield services in 2024 and beyond." Note his description of Nort America as pleased with

Halliburton CEO on upcycle

Oil & Natural Gas: TIPRO Texas oil and natural gas jobs up MoM in September

On Oct 20, the Texas Independent Producers and Royalty Owners Association (TIPRO) updated their employment figures for the Texas upstream sector for September [LINK]. September saw an increase of ~1,700 jobs MoM, and employment is up to 210,700 active jobs across direct oil and gas extraction and services, which is 18,700 more jobs than in September 2022. TIPRO wrote "TIPRO's new employment data yet again indicated strong job postings for the Texas oil and natural gas industry during the month of September. According to the association, there were 11,990 active unique jobs postings for the Texas oil and natural gas industry in September, including 4,564 new job postings added during the month by companies. In comparison, the state of California had 3,376 unique job postings last month, followed by Louisiana (1,652), Oklahoma (1,649) and Pennsylvania (1,218). TIPRO reported a total of 52,767 unique job postings nationwide last month within the oil and natural gas sector". Our Supplemental Documents package includes the TIPRO release.

TIPRO September jobs update

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

the stability whereas international growth.

As of 7pm MT last night, there were 79 Alberta wildfires and zero Out of Control, which compares to a week ago at 77 Alberta wildfires and zero Out of Control. In BC, it was another week of decline in wildfires including Out of Control wildfires. As of 7pm MT last night, there were 247 wildfires including 35 Out of Control, which compares to a week ago at 287 wildfires included 39 Out of control.

BC and Alberta Wildfires

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.



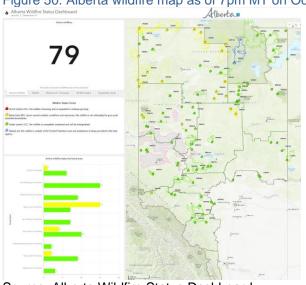


Figure 50: Alberta wildfire map as of 7pm MT on Oct 28

Source: Alberta Wildfire Status Dashboard

Figure 51: BC wildfire map as of 7pm MT on Oct 28

Source: BC Wildfire Service

Oil & Natural Gas: Hurricane Otis was 1st ever surprise Category 5 hurricane

It wasn't an oil and gas risk item, but Hurricane Otis was a good reminder that hurricanes are extremely unpredictable. On Wednesday, we tweeted [LINK] "Who had ever heard of a surprise Category 5 hurricane? 24 hrs before landfall, Otis was Tropical Storm at 50 mph and forecast to hit Acapulco at Tropical Storm strength. 24 hrs later, it hits Acapulco at Cat 5 and 165 mph. Hoping people got somewhere safe!" Hurricane Otis hit Acapulco as a Category 5 at 165 mph in the early morning hours on Wednesday. Our tweet called it a "surprise" Category 5 hurricane because 24 hours before landfall, Otis was a Tropical Storm at 50 mph and the National Hurricane Center forecast was for Otis to stay at tropical storm strength when it hit Acapulco. And in the ensuing 12 hours, Otis surprisingly strengthened from a tropical storm to a Category 4 hurricane before further increasing to a Category 5 when it hit

Cat 5 Hurricane Otis



Acapulco. We highlight Otis as it is a great reminder that hurricanes are extremely unpredictable and, in this case, a massive unexpected increase in strength in 12 hours. Below are the National Hurricane Center's Otis forecasts as of 1am CDT on Tues Oct 24 and 1am CDT on Wed Oct 25.

Figure 52: 1am CDT on Tues Oct 24, Otis forecast to hit Acapulco at tropical storm strength



Source: National Hurricane Center

Figure 53: 1am CDT on Wed Oct 24, Otis hits Acapulco as a Category 5 hurricane



Source: National Hurricane Center

Energy Transition: Run up to COP28, major items for Net Zero aren't working as hoped We expect to post a long overdue blog ahead of COP28, which runs from Nov 30 to Dec 1 in the UAE. Our view on the Energy Transition is unchanged for the past several years – it's happening but it will take way longer, cost way more and be a bumpy/rocky road. It is very hard to predict what will happen at COP28 but we would hope that everyone doesn't fool themselves with their starting point – all of the major items for the energy transition aren't working as planned. For the past few years, we have placed a priority for tracking the major

One month to COP28



items of the energy transition because their progress, or lack thereof, relative to their plans/aspirations is the most important factor for oil and natural gas for the next decade. It's why we have said for years that oil and natural gas will be needed for longer and therefore there will be cash flow value for the next decade. Our memos have highlighted the major energy transition items being well behind plans and aspirations. (i) EVs. The major oil consumption impact is forecast to come from EVs replacing ICE. So far, our focus has been on how EVs aren't displacing ICE mileage as much as assumed as forecasts like the IEA assume that every new EV replaces the miles driven by an ICE. It's like they assume that every EV sold means an ICE gets junked or stopped driving. So the IEA demand forecasts assume way too much demand destruction from new EV sales. But, as noted later in the memo, we expect to see forecasters reduce their assumption for EV adoption as they move to not assume the rate of growth in EVs isn't as fast as EVs move to lower and middle income. (ii) Sustainable aviation fuel. Sustainable aviation fuel is the key item for the airline industry to reach its Net Zero targets. The problem with SAF is that it is very expensive relative to jet fuel and there won't be enough supply. Climate change side has been trumpeting that there is a huge growth in SAF. That is correct, it is a huge growth, the amount of SAF tripled in 2022 but the IATA highlighted SAF supplied only 0.1% of total 2022 jet fuel consumption. We expect to see the reality of SAF potential to be reflected in new forecasts. (iii) Offshore wind is having a huge pause. This has been the big news item over the past six months - offshore wind projects in the US and Europe are being paused or trying to be renegotiated due to insufficient returns to developers. This is pause has been now going on for six months or so, and will need to be addressed as they are projects that were approved by governments so assumed to be happening. Best case scenario is a pause of a year. So it pushes back assumed startup of wind. (iv) Hydrogen costs too much so no buyers will step up. Hydrogen is expected to be a key fuel for energy intensive uses. The problem is that it is too expensive and there haven't been any large buyers step up to commit to long term hydrogen such that hydrogen suppliers can commit the billions for large commercial supply. We expect to see more reflect a significant reduction n their hydrogen penetration forecasts.

Fits our 2022 Prediction, leaders forced to admit energy transition isn't working We don't expect to see many western leaders come out and directly say the energy transition isn't working but we do expect to see their actions reflect that conclusion. Our #1 prediction for 2022 was on this concept. We were probably 6 to 12 months early but it is unfolding. 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 @SultanAhmedali8 #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.

Energy Transition: Chevron CEO works in the real work, not scenarios like the IEA

For years, we have highlighted how some of the IEA major reports were not forecasts but scenarios such as how much does oil demand has to drop to meet Net Zero aspirations. But many of their reports are forecasts. Our concern isn't that the IEA does scenarios, rather it's that western leaders use their scenarios as forecasts when they set their Net Zero plans and policies. It feels like the IEA does scenarios to provide the "data" for what the western leaders need to set policies. On Monday, the FT posted a report "Chevron's Mike Wirth: 'We are not selling a product that is evil' [LINK] FT asked on the IEA's recent forecast for the demand for fossil fuels to all peak before 2030. We tweeted [LINK] "\$CVX CEO on IEA fossil fuels demand peaks <2030 "I don't think they're remotely right . . You can build SCENARIOS, but we live in the real world & have to allocate capital to meet real world demands" But G7 use IEA SCENARIOS & not real world for NetZero plans ie. why it's a messy energy transition. #OOTT [LINK]." The FT wrote "Wirth set out the message that lower emissions matter, but should not come at the expense of an affordable and reliable energy supply. His blunt response to an International Energy Agency forecast that demand for fossil fuels will peak before 2030 was: "I don't think they're remotely right . . . You can build scenarios, but we live in the real world, and have to allocate capital to meet real world demands". Energy security, energy affordability and lower emissions were "in tension with one another" Wirth admitted. But he said he was working on the basis that Chevron's core products will be in demand for decades to come." Our Supplemental Documents package includes the FT report.

Energy Transition: Surprisingly, Siemens Energy surprised to the downside on wind Our big picture concern remains that offshore wind development is stalled and is nowhere near the Energy Transition aspirations/plans that were set before the last several months of one after another offshore wind problems. And the offshore wind is a key success factor for the Net Zero plans and is now likely in a pause of a couple years. Siemens Energy shares

Chevron vs IEA

Chevron vs IEA



have been hit since its June warning on big problems with its wind business. But on Thursday morning, Siemens wind update surprised big time to the negative on its wind update. Siemens wind problems have continuing and they said they are not concluding any new business for its onshore and applying "strict selectivity in the offshore business". It shares were down >30% post the release, almost as much as the 38% drop I share price following its first June wind business warning. Early Thursday morning, we tweeted [LINK] "Ouch! Siemens Energy shares -34% on today's #OffshoreWind #OnshoreWind update. "for the time being not concluding new contracts for certain onshore platforms & is applying strict selectivity in the offshore business". #EnergyTransition is a slow, costly, rocky road. #OOTT." Siemens wrote "The wind business Siemens Gamesa is working through the quality issues and is addressing the offshore ramp up challenges as announced in the third quarter communication for fiscal year 2023. As Siemens Gamesa is for the time being not concluding new contracts for certain onshore platforms and is applying strict selectivity in the offshore business, order intake and revenue are expected to be lower than market expectations for fiscal year 2024, and net losses and cash outflow are expected to be higher than market forecasts." Our Supplemental Documents package includes the Siemens release.

06/22/23: Siemens warning raises negatives to wind generation outlook Here is what we wrote in our June 25, 2023 Energy Tidbits memo on Siemens first wind business warning, which drove the shares down 38% that day. "Wind OEMs have been having a tough time but, even still, the Siemens Energy warning on its onshore and offshore wind was way worse than expected. Siemens is one of the global leaders in wind generation so it's clear problems with both onshore and offshore wind was viewed as raising negatives to the overall wind generation outlook. And, given how important wind generation is to the Energy Transition aspirations, this just adds another negative to the Energy Transition. (i) On Thursday night, we tweeted [LINK] "WOW! Big hit to wind generation aspirations in #EnergyTransition. Even worse than expected vs @SiemensGamesa - 02/06/23 warning. 06/22/23: "Following the substantial increase in failure rates of wind turbine components initiated an extended technical review of Siemens Gamesa's installed fleet and product designs." "... the technical review suggests that in order to reach the targeted product quality of certain Onshore platforms, significantly higher costs will be incurred than previously assumed." "We are also reviewing assumptions critical to the existing business plans given productivity improvements are not materializing to the extent previously expected. Offshore. "In addition, we continue to experience ramp up challenges in Offshore." #NatGas power generation will be needed for longer. #OOTT." (ii) Our tweet included the Siemens Gamesa release that raised huge negatives on onshore wind and offshore wind. (iii) Huge issues in Onshore wind -Siemens update on its onshore was clear and brutal. Siemens wrote "Following the substantial increase in failure rates of wind turbine components, the board of Siemens Gamesa initiated an extended technical review of Siemens Gamesa's installed fleet and product designs. The current status of the technical review suggests that in order to reach the targeted product quality of certain Onshore platforms, significantly higher costs will be incurred than previously assumed. Potential quality related measures and the associated costs are currently under evaluation and are likely to be in excess of 1 bn Euro. We are also reviewing assumptions critical to the existing business plans given productivity improvements are not materializing to the extent previously expected." (iv) No idea if they can make



it a profitable business. The Siemens warning is blunt and investors had no choice but to take Siemens at its word the admission that critical assumptions to their business plan are not materializing. And they can't hit the targeted product quality for onshore with incurring "significantly higher" costs. (v) Continuing challenges in Offshore. Big offshore wind projects are still at the early stages of development but offshore wind is viewed as the big growth area for wind generation. Siemens also had a blunt, but shorter, warning on its offshore wind. Siemens wrote "In addition, we continue to experience ramp up challenges in Offshore." Our Supplemental Documents package includes the Siemens release. [LINK]

Energy Transition: RWE, no more offshore UK wind unless prices rise by ~70%

No one should be surprised to have seen RWE's UK head, Tom Glover, warning the UK govt has to significantly increase the prices paid for offshore wind or else there won't be any more offshore wind farms. Glover warns that the bid round saw zero offshore wind bids will be the norm unless there is a huge increasing in price paid for offshore wind generation. The Telegraph wrote "No new wind farms will be built off Britain's shores unless the Government lets operators earn more money from the electricity they produce, the chief of the nation's biggest generator has said. Tom Glover, country chair of RWE's UK arm, said the price offered by the Government to wind farm operators must rise by as much as 70pc to entice companies to build. Developers must be offered between £65 and £75 per megawatt hour (MwH) for the power generated from wind farms, Mr Glover said. That compares to the £44 offered in the most recent government-run auction." And "Mr Glover said the UK risked missing its target of building 50 gigawatts (Gw) of offshore wind capacity by 2030 unless the next round was redesigned to attract investors. The UK currently has just 14Gw of offshore wind capacity, so must install at least one new turbine a day from now to 2030 to meet its goal. That will only happen if developers are paid the right money, Mr Glover said. He said: "We need to see a materially higher price. Every project is different but £65 to £75 feels about the right range." Our Supplemental Documents package includes the Telegraph report.

RWE CEO said "worst-case scenario for energy transition" as "offshore wind projects in EU & US have been stopped"

We have been highlighting that our concern that key success factors for the Energy Transition are not anywhere near the aspirations/plans for Net Zero and one of these was offshore wind. This was recently reinforced by RWE CEO Krebber. Here is what we wrote in our Sept 3, 2023 Energy Tidbits memo on the RWE CEO LInkedin post. Here is what we wrote "We have to wonder if governments are hearing wind developers and OEMs insisting the economics are working for wind generation, in particular offshore wind, or if they are just ignoring it and hoping for the best. Sooner or later, governments will have to make changes or accept what is clearly happening - wind projects aren't proceeding as approved and planned. There is a pause in wind, in particular offshore wind, in EU and US in 2023 and no visibility to unlock that pause. We have been highlighting this issue and clearly wind developers and OEMs don't see any changes coming to get a restart. (i) On Wednesday, we tweeted [LINK] "WOW! Must read - RWE CEO post "... #OffshoreWind projects in EU & US have been stopped, mainly citing cost increases" "worst case scenario for the #EnergyTransition when large projects that have already been awarded are not realised as planned". #NatGas needed for longer. #OOTT." (ii) Our tweet included a Linkedin post by RWE CEO Markus Krebber last week "is there a perfect storm

RWE warns UK on offshore wind



brewing in the offshore wind industry?" Krebber had a very clear message that the offshore wind industry is stuck in 2023 and it needs a lot from governments if they want offshore wind to get unstuck. And Krebber warned that offshore wind being stuck is the "worst-case scenario" for the energy transition. Krebber said "In recent weeks, for the first time, offshore wind projects in Europe and the U.S. have been stopped, mainly citing cost increases. In other news, turbine manufacturers were once again in the red in their latest quarterly reports, with losses running into billions. This is not good news, it's in fact the worst-case scenario for the energy transition when large projects that have already been awarded are not realised as planned. Happening at a time when the entire offshore industry has to scale up to achieve expansion targets, this quickly calls into question the achievement of climate protection goals." Krebber then goes thru five actions and says clearly "This development must serve as a wake-up call for policymakers to adapt the regulatory framework to market realities." The Krebber Linkedin post is short and worth a read. Our Supplemental Documents package includes the Krebber Linkedin post."

Energy Transition: More EV adoption issues from Ford, Group 1, Hertz, Mercedes Q3 It was a big week for Q3 reporting and we couldn't miss comments on CNBC and Bloomberg on items that raise questions on the pace of EV adoption. We haven't yet seen any major changes to the forecasts for accelerated EV sales/adoption as EVs move beyond higher income households but we continue to see indicators or items that would raise questions on the assumed continued fast rate of EV sales in the move to mass adoption. We just don't know how agencies don't reduce EV adoption forecasts. Below are comments from the Ford, Group 1 Automotive, Hertz and Mercedes Q3 reporting.

Negative EV costs for Hertz

Ford: Price matters buyers won't pay premium price for EVs vs ICE & hybrids Ford held its Q3 call on Thursday. (i) The big negative headlines out of the call were how Ford is delaying \$12b of EV spend but what wasn't picked up was Ford saying the market will determine if they end up spending all of the \$12b. On Friday, we tweeted [LINK] "Maybe more than just a delay in Ford #EV spend. #Ford says "pushed back about \$12b of EV spend, which includes Capex, direct investment and expense". BUT then in Q&A "but in doesn't mean that we'll actually go ahead and pull the trigger on it, if we don't need to". #OOTT." (ii) It didn't get much attention but Ford reminded that EV penetration in the US isn't happening as fast as they have been assuming because consumers aren't prepared to pay the premium. This has been our big concern on all the forecasts that predict the accelerated EV sales rates to the early adopters will continue thru middle and lower income people. We just don't see how that's possible absent hugely lower prices post subsidies. On Friday, we tweeted [LINK] "#EVs 101 - price matters."... and challenging market dynamics. According to the company, many North America customers interested in buying EVs are unwilling to pay premiums for them over gas or hybrid vehicles, sharply compressing EV prices and profitability." #Ford Q3. #OOTT." Ford made this clear statement in the Q3 release but did not repeat this line on the Q3 call. Our Supplemental Documents package includes excerpts from the Ford Q3 release and Q3 call.



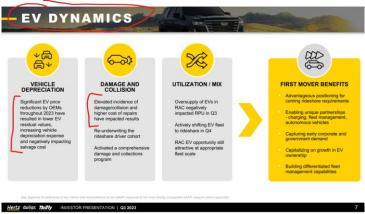
Group 1: ICE vehicles are lasting longer

We have previously highlighted one of the challenges for EVs is that ICE vehicles are lasting longer and longer. Earlier in the memo, we noted the Group 1 Automotive CEO Kenningham on CNBC Squawk Box reminded that the average age of ICE vehicles on the road today is over 12 years and "still climbing".

Hertz: Higher cost of repairs, lower resale value for Teslas

Hertz was an early rental car adopter of EVs and went with Teslas. On Thursday, Hertz reported Q3. We tweeted [LINK] "Hertz Tesla #EVs Q3 issues. Everyone should know re factors "negatively impacting salvage cost". But may not be aware of "Elevated incidence of damage/collision and higher cost of repairs have impacted results". Hope EV owners are better drivers than EV renters. #OOTT." Hertz highlighted the negative impact of their EV (Tesla) business in the quarter by a separate slide attached to our tweet. Hertz did not have a separate EV slide in its Q1 or Q3 earnings presentations, so this is a new or unexpected item. We have to believe that the unexpected higher than expected cost of repairs has to at least cause some EV buyers to double check their math on buying EVs. We have to assume EV buyers won't assume higher than expected damage/collision but will also work in a lower salvage/resale value in their math. Below is the Hertz Q3 call slide.

Figure 54: Hertz – EV Dynamics



Source: Hertz

Mercedes: Challenge for EV for OEMs "this is a pretty brutal space"

On Thursday, Mercedes held its Q3 call. We were a little surprised to see the blunt comments from the Mercedes CFO on the very challenging EV space for OEMs. We tweeted [LINK] "#Mercedes CFO on #EVs." this is a pretty brutal space" "I repeat, on the EV side of things, this is extremely competitive in these days" "I mean, come on, with price discounts on some of the other guys, more than 30%....... " #Oil will be needed for longer than assumed. #OOTT." The full CFO quote was "To your second question. Yes, EV is a very competitive space. I mean, come on, with price discounts of some of the other guys, more than 30%, some of the traditional players selling BEV vehicles below the pricing level of ICE with variable cost probably sitting



above as you know. I would say, this is a pretty brutal space. In this context, I think you could see that we had been doing, again, look at the Q3, I mean pretty well and overall kept the discipline on the pricing as you can see in the Q3 print on the chart which is indicated with the arrow on the chart."

WSJ, American EV buyers have median household income of \$186,000 We still believe the biggest challenge for EV adoption is moving to get the same accelerated EV buying rate as western countriesmove to get lower and middle income buyers step up. In the US, EV purchasers have been for high income households. Last week's (Oct 22, 2023) Energy Tidbits highlighted the WSJ report noting median family household income was \$186,000. That is more than double the US national median household income of \$74,580. Here is what we wrote in last week's (Oct 22, 2023) Energy Tidbits memo. "We are big believers that EVs will continue to show strong new car growth rates. But our concern with forecasts is unchanged in that we think it way overly optimistic to assume the very high initial growth rates in EV sales in higher income households continue at the same growth rates as EVs have to move to penetrate normal and lower income households. New cars are increasingly more expensive, whether they be ICE vehicles or EVs. For years we have highlighted how buyer demographics for EVs has been higher income households. Earlier this morning, we tweeted [LINK] "Challenge for #EV forecasts will huge rate of growth in EV sales to higher income continue in middle/lower income. Median family household income. New ICE car buyers = \$122k New EV buyers = \$186k @timhiggins reporting on Strategic Vision's survey #OOTT." Yesterday, the WSJ report "Electric Cars Were Already Having Issues. Then Things Got Political. The 2024 race for the White House reignites debate over EVs." [LINK] included the following on EV buyer demographics. WSJ wrote "As new cars and trucks become more costly, the practical effect on buyers shows up in Strategic Vision's survey: The median family household income of new-car buyers has risen to \$122,000. That is a significant increase from around \$90,000, where it had been at for a couple of decades until just recently. EV buyers are even better off, with a median household income of \$186,000." We could not find the referenced Strategic Vision Inc. survey."

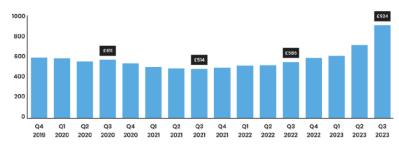
Energy Transition: UK auto insurance costs 58% YoY, EVs +72% vs ICE +29% YoY Hertz didn't mention increasing insurance costs being a factor on its EVs. But it will likely be a factor for EV adoption rates in the UK for middle and lower income. And if the EV insurance costs don't stop accelerating, it could cause some EV owners to sell their EVs. This week, confused.com posted its "car insurance price index: Q3 2023". On their website, they posted a report "transitioning from petrol cars to electric: What still needs to happen?" [LINK], which provided more detail on their Q3 2023 results. UK auto insurance costs were already higher and then are +72% YoY vs ICE +29% YoY. They wrote "The cost of insuring an EV is currently a lot higher than for ICE vehicles. And there's no real sign that will change, at least not in the short or medium terms. In fact, the cost is actually increasing. The latest Confused.com car insurance price index reveals that car insurance now costs £924 in Q3 2023. This is compared to £586 in Q3 2022. Yet Confused.com's own data shows that, for EVs, it's an increase of 72%, while for ICE drivers, it's only 29%." And "It's not sustainable for some EV drivers to pay thousands of pounds per year for their insurance". Our Supplemental Documents package includes the Confused.com posted article.

UK EV insurance costs



Figure 55: Confused.com car insurance price index

The latest Confused.com car insurance price index reveals car insurance now costs £924, on average



Source: Confused.com

Capital Markets: IFIC Equity and balanced funds net redemptions in September

One of the big Cdn equity stories in 2022 continues to play out in 2023 – the continued net redemptions from active managed Cdn equity and balanced mutual funds. This flipped in Q2/22 from massive net sales into balanced and equity mutual funds to massive net redemptions in equity and balanced mutual funds. On Monday, IFIC (Investment Funds Institute of Canada) reported [LINK] mutual funds and ETF sales for September. IFIC reported net redemptions for balanced mutual funds were \$6.187b in September vs \$4.750b in August and \$4.571b in July. IFIC also reported net redemptions for equity mutual funds were \$2.197b in September vs net redemptions of \$2.152b in August and \$1.850b in July. This brought YTD September 2023 net redemptions to \$52.933b out of balanced and equity mutual funds, a large increase compared to YTD September 2022 net redemptions of \$14.713b for a YoY difference of \$38.220b. Note that Q2/22 was when it flipped from net sales into the massive net redemptions to end 2022. Last year net redemptions in balanced and equity funds totalled \$38.47b, which was a massive YoY crashing of \$138.92b vs 2021 that saw net sales in balanced funds and equity funds of \$100.45b. Our Supplemental Documents package includes the IFIC release.

Figure 56: Cdn Mutual Fund Net Sales/Net Redemptions (\$ Millions)

utual fund net sales net redemptions (\$ millions) *											
Asset class	Sep. 2023	Aug. 2023	Sep. 2022	YTD 2023	YTD 2022						
Long-term funds											
Balanced	(6,187)	(4,750)	(4,986)	(37,189)	(14,304)						
Equity	(2,197)	(2,152)	(2,891)	(15,744)	(409)						
Bond	(890)	(452)	(1,914)	7,656	(8,850)						
Specialty	133	366	1	2,772	1,215						
Total long-term funds	(9,142)	(6,988)	(9,790)	(42,505)	(22,349)						
Total money market funds	1,572	1,400	825	11,819	3,643						
Total	(7,570)	(5,588)	(8,965)	(30,686)	(18,705)						

Source: IFIC

There were massive redemptions in Cdn active equity/balanced funds in 2022

It's been another bad year for net redemptions for Cdn balanced and equity funds, but 2022 was brutal. Here is what we wrote in our Jan 29, 2023 Energy Tidbits memo. "One of the big Cdn equity stories in 2022 continued to play out in the final

IFIC Cdn mutual fund data



month of the year – the massive net redemptions from active Cdn equity fund manager's balanced and equity mutual funds in 2022, which is a huge change from the massive net sales into balanced and equity mutual funds in 2021. On Thursday, we tweeted [LINK] "WOW! @IFIC balanced & equity mutual funds net sales/redemptions data for 2022. YTD 12/31/22 net REDEMPTIONS of \$38.5b. YTD 12/31/21 net SALES \$100.4b. YoY diff is -\$138.9b!! Makes #Oil #NatGas stocks big outperformance vs TSX and oil prices even more impressive. #OOTT." On Tuesday the IFIC (Investment Funds Institute of Canada) reported [LINK] mutual funds and ETF sales for Dec. IFIC reported net redemptions for mutual funds balanced funds were \$4.97b (vs \$5.07b in Nov and \$5.66b in Oct) and YTD Dec 31 of \$29.99b. IFIC reported net redemptions for mutual funds equity funds were \$3.08b in Dec (vs \$3.01b in Nov and \$1.89b in Oct) and YTD Dec 31 of \$8.48b. The change vs 2021 is huge and has widened since the Nov update. YTD Dec 31, net redemptions in balanced funds and equity funds was \$38.47b, which is a YoY crashing of \$138.92b vs YTD Dec 31, 2021 that saw net sales in balanced funds and equity funds of \$100.45b."

Figure 57: Cdn Mutual Fund Net Sales/Net Redemptions (\$ Millions)

Net Research	edemptions (\$ Mil	lions)*		~	
Asset Class	Dec. 2022	Nov. 2022	Dec. 2021	2022	2021
Long-term Funds			1	1	,
Balanced	(4,969)	(5,066)	1,628	(29,999	63,346
Equity	(3,080)	(3,014)	462	(8,480)	37,102
Bond	(2,254)	(1,104)	(1,276)	(13,790)	14,530
Specialty	(37)	(10)	415	1 160	6,010
Total Long-term Funds	(10,340)	(9,194)	1,229	(51,103)	120,988
Total Money Market Funds	1,642	551	185	7,026	(7,414)
Total	(8,698)	(8,643)	1,415	(44,077)	113,574

Source: IFIC

Capital Markets: 31% of Canadians face mortgage renewals in next 18 months

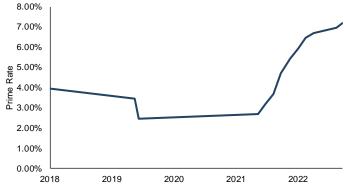
One of the big concerns for consumers in Canada and the US is on mortgage renewals at higher rates and the big impact on household disposable incomes. In Canada, mortgage agreements are different than in the United States, and instead of long-term fixed rate terms like the US 30-yr mortgage, Canada's standard is a 5-yr fixed term that can have fixed or variable rates. With the shorter 5-yr term, it means there are a lot of people who bought houses in 2019 and 2020 when rates were low are coming up for renewal on their mortgages in the next 18 months or so. On Thursday, Royal LePage a Canadian real estate company, posted the results of their survey Canadians with residential mortgages. [LINK], The results showed that 16% of Canadians with mortgages said their agreement is set to renew in the next 12 months, and another 18% said between 12-18 months. This means that 31% of all Canadian residential mortgages are to be renewed in the next 18 months, affecting ~3.4 million Canadians. 74% of Canadians with renewals upcoming said they are concerned about it; 24% of those concerned people are considering extending the mortgage's amortization period and 23% said they were thinking of switching to another lender, hoping for a better rate, but must qualify for the lenders stress test. People with variable rate mortgages, representing 20% of Canadians, have already seen their mortgage payments triple since the Bank of Canada started raising rates in March 2022. Most of them say this has caused financial strain and they'll be modifying their spending and saving habits elsewhere. The

Cdn mortgage renewals



Canadian prime rate has gone from 2.45% in March 2020 to 7.20% in July 2023. It will be interesting to see how this impacts the Canadian housing market, which has been red hot until recently, as well as consumer spending. Below is a chart of TD's prime rate from Oct 2018 to July 2023.

Figure 58: Cdn Prime Rate, Oct 2018- Jul 2023



Source: TD, SAF

Capital Markets: Coke isn't worried about obesity drugs hitting their business

The attention really focused on how obesity drugs will impact food products when Walmart CEO Furner told Bloomberg that they were seeing signs that people taking the obesity drugs like Ozempic were buying less units ie. smaller baskets. As a result, the common question to CEOs is if they are seeing these drugs hurt their sales. Coca Coal reported Q3 on Tuesday morning and CNBC's sara Eisen was reporting on CEO John Quincey's response to her if he is worried about the mass adoption of obesity drugs. We tweeted [LINK] a video clip and said ""You can eat less calories but you can't drink less liquids" Coke CEO to @SaraEisen @SquawkCNBC on if Coke worries about mass adoption of obesity drugs."

Capital Markets: Won't Biden have to hit corporations, wealthy and oil/gas in 2024 Its one year to the 2024 US elections on Tues Nov 5, 2024. And that mean Biden will be

Coke on obesity

drugs

looking for policy actions to try to fix negatives and improve his election chances. On Tuesday morning, we saw a good food for thought tweet from Bloomberg's Lisa Abramowicz [LINK] "The US government had a \$2 trillion budget deficit for the fiscal year through September, a gap that's \$1 trillion more than the prior year. [LINK]." She included the below chart on what has driven up the deficit. When we saw here chart, we couldn't help think the deficit has to go higher in the run up to the election with continued high interest rates and defense spending has to be higher with Israel added to Ukraine. The biggest factor for this year's deficit increase was net interest on debt. It made us think about 2024 elections. We tweeted [LINK] "3 items come to mind. Biggest spending up is net interest, sb higher in FY2024. DoD sb higher with Israel, FY2024 started 10/01/23. Election year. if Biden won't

cut back on goodies, won't he have to hit his normal targets (corporations, the wealthy & #Oil #NatGas)? #OOTT." So if the deficit is going higher in an election year, we have to believe Biden will be looking for areas he can hit to message he is trying to reduce the deficit. And, if

so, we would look to his usual targets of corporations, the wealthy and oil and gas.

US increasing deficit



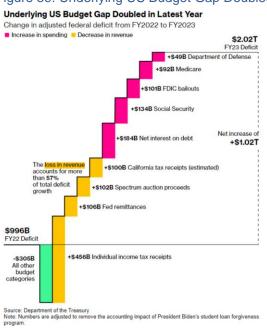


Figure 59: Underlying US Budget Gap Doubled in Latest Year

Source: Bloomberg

Demographics: Best in class are obsessed with being the best

On Monday, we saw recently retired Golden State Warriors Andre Iguodala on CNBC Squawk Box on his new \$200 mm VC fund and his comments reminded me of some of the best in class in Canada people I have had a chance to work with in the financial business over the last 25 years. We tweeted [LINK] "How best in class separate from the pack. @andrewrsorkin on other players ask "how can i get a \$200mm fund myself?" to @andre on his new VC fund. Iguodala "it's kind of like golf, you have to be obsessed with it". Be obsessed to be the best often gives an edge somewhere." CNBC's Andrew Ross-Sorkin asked "the question is, is your experience replicable. Meaning, there is part of me that thinks you are very special unicorn in this ecosystem. But I know there's a lot of players who are constantly asking for advice saying how can I get a \$200mm fund myself?' Iguodala's full response was "Well, it's kind of like golf, you have to be obsessed with it. You know there's a lot of work that goes into it. We spent our whole lives getting ready for the NBA. You have to have a similar focus in order to be a great tech investor." I used to hear regularly from people in the investment dealer business wondering why they couldn't have the same best-in-class success as some of my former and current partners. And then I would ask what is their typical day and night like. And after hearing how hard people work, it was easy to see they didn't have the same obsession with being the best as some of my former and current partners. Many of these were very good in the business, but there is a difference when I observed first-hand what these best-in-class people did.

Obsessed to be the best-in-class



Demographics: "Gotta have a good quality product to having staying power"

Yesterday morning, we were watching BNNBloomberg's Sidelines and heard a great reminder from Jillian Michaels of fitness fame on how she has been able to build a great lasting brand. And it reminded me of another common element of how best-in-class people I have worked with in the financial services business have been at the top for years and years. We tweeted [LINK] "Something to strive for each day. "best way you get word of mouth is by creating a great quality product. Right. It's like if you build it, they will come. Because at the end of the day, you gotta have a good quality product to have staying power".

@JillianMichaels to @JonErlichman." Our tweet included the video clip of here comments.

Jillian Michaels on success

Demographics: Blackstone CEO remote worker work less, but are more profitable

On Tuesday, Blackstone CEO Schwarzman was on a panel at the Saudi Arabia Future Investment Initiative. He was speaking on remote working and reminded that he sees remove workers as not working as hard, but then he added how the other reason is that it is more profitable for them to work at home. We made a transcript of his comments "because the pandemic, people got used to staying at home. It was actually more profitable for them stay at home. One, they didn't work as hard regardless what they tell you. And the second, they don't spend money, to commute. They can make their lunch. They don't have to buy expensive clothes. So their incomes are higher". We had to like when Schwarzman said remote workers don't have to buy expensive clothes, he pulled on his suit lapels to visually say like mine. So remote workers work less but it's more profitable for them to work at home. make more money.

Blackstone CEO on remote workers

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

For new followers to our Twitter, we are trying to tweet on breaking news or early views on energy items, most of which are followed up in detail in the Energy Tidbits memo or in separate blogs. Our Twitter handle is @Energy_Tidbits and can be followed at [LINK]. We wanted to use Energy Tidbits in our name since I have been writing Energy Tidbits memos for over 20 consecutive years. Please take a look thru our tweets and you can see we aren't just retweeting other tweets. Rather we are trying to use Twitter for early views on energy items. Our Supplemental Documents package includes our tweets this week.

@Energy_Tidbits
on Twitter

LinkedIn: Look for quick energy items from me on LinkedIn

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

Look for energy items on LinkedIn