Energy Tidbits

July 9, 2023

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Massive Increase in BC Wildfires Over Past 48 Hrs: At 9am MT, Up to 242 Active Wildfires Incl 154 Out of Control Wildfires

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. There has been a massive increase in BC Wildfires over the past 48 hours that has to put a priority of services and resources to protecting people, towns and businesses. (Click here)
2. Pemex says it has restored 600,000 b/d out of 700,000 b/d that was offline post the offshore platform and fire. (Click here)
3. Saudi Arabia extended its 1 mmb/d voluntary cut to include August. (Click here)
4. World Meteorological Organization forecast "*without exception, above-normal temperature anomalies are expected over all land areas in the Northern and Southern Hemisphere*" in July/Aug/Sept. (Click here)
5. Finally, IEA joins chorus warning that insufficient grid modernization/expansion is a problem for Europe, China, US and everywhere. (Click here)
6. Pease follow us on Twitter at [LINK] for breaking news that ultimately ends up in the weekly Energy Tidbits memo that doesn't get posted until Sunday noon MT.
7. For new readers to our Energy Tidbits and our blogs, you will need to sign up at our blog sign up to receive future Energy Tidbits memos. The sign up is available at [LINK].

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Natural Gas: +72 bcf build in US gas storage; now 575 bcf YoY surplus

US gas storage 575 bcf YoY surplus

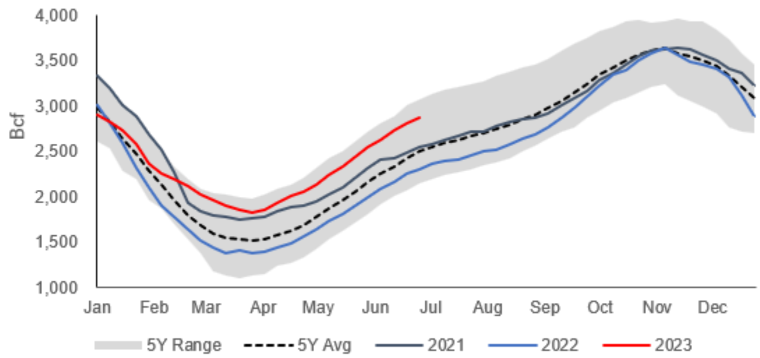
For the week of June 30, the EIA reported a +72 bcf build (above the expectations of an +65 bcf build), and a large increase compared to the +60 bcf build reported for the week of July 1 last year. This is down from last week's build of +76 bcf, and a big increase vs the 5-year average build of +43 bcf. Total storage is now 2.877 tcf, representing a surplus of +575 bcf YoY compared to a surplus of +566 bcf last week. Total storage is +366 bcf above the 5-year average, up from the +358 bcf surplus last week. Below is the EIA's storage table from its Weekly Natural Gas Storage report [LINK].

Figure 1: US Natural Gas Storage

	Stocks billion cubic feet (Bcf)				Year ago (06/30/22)		5-year average (2018-22)	
Region	06/30/23	06/23/23	net change	implied flow	Bcf	% change	Bcf	% change
East	643	623	20	20	479	34.2	528	21.8
Midwest	705	685	20	20	558	26.3	596	18.3
Mountain	173	165	8	8	137	26.3	153	13.1
Pacific	216	204	12	12	239	-9.6	261	-17.2
South Central	1,141 C	1,128	13	9 C	889	28.3	973	17.3
Salt	325	330	-5	-5	234	38.9	278	16.9
Nonsalt	816 C	798	18	14 C	655	24.6	694	17.6
Total	**2,877 C**	**2,805**	**72**	**68 C**	**2,302**	**25.0**	**2,511**	**14.6**

Source: EIA

Figure 2: US Natural Gas Storage – Historical vs Current



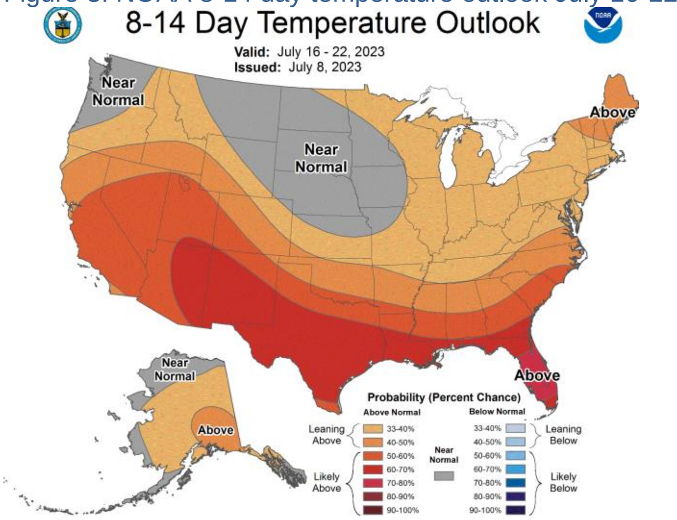
Source: EIA, SAF

Natural Gas: NOAA 8-14 day temperature outlook is positive to gas price tone

NOAA 8-14 day outlook

Mid-July is when we start to see the period for the normal hottest day of the year in some states. So the key is that we don't want to see below normal temperatures when it is normally the peak heat time. NOAA posts daily, around 1pm MT, an updated 6-10 day and 8-14 day temperature probability outlook. Yesterday, we tweeted [LINK] "*Today's @NOAA 6-10 & 8-14 day temperature outlook covering July 14-22. Starts well above normal for US except around Midwest/Great Lakes. Then moves to above normal temperatures for most of the populous US. Should bring positive tone to HH #NatGas prices. #OOTT.*" Yesterday's NOAA 6-10 day [LINK] and 8-14 day outlook [LINK] is valid for July 14-22 calls for most of the US to start the period hot other than in the MidWest and the Great Lakes, and then moving to above normal temperatures for most of the US other than parts of the Plains.

Figure 3: NOAA 8-14 day temperature outlook July 16-22



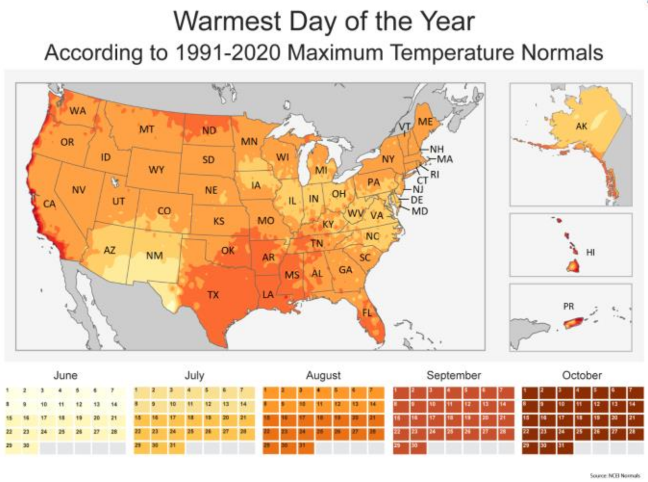
Source: NOAA

Natural Gas: NOAA's normal warmest day of the year across the US

Normal warmest day of the year across the US

Was watching US cable news on Thursday and couldn't help note many reports of it being hot and humid in parts of the NE US, which was in addition to the continued hot weather along the southern coast. It makes sense that it is hot in the north as mid July is when they tend to see the hottest day of the year. But we remind that for most of the US, the normal hottest day of the year is more over the coming 30 days. Here is where we wrote in last week's (July 2, 2023) Energy Tidbits memo. "*Yesterday, we tweeted [LINK] "Here's why temperature watch gets important in July ie. don't want below normal temps when it is supposed to be the hottest. @NOAA map when to expect Warmest Day of the Year. Mid July starts to see hottest day of the year in states like IL, IN, OH, WV, VA, NC. And current @NOAA 8-14 day expects below normal temps in some of these states. #OOTT #NatGas." On Thursday, NOAA posted "When to expect the Warmest Day of the Year" [LINK]. Our tweet included the NOAA map, which reminds that mid-July is when we start to see the hottest day of the year in many states. It's why the temperatures are important in July as we don't' want to see below normal temps when it is supposed to be peak heat and peak summer electricity/natural gas residential/commercial demand*."

Figure 4: NOAA Warmest Day of the Year



Source: NOAA

Natural Gas: Mexico Pacific and Zhejiang sign long-term LNG deal for 0.13 bcf/d

Long-term LNG deal

June was the biggest month for new long-term LNG supply deals in a long time with six deals totalling 1.74 bcf/d per annum. This week, there was another deal announced between Mexico Pacific and China's Zhejiang Energy. Even still, there was a big slowdown in long-term LNG deals in the last year compared to the activity seen from July 1, 2021 through June 30, 2022. That's because most, if not all the available long term LNG supply available before 2026 was locked up in the July 1, 2021 through June 30, 2022 rush. Rather, the long-term deals in the last year have been for long-term supply starting in 2026 or later. And the other significant item to note is that we are seeing some very long-term out past 2050. (i) On Wednesday, Mexico Pacific and Zhejiang Energy (China) announced that they have agreed to enter into a long-term LNG sale and purchase agreement [LINK]. The deal is set to begin in 2027, and end in 2047, with ENN LNG purchasing ~0.13 bcf/d per annum. The Deputy Manager at Zhejiang Energy, Xiqiang Chai, commented "*Zhejiang Provincial Energy Group (ZEG) has consistent interest in seeking international upstream energy resources, such as natural gas. This new long-term agreement with Mexico Pacific is an important step in further diversifying our energy supply portfolio and strengthening ZEG's natural gas industry. We are excited to be partnering with Mexico Pacific as they work to deliver low-cost LNG to China".* Mexico Pacific Saguaro Energia LNG facility is the most advanced LNG development project on the west coast of NA, producing ~1.86 bcf/d per annum. The Saguaro provides the lowest price for LNG to Asia, as well as a significantly shorter shipping route. Our Supplemental Documents package includes the Mexico Pacific press release.

Asia was early to secure and hasn't stopped securing long term LNG supply

Asian buyers were early to secure long term LNG supply and started to lock up long term LNG supply starting in July 2021. The LNG supply crunch for the 2020s was clear before Russia invaded Ukraine. Rather, it was clear in H1/21 that there was a major sea change in LNG outlook. We turned very bullish on LNG outlook for the 2020s once TotalEnergies went force majeure on its Mozambique LNG in April 2021.

We posted our April 28, 2021 blog *"Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?"* as we thought the market had overlooked that this force majeure backed up 5.0 bcf/d of Mozambique LNG that was originally planned to start in phases in 2024. And that this would create an earlier and larger LNG supply gap in the mid 2020s. Then we started to see validation of this view when Asian LNG buyers in July made an abrupt change to their LNG contracting and pivoted to trying to lock in long term LNG supply. On July 14, 2021 we posted our 8-pg "*Asian LNG Buyers Abruptly Change and Lock in Long Term Supply – Validates Supply Gap, Provides Support For Brownfield LNG FIDs".* Here is an excerpt from the blog "*The last 7 days has shown there is a sea change as Asian LNG buyers have made an abrupt change in their LNG contracting and are moving to lock in long term LNG supply. This is the complete opposite of what they were doing pre-Covid when they were trying to renegotiate Qatar LNG long term deals lower and moving away from long term deals to spot/short term sales. Why? We think they did the same math we did in our April 28 blog "Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?" and saw a much bigger and sooner LNG supply gap driven by the delay of 5 bcf/d of Mozambique LNG that was built into most, if not all LNG supply forecasts. Asian LNG buyers are committing real dollars to long term LNG deals, which we believe is the best validation for the LNG supply gap. Another validation, Shell, Total and others are aggressively competing to invest long term capital to partner in Qatar Petroleum's massive 4.3 bcf/d LNG expansion despite plans to reduce fossil fuels production in the 2020s. And even more importantly to LNG suppliers, the return to long term LNG contracts provides the financing capacity to commit to brownfield LNG FIDs. The abrupt change by Asian LNG buyers to long term contracts is a game changer for LNG markets and sets the stage for brownfield LNG FIDs likely as soon as before year end 2021. It has to be brownfield LNG FIDs if the gap is coming bigger and sooner. And we return to our April 28 blog point, if brownfield LNG is needed, what about Shell looking at 1.8 bcf/d brownfield LNG Canada Phase 2? LNG Canada Phase 1 at 1.8 bcf/d capacity is already a material positive for Cdn natural gas producers. A FID on LNG Canada Phase 2 would be huge, meaning 3.6 bcf/d of Cdn natural gas will be tied to Asian LNG markets and not competing in the US against Henry Hub. And with a much shorter distance to Asian LNG markets. This is why we focus on global LNG markets for our views on the future value of Canadian natural gas."* Our Supplemental Documents package includes our April and July blogs.

There have been 16.33 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 16.33 bcf/d of long-term LNG deals since July 1, 2021. 67% 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.

Figure 5: Long-Term LNG Buyer Deals Since July 1, 2021

Long-Term LNG Buyer Deals Since July 1, 2021							
Date	Buyer	Seller	Country Buyer / Seller	Volume (bcf/d)	Duration Years	Start	End
Asian LNG Deals							
Jul 7, 2021	CNOOC	Petronas	China / Canada	0.30	10.0	2022	2032
Jul 9, 2021	CPC	QatarEnergy	Taiwan / Qatar	0.16	15.0	2022	2037
Jul 9, 2021	Guangzhou Gas	BP	China / US	0.13	12.0	2022	2034
Jul 12, 2021	Korea Gas	QatarEnergy	Korea / Qatar	0.25	20.0	2025	2045
Sep 29, 2021	CNOOC	QatarEnergy	China / Qatar	0.50	15.0	2022	2037
Oct 7, 2021	Shenzhen	BP	China / US	0.04	10.0	2023	2032
Oct 11, 2021	ENN	Cheniere	China / US	0.12	13.0	2022	2035
Nov 4, 2021	Unipec	Venture Global LNG	China / US	0.46	20.0	2023	2043
Nov 4, 2021	Sinopec	Venture Global LNG	China / US	0.53	20.0	2023	2043
Nov 5, 2021	Sinochem	Cheniere	China / US	0.12	17.5	2022	2040
Nov 22, 2021	Foran	Cheniere	China / US	0.04	20.0	2023	2043
Dec 6, 2021	Guangdong Energy	QatarEnergy	China / Qatar	0.13	10.0	2024	2034
Dec 8, 2021	S&T International	QatarEnergy	China / Qatar	0.13	15.0	2022	2037
Dec 10, 2021	Suntien Green Energy	QatarEnergy	China / Qatar	0.13	15.0	2022	2037
Dec 15, 2021	SPIC Guangdong	BP	China / US	0.03	10.0	2023	2033
Dec 20, 2021	CNOOC Gas & Power	Venture Global LNG	China / US	0.26	20.0	2023	2043
Dec 29, 2021	Foran	BP	China / US	0.01	10.0	2023	2032
Jan 11, 2022	ENN	Novatek	China / Russia	0.08	11.0	2024	2035
Jan 11, 2022	Zhejiang Energy	Novatek	China / Russia	0.13	15.0	2024	2039
Feb 4, 2022	CNPC	Gazprom	China / Russia	0.98	30.0	2023	2053
Mar 24, 2022	Guangdong Energy	NextDecade	China / US	0.20	20.0	2026	2046
Mar 29, 2022	ENN	Energy Transfer	China / US	0.36	20.0	2026	2046
Apr 1, 2022	Guangzhou Gas	Mexico Pacific Ltd	China / Mexico	0.26	20.0	n.a.	n.a.
Apr 6, 2022	ENN	NextDecade	China / US	0.26	20.0	2026	2026
Apr 22, 2022	Kogas	BP	Korea / US	0.20	18.0	2025	2043
May 2, 2022	Gunvor Singapore Pte	Energy Transfer LNG	Singapore / US	0.26	20.0	2026	2046
May 3, 2022	SK Gas Trading LLC	Energy Transfer LNG	Korea / US	0.05	18.0	2026	2042
May 10, 2022	Exxon Asia Pacific	Venture Global LNG	Singapore / US	0.26	n.a.	n.a.	n.a.
May 11, 2022	Petronas LNG	Venture Global LNG	Malaysia / US	0.13	20.0	n.a.	n.a.
May 24, 2022	Hanwha Energy	TotalEnergies	Korea / France	0.08	15.0	2024	2039
May 25, 2022	POSCO International	Cheniere	Korea / US	0.05	20.0	2026	2036
June 5, 2022	China Gas Holdings	Energy Transfer	China / US	0.09	25.0	2026	2051
Jul 5, 2022	China Gas Holdings	NextDecade	China / US	0.13	20.0	2027	2047
Jul 20, 2022	PetroChina	Cheniere	China / US	0.24	24.0	2026	2050
Jul 26, 2022	PTT Global	Cheniere	Thailand / US	0.13	20.0	2026	2046
Jul 27, 2022	Exxon Asia Pacific	NextDecade	Singapore / US	0.13	20.0	2026	2046
Sep 2, 2022	Woodside Singapore	Commonwealth	Singapore / US	0.33	20.0	2026	2046
Nov 21, 2022	Sinopec	QatarEnergy	China / Qatar	0.53	27.0	2026	2053
Dec 26, 2022	INPEX	Venture Global LNG	Japan/US	0.13	20.0	n.a.	n.a.
Dec 27, 2022	JERA	Oman LNG	Japan/Oman	0.11	10.0	2025	2035
Jan 19, 2023	ITOCHU	NextDecade	Japan / US	0.13	15.0	n.a.	n.a.
Feb 7, 2023	Exxon Asia Pacific	Mexico Pacific Ltd	Singapore / Mexico	0.26	20.0	n.a.	n.a.
Feb 23, 2023	China Gas Holdings	Venture Global LNG	China / US	0.26	20.0	n.a.	n.a.
Mar 6, 2023	Gunvor Singapore Pte	Chesapeake Energy	Singapore / US	0.26	15.0	2027	2042
Apr 28, 2023	JERA	Venture Global LNG	Japan/US	0.13	20.0	n.a.	n.a.
May 16, 2023	KOSPO	Cheniere	Korea/US	0.05	19.0	2027	2046
Jun 1, 2023	Bangladesh Oil	QatarEnergy	Bangladesh/Qatar	0.24	15.0	2026	2031
Jun 21, 2023	Petro Bangle	Oman	Bangledesh/Oman	0.20	10.0	2026	2036
Jun 21, 2023	CNPC	QatarEnergy	China/Quatar	0.53	27.0	2027	2054
Jun 26, 2023	ENN LNG	Cheniere	Singapore / US	0.24	20.0	2026	2046
Jul 5, 2023	Zhejiang Energy	Mexico Pacific Ltd	China / Mexico	0.13	20.0	2027	2047
Total Asian LNG Buyers New Long Term Contracts Since Jul/21				**10.90**			
Non-Asian LNG Deals							
Jul 28, 2021	PGNiG	Venture Global LNG	Poland / US	0.26	20.0	2023	2043
Nov 12, 2021	Engie	Cheniere	France / US	0.11	20.0	2021	2041
Mar 7, 2022	Shell	Venture Global LNG	US / US	0.26	20.0	2024	2044
Mar 16, 2022	NFE	Venture Global LNG	US / US	0.13	20.0	2023	2043
Mar 16, 2022	NFE	Venture Global LNG	US / US	0.13	20.0	2023	2043
May 2, 2022	Engie	NextDecade	France / US	0.23	15.0	2026	2041
May 17, 2022	PGNiG	Sempra Infrastructure	Poland / US	0.40	20.0	n.a.	n.a.
May 25, 2022	RWE Supply & Trading	Sempra Infrastructure	Germany / US	0.30	15.0	n.a.	n.a.
Jun 9, 2022	Equinor	Cheniere	Norway / US	0.23	15.0	2026	2041
Jun 21, 2022	EnBW	Venture Global LNG	Germany / US	0.20	20.0	2026	2046
Jun 22, 2022	INEOS Energy	Sempra Infrastructure	UK / US	0.21	20.0	2027	2047
Jun 22, 2022	Chevron	Venture Global LNG	US / US	0.26	20.0	n.a.	n.a.
Jun 22, 2022	Chevron	Cheniere	US / US	0.26	15.0	2027	2042
Jul 12, 2022	Shell	Mexico Pacific Ltd	US / Mexico	0.34	20.0	2026	2046
Jul 13, 2022	Vitol	Delfin Midstream	US / US	0.07	15.0	n.a.	n.a.
Aug 9, 2022	Centrica	Delfin Midstream	UK / US	0.13	15.0	2026	2041
Aug 24, 2022	Shell	Energy Transfer	US / US	0.28	20.0	2026	2046
Oct 6, 2022	EnBW	Venture Global LNG	Germany / US	0.26	20.0	2022	2042
Dec 6, 2022	ENGIE	Sempra Infrastructure	France / US	0.12	15.0	n.a.	n.a.
Dec 20, 2022	Galp	NextDecade	Portugal / US	0.13	20.0	n.a.	n.a.
Dec 20, 2022	Shell	Oman LNG	UK/Oman	0.11	10.0	2025	2035
Jan 25, 2023	PKN ORLEN	Sempra Infrastructure	EU//US	0.13	20.0	2027	2047
Jan 30, 2023	BOTAS	Oman	Turkey / Oman	0.13	10.0	2025	2035
Mar 27, 2023	Shell	Mexico Pacific Ltd	UK / Mexico	0.15	20.0	2026	2046
Apr 24, 2023	Hartree Partners LP	Delfin Midstream	US / US	0.08	20.0	n.a.	n.a.
Jun 21, 2023	Equinor	Cheniere	Norway / US	0.23	15.0	2027	2042
Jun 22, 2023	SEFE	Venture Global LNG	EU//US	0.30	20.0	2026	2046
Total Non-Asian LNG Buyers New Long Term Contracts Since Jul/21				**5.44**			
Total New Long Term LNG Contracts since Jul/21				**16.33**			

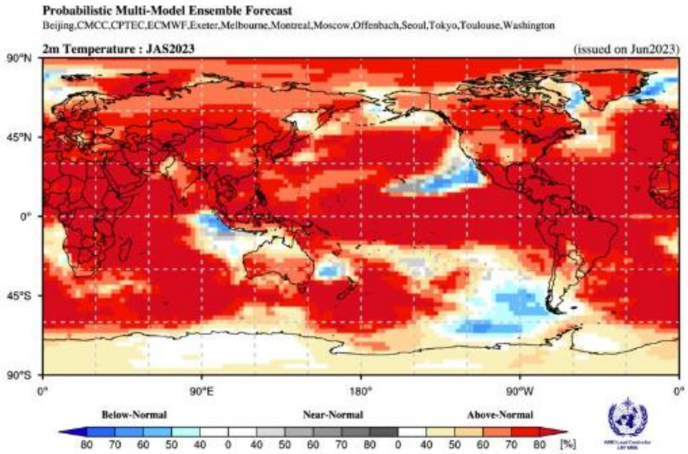
Source: SAF

Natural Gas: WMO "without exception" above-average JAS temperatures everywhere

A hot summer around the world

Nothing has the same impact on natural gas as a hot winter. But a hot summer is a positive, just not anywhere the same offsetting impact as a hot winter. Don't forget that in the US and other regions, when its cold, you crank up a furnace that is powered by natural gas. But when its hot, you turn up the air conditioner that draws on electricity that can be generated by a range of fuels including natural gas. But one added bonus of natural gas when its really hot is that natural gas is normally the first choice as a peaking fuel source for its ability to be qauick to turn on and off so it tends to be called on to fill the gap on very hot days.   On Tuesday, we tweeted [LINK] “"*without exception, above-normal temperature anomalies are expected over all land areas in the Northern and Southern Hemisphere" says @WMO in its 06/26 climate outlook update for Jul/Aug/Sep. #NatGas #Coal markets hope they are right! #OOTT.”* On June 28, the World Meteorological Organization posted its “*Global Seasonal Climate Update: Target Season: July-August-September 2023*” [LINK] that was prepared June 26, 2023. Natural gas and LNG markets couldn’t ask for a better temperature forecast – it’s supposed to be hot everywhere. WMO wrote “*As warmer-than-average SSTs are generally predicted over oceanic regions for the JAS 2023 season, they contribute to widespread prediction of above-normal temperatures over land areas. Without exception, above-normal temperature anomalies are expected over all land areas in the Northern and Southern Hemisphere. The largest increase in probabilities for above-normal temperatures extend around the globe within the 50°S and 50°N band that includes the Maritime continent, Central America, the Caribbean, northern regions of South America, Africa, the Arabian Peninsula, east and southeast Asia, and northern regions of North America. Over these regions the model consistency is high.”* Our Supplemental Documents package includes the WMO forecast.

Figure 6: GSCU for July-August-September 2023



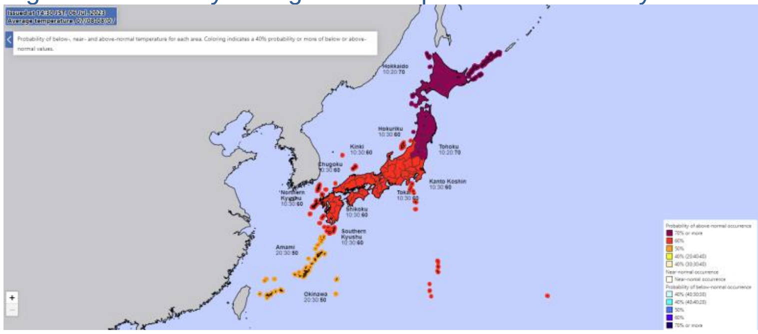
Source: WMO

Natural Gas: Forecast for hot temperatures for July in Japan

Japan’s 30-day temperature forecast

It has been hot in Japan and it looks like the hot weather will continue through July. Every Thursday, the Japan Meteorological Agency updates its 30-day outlook [LINK] and its July 6 update calls for much warmer than typical temperatures through July. It is expected to be the warmest through the northern and central regions of Japan, however the southern region is still expected to have above average temperatures. With temperatures this warm, we can expect to see solid demand for A/C utilization, which should benefit natural gas demand. Below is the JMA’s temperature probability forecast for July 8 to August 8.

Figure 7: JMA July 8-August 8 Temperature Probability Forecast

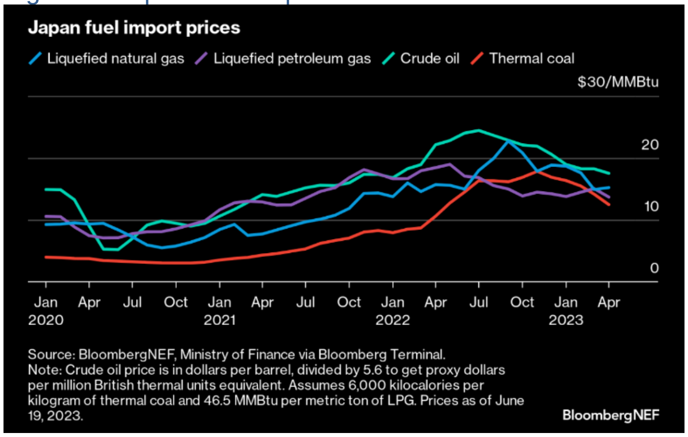


Source: Japan Meteorological Agency

It's hot but Japan LNG prices aren't low enough to drive switch to thermal coal

Japan LNG prices were fairly flat week but haven't been low enough to drive switching to thermal coal. Here is what we wrote in our June 25, 2023 Energy Tidbits memo. *"Japan LNG prices have been weak post the warm winter but aren't yet low enough to incentivize switching from LNG to thermal coal. On Tuesday, we tweeted [LINK] "Japan "#LNG import costs plunge as global markets loosen up, but fuel switching with coal isn't in sight" reports @BloombergNEF @olympe_mattei ie. thermal coal prices also declining for Japan so remain cheaper on BTU basis. #OOTT #natGas." On Tuesday, BloombergNEF posted its "Japan Fuels Quarterly: No Coal-to-Gas Switch in Sight", which noted "BNEF estimates that generation from spot LNG became cheaper than contracted LNG by May 2023, with a marginal generation cost of around $96 a megawatt-hour. However, the drop was not enough for an average efficiency gas-fueled power plant to produce cheaper electricity than a coal power plant of average efficiency. For more, see the Japan Power Fuel Switching Calculator (web I terminal)." Our tweet included the below BNEF chart."*

Figure 8: Japan Fuel Import Prices



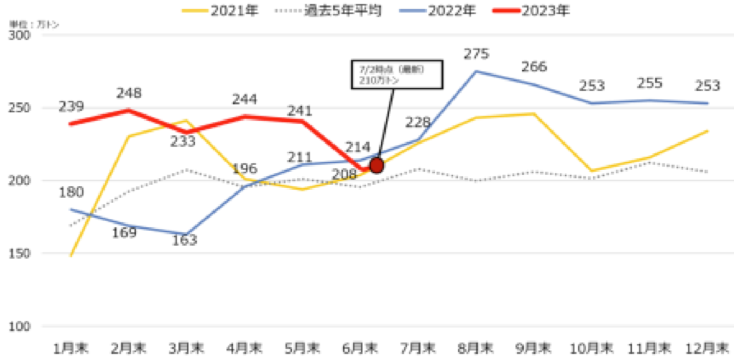
Source: BloombergNEF

Natural Gas: Japan's LNG stocks down -6.7% WoW to 100.9 bcf

Japan LNG stocks down -6.7% WoW

It looks like the combination of low May LNG imports and hot weather in Japan over the past couple weeks is helping reduce Japan's LNG stocks. They were fairly flat thru mid June as there wasn't any major weather demand push in April/May as that is shoulder season. And in early June Japan pushed for the use of less electricity and natural gas ie. turn the air condition onto the low 80's, so there wasn't a big driver of natural gas consumption. However, we are now seeing the really hot weather is starting to be a pull-on LNG stocks. On Wednesdays, Japan's METI releases its weekly LNG stocks data [LINK]. LNG stocks on July 2 were 100.9 bcf and are down ~6.7.9% WoW from June 25 of 108.1 bcf, but remain just above the 5-year average of 99.9 bcf. This is the lowest Japan's LNG Stock have fell since the week of May 7. METI did not comment on what has caused the WoW decrease. Below is the LNG stocks graph from the METI weekly report.

Figure 9: Japan LNG Stocks



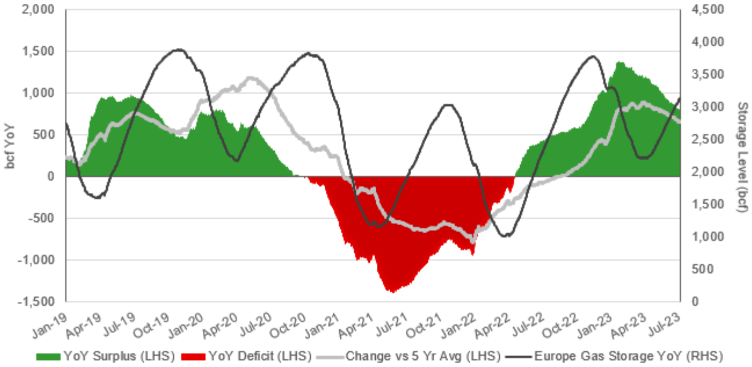
Source: METI

Natural Gas: Europe storage is now +15.24% vs 5-yr average, but within 5-yr range

Europe gas storage

The big global natural gas story for Q1/23 was how mild winters in Europe and Asia were the key reason why Europe made it through winter without a natural gas shortage. And when natural gas makes it thru the winter with ease, that normally continues thru shoulder season when there isn't any real strong demand for natural gas. However, with the warm weather and natural gas prices at reasonable levels, we have seen a modest but steady narrowing of the gas storage surplus on a YoY basis and vs the 5-yr average. This week, Europe storage increased by +1.78% WoW to 78.63% on July 5. Storage is now +18.34% greater than last year levels of 60.29% and is +15.24% above the 5-year average of 63.39%. Prior to this week's +18.34% vs last year, the prior four weeks starting with the most recent has seen the YoY surplus at +19.12%, +19.67%, +20.14%, and +21.50%. Prior to this week's +15.24% above the 5-year average, the prior four weeks starting with the most recent has seen the surplus to the 5-year average were +15.86%, +16.40%, +16.86%, and +17.72%. The current storage is within the 5-year range, albeit at the top end of the range. Below is our graph of Europe Gas Storage Level.

Figure 10: European Gas Storage Level



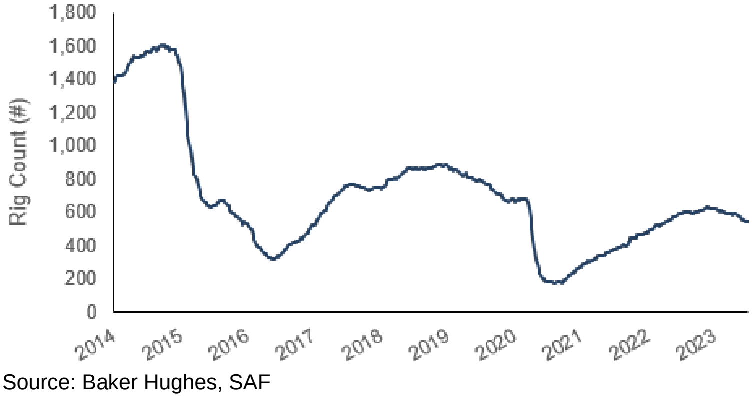
Source: Bloomberg, SAF

Oil: US oil rigs -5 WoW at 540 rigs on July 7, US gas rigs +11 WoW at 135 rigs

US oil rigs down WoW

Baker Hughes released its weekly North American drilling rig data on Friday. This week total US oil rigs were down -5 rigs WoW to 540 total rigs, and -57 rigs YoY for the week of July 7. That is up +59 rigs from the 2022 low of 481 rigs in January, and +368 rigs since the 2020 low of 172 rigs on Aug 14. The decline in oil rigs is being driven by producers wanting to have visibility to oil prices of over $70/bbl before beginning to ramp up production. Notably, on a per basin basis, “Others” increased +2 rigs WoW to 74 total rigs. The Permian and Eagle Ford Decreased this week by -6 and -1 rigs WoW to a total of 330 rigs and 59 rigs, respectively. Gas rigs were up +11 rigs WoW to total of 135 rigs and have now decreased -18 rigs YoY. Natural gas has seen a large recovery, with Henry Hub making a steady recovery. On a per basin basis, the Permian significantly increased by +7 rigs WoW to 12 total rigs, Haynesville increased by +2 rig WoW to 46 total rigs. Below is our graph of total US oil rigs.

Figure 11: Baker Hughes Total US Oil Rigs



Source: Baker Hughes, SAF

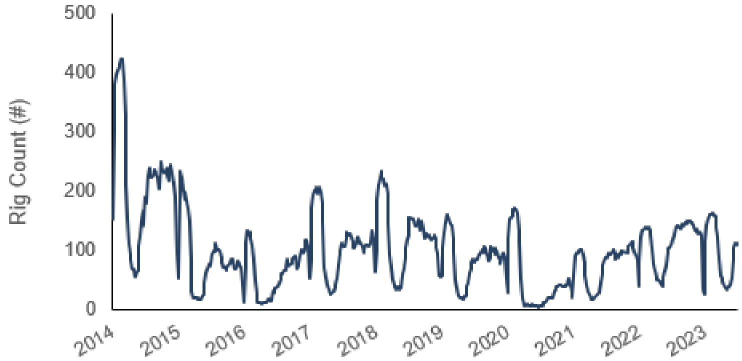
Oil: Total Cdn rigs -2 WoW to 167 total rigs

Cdn total rigs down WoW

For the week of July 7, total Cdn rigs were up +8 rigs WoW to 175 rigs. This week’s increase continues to be in-line with the typical post breakup trend, even in the face of wildfires.

Notably, Alberta and BC were up +8 and +2 rigs WoW, to a total of 116 rigs and 19 rigs. Saskatchewan was -2 rigs WoW to a total of 35 rigs. Cdn oil rigs were up +2 WoW to 111 rigs, and Cdn gas rigs increased +61 to 64 rigs. Cdn oil rigs are down – 5 rigs YoY, while gas rigs are up +5 YoY. Below is our graph of total Cdn oil rigs.

Figure 12: Baker Hughes Total US Oil Rigs



Source: Baker Hughes, SAF

Oil: US weekly oil production estimates up WoW to post-Covid high of 12.4 mmb/d

US oil production up WoW

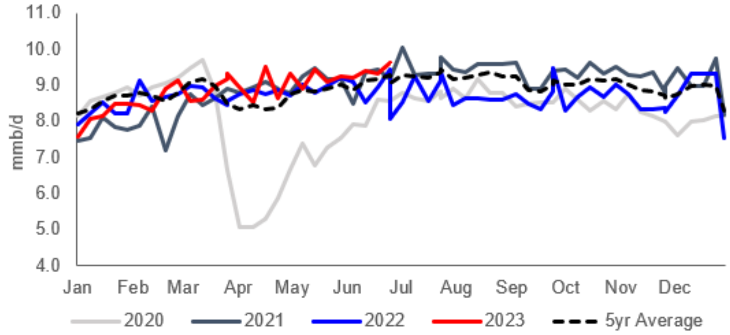
The EIA estimates US oil production up +0.200 mmb/d WoW at 12.4 mmb/d for the week ended June 30 [LINK], which is the post Covid high. The EIA weekly estimates have hit 12.4 mmb/d twice in June, but we have been highlighting how the EIA monthly "actuals" have been above 12.4 mmb/d in Jan, Feb, March and April. So we have been expecting to see the weekly estimates hit 12.4 mmb/d and higher. The Lower 48 was also up + 0.200 mmb/d WoW to 12.0 mmb/d, and Alaska was up +0.003 mmb/d to 0.430 mmb/d. Below is a table of the EIA's weekly oil production estimates.

Figure 13: EIA's Estimated Weekly US Field Oil Production

	Week 1		Week 2		Week 3		Week 4		Week 5	
Year-Month	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
2022-Jan	01/07	11,700	01/14	11,700	01/21	11,600	01/28	11,500		
2022-Feb	02/04	11,600	02/11	11,600	02/18	11,600	02/25	11,600		
2022-Mar	03/04	11,600	03/11	11,600	03/18	11,600	03/25	11,700		
2022-Apr	04/01	11,800	04/08	11,800	04/15	11,900	04/22	11,900	04/29	11,900
2022-May	05/06	11,800	05/13	11,900	05/20	11,900	05/27	11,900		
2022-Jun	06/03	11,900	06/10	12,000	06/17	12,000	06/24	12,100		
2022-Jul	07/01	12,100	07/08	12,000	07/15	11,900	07/22	12,100	07/29	12,100
2022-Aug	08/05	12,200	08/12	12,100	08/19	12,000	08/26	12,100		
2022-Sep	09/02	12,100	09/09	12,100	09/16	12,100	09/23	12,000	09/30	12,000
2022-Oct	10/07	11,900	10/14	12,000	10/21	12,000	10/28	11,900		
2022-Nov	11/04	12,100	11/11	12,100	11/18	12,100	11/25	12,100		
2022-Dec	12/02	12,200	12/09	12,100	12/16	12,100	12/23	12,000	12/30	12,100
2023-Jan	01/06	12,200	01/13	12,200	01/20	12,200	01/27	12,200		
2023-Feb	02/03	12,300	02/10	12,300	02/17	12,300	02/24	12,300		
2023-Mar	03/03	12,200	03/10	12,200	03/17	12,300	03/24	12,200	03/31	12,200
2023-Apr	04/07	12,300	04/14	12,300	04/21	12,200	04/28	12,300		
2023-May	05/05	12,300	05/12	12,200	05/19	12,300	05/26	12,200		
2023-Jun	06/02	12,400	06/09	12,400	06/16	12,200	06/23	12,200	06/30	12,400

Source: EIA

Figure 14: EIA's Estimated Weekly US Oil Production



Source: EIA, SAF

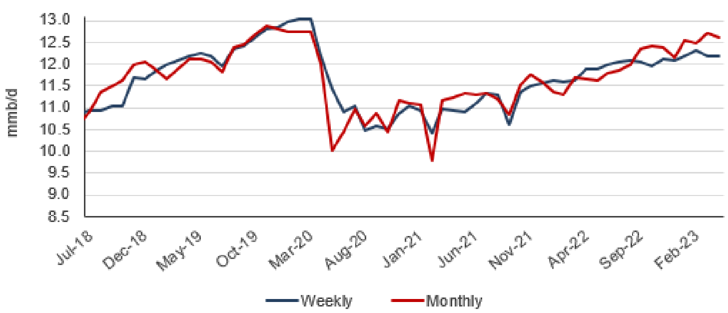
EIA Form 914: US Apr actuals 12.615 mmb/d, +398,000 b/d vs weekly estimates
In our July 2, 2023 Energy Tidbits memo we wrote *"As a reminder, the EIA's actuals for US oil production continue to be well above their weekly estimates. This the large difference between what the EIA looks at as "actuals" for US oil production vs the EIA's weekly estimates noted above. The actuals continue to be significantly higher than the weekly estimates. On Friday, the EIA released its Form 914 data [LINK], which is the EIA's "actuals" for April US oil and natural gas production. The Form 914 actuals for April have production at 12.615 mmb/d, which is +398,000 b/d vs the EIA weekly estimates of 12.217 mmb/d. And because of this significant difference, the Form 914 April production is +947,000 b/d YoY, just shy of 1 mmb/d YoY. The actuals paint a picture of much stronger than expected US oil production."*

Figure 15: EIA Form 914 US Oil Production (thousands b/d)

(thousands b/d)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2023	12,568	12,532	12,717	12,615								
2022	11,369	11,316	11,701	11,668	11,629	11,797	11,844	12,002	12,337	12,417	12,379	12,149
2021	11,124	9,925	11,326	11,305	11,356	11,356	11,347	11,277	10,918	11,569	11,790	11,634
2020	12,852	12,842	12,797	11,914	9,713	10,442	11,006	10,577	10,921	10,457	11,196	11,168
2019	11,869	11,673	11,913	12,149	12,154	12,218	11,902	12,486	12,590	12,809	13,000	12,978
2018	10,001	10,281	10,467	10,500	10,435	10,641	10,897	11,392	11,443	11,509	11,886	11,945
2017	8,875	9,110	9,166	9,101	9,185	9,111	9,247	9,250	9,517	9,669	10,085	9,983

Source: EIA

Figure 16: EIA Form 914 US Oil Production vs Weekly Estimates



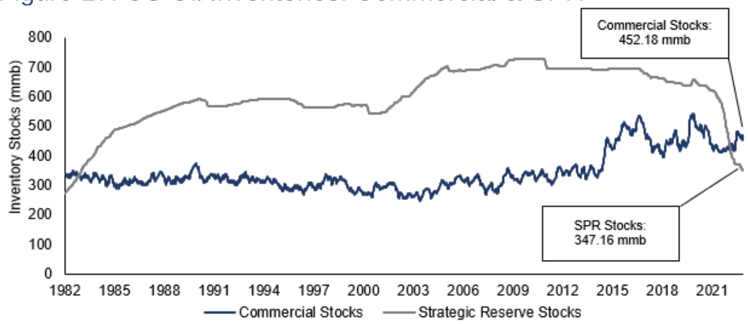
Source: EIA

Oil: US SPR reserves now -105.023 mmb lower than commercial crude oil reserves

US SPR reserves

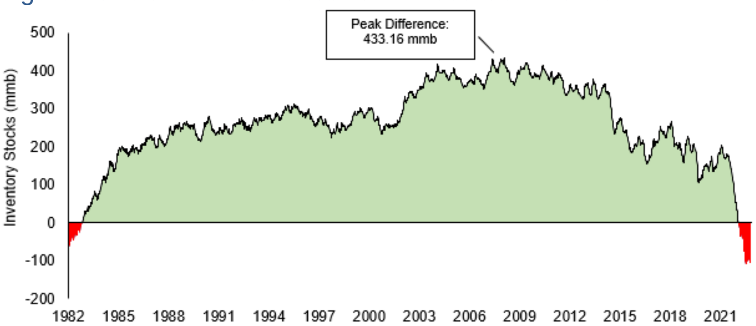
Oil in US Strategic Petroleum Reserves (SPR) continues to be much lower than total US commercial crude oil reserves. SPR went back below commercial for the first time since 1983 in the Sept 16, 2022 week. This deficit narrowed this week after a draw in commercial oil stocks of -1.51 mmb. The EIA's weekly oil data for June 30 [LINK] saw the SPR reserves decrease -1.458 mmb to 347.159 mmb, while commercial crude oil reserves decreased -1.508 mmb 452.182 mmb. There is now a -105.023 mmb difference between SPR reserves and commercial crude oil reserves. The below graphs highlight the difference between commercial and SPR stockpiles.

Figure 17: US Oil Inventories: Commercial & SPR



Source: EIA, SAF

Figure 18: US Oil Inventories: SPR Less Commercial



Source: EIA, SAF

Oil: Cdn oil differentials widened +$0.20 to close at $11.45 on July 7

WCS less WTI differentials

It started off as a great week for WCS less WTI differentials when they narrowed by $1.05 to close at $10.20 and we tweeted [LINK] "*Saudi is likely to preferentially cut #Oil exports to US with its voluntary 1 mmbd cut in July. US has weekly oil inventory and import data so its the place to cut if Saudi wants the market to quickly see there is less oil on market. WCS less WTI diffs also benefits, down to $10.20! #OOTT.*" We reminded that Saudi's extra voluntary 1 mmb/d cuts for July and now Aug were most likely to hit its exports to the US because that is where we believe Saudi will get the quickest market believing in its cuts. The US is the only market with published weekly oil inventory and import data so any Saudi cuts of exports to the US will show up in the weekly data. Then the end of the week, oil was hit by the increasing interest rates leading to more concerns on a slowdown and WCS less WTI differentials to close at $11.45 on July 7, so the ended up widening by $0.20 on the week. Even still this has been a great May/June/July for WCS less WTI differentials, which have narrowed when the normal season trend is to widen starting in mid-May. WCS less WTI differentials were $14.15 on March 31, which was the Friday before the Sun Apr 2 reports that OPEC+ was going to cut production effective May 1. The WCS less WTI differential was up and down but closed at $14.65 on Apr 28, then narrowed in May to 13.75 on May 26, narrowed in June to $11.25 on June 30, narrowed down to $10.20 on July 5 before widening to close at $11.45 on July 7. This is contrary to the normal seasonal trend for WCS less WTI differentials that normally widen starting in mid-May. For perspective, a year ago, the WCS-WTI differentials last year were $22.25 on July 7, 2022. Below is Bloomberg's current WCS–WTI differential as of July 7, 2023 close.

Figure 19: WCS less WTI oil differentials including July 7 close

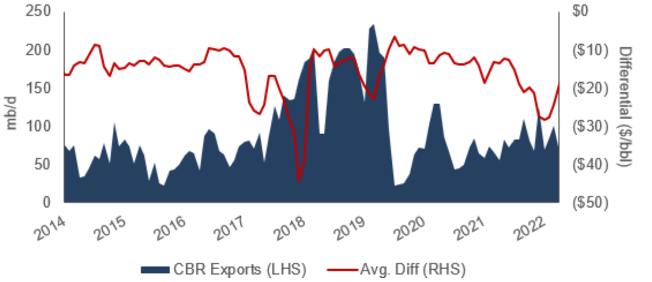
Source: Bloomberg

Oil: EIA estimate total Cdn crude by rail imports down to 31,700 b/d in April

EIA Cdn crude by rail imports

Last Friday, the EIA posted its monthly "U.S. Movements of Crude Oil by Rail" [LINK], which includes the EIA data on US imports of Cdn crude by rail. EIA estimates total US imports of Cdn crude by rail was 31,700 b/d in April, which was down 52,600 b/d MoM from 84,300 b/d in March. US imports of Cdn crude by rail into PADD 3 (Gulf Coast) were 19,200 b/d in April, down from 51,500 b/d in March. Below is our graph of Cdn CBR exports to the Gulf Coast and WCS differential over time.

Figure 20: Canada CBR Exports top US Gulf Coast vs WCS Differential



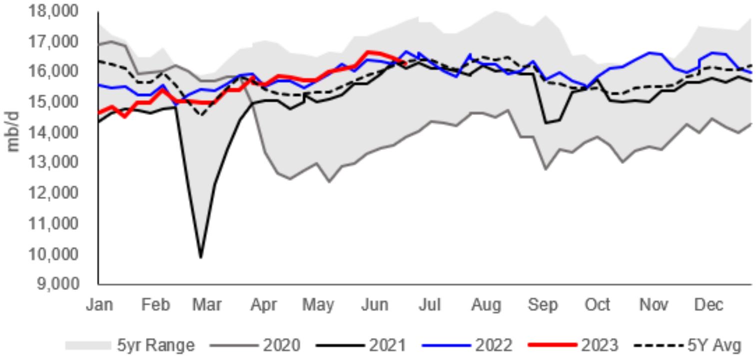
Source: EIA, Bloomberg

Oil: Refinery inputs down -0.224 mmb/d WoW to 16.030 mmb/d

Refinery inputs down -0.224 mmb/d WoW

There have been some unplanned refinery downtimes in the past three weeks that have disrupted the normal seasonal move of increasing crude oil input into US refineries. There are always unplanned issues that impact crude oil inputs into refineries, but refineries around the world follow seasonal patterns for their maintenance. We'll normally see refineries come out of turnarounds in late March/early April to start their ramp up in refining of summer blend fuels, which typically peaks in Aug/early Sept. And given the solid crack spreads, refineries are still incentivized to process as much crude as possible. On Thursday, the EIA released its estimated crude oil input to refinery data for the week ended June 30 [LINK]. The EIA reported crude inputs to refineries were down -0.224 mmb/d this week to 16.030 mmb/d and are down -0.408 mmb/d YoY. Refinery utilization was down -1.1% to 91.1%, which -3.4% YoY. Total products supplied (i.e., demand) increased WoW, up +0.929 mmb/d to 21.235 mmb/d, and Motor gasoline was up +0.293 mmb/d to 9.599 mmb/d from 9.306 mmb/d last week. The 4-week average for Motor Gasoline was up +0.095 mmb/d WoW to 9.368 mmb/d. The 4-week average of Total demand was up +0.702 mmb/d WoW to 20.719 mmb/d.

Figure 21: US Refinery Crude Oil Inputs



Source: EIA, SAF

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

US net oil imports

The reason why we continue to highlight this error is that no one can tell if its only the EIA allocating imports incorrectly by country or if the EIA is understating oil imports. But it's the same commentary as the last several weeks that something doesn't look quite right in the EIA weekly oil imports by country data. It looks like something is off in the EIA's estimates of weekly oil imports by country data but, the reason we highlight this is that we just don't know if the total US crude oil imports are wrong or if it's just that the EIA has incorrectly allocated import volumes to the wrong country. Perhaps this is part of the reason for the big weekly plug in its estimates. (i) For some reason, the EIA weekly data does not include any oil imports from Venezuela in their weekly reporting of US oil imports by country. Yet we have seen Chevron importing oil from Venezuela into its and other PADD 3 Gulf Coast refineries. What we don't know if the EIA has just allocated to some other country. We have been highlighting how Chevron has steadily increasing US Gulf Coast (PADD 3) imports from Venezuela every month in 2023. And the EIA reports oil imports from Venezuela in its monthly data but for reason not in these weekly estimates. (ii) US "NET" imports were up +1.895 mmb/d to 3.137 mmb/d for the June 30 week. US imports were up +0.458 mmb/d to

7.038 mmb/d. US exports were down -1.437 mmb/d to 3.901 mmb/d. The WoW increase in US oil imports was driven mostly by “Top 10”. The Top 10 was down -0.031 mmb/d. Some items to note on the country data: (i) Canada was down -0.165 mmb/d to 3.611 mmb/d. (ii) Saudi Arabia was down -0.147 mmb/d to 0.313 mmb/d. (iii) Mexico was up +0.124 mmb/d to 0.882 mmb/d. (iv) Colombia was up +0.065 mmb/d to 0.287 mmb/d. (v) Iraq was down -0.094 mmb/d to 0.122 mmb/d. (vi) Ecuador was up +0.090 mmb/d to 0.157 mmb/d. (vii) Nigeria was up +0.096 mmb/d to 0.192 mmb/d.

Figure 22: US Weekly Preliminary Imports by Major Country

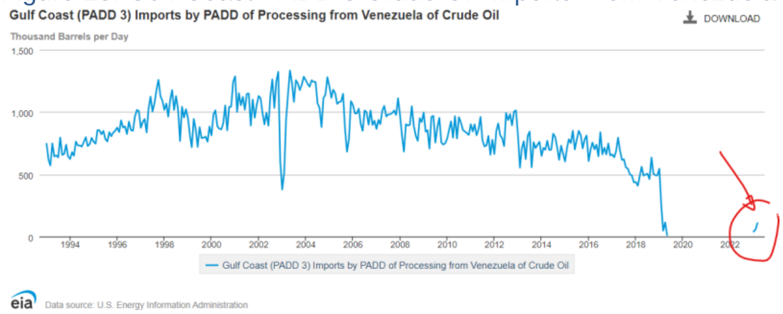
(thousand b/d)	Apr 21/23	Apr 28/23	May 5/23	May 12/23	May 19/23	May 26/23	Jun 2/23	Jun 9/23	Jun 16/23	Jun 23/23	Jun 30/23	WoW
Canada	3,327	3,526	3,269	3,592	3,707	3,589	3,504	3,339	3,570	3,776	3,611	-165
Saudi Arabia	393	242	381	415	212	534	66	677	146	460	313	-147
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	728	706	393	676	657	913	647	845	808	758	882	124
Colombia	143	143	47	339	214	286	127	184	148	222	287	65
Iraq	222	148	247	174	136	114	430	252	102	216	122	-94
Ecuador	36	57	145	101	71	214	218	54	203	67	157	90
Nigeria	104	214	143	329	77	98	144	132	204	96	192	96
Kuwait	0	0	0	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0	0	0	0
Top 10	4,953	5,036	4,625	5,626	5,074	5,748	5,136	5,483	5,181	5,595	5,564	-31
Others	1,423	1,360	928	1,234	776	1,469	1,264	898	980	985	1,474	489
Total US	6,376	6,396	5,553	6,860	5,850	7,217	6,400	6,381	6,161	6,580	7,038	458

Source: EIA, SAF

EIA shows imports from Venezuela in its monthly import data.

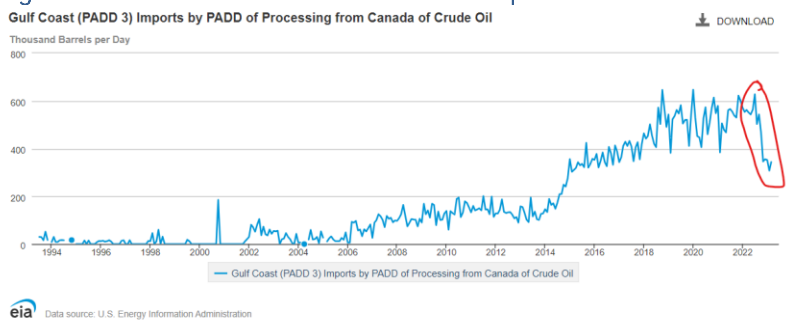
Here is what we wrote in our May 7, 2023 Energy Tidbits memo. *“Last week’s (Apr 30, 2023) Energy Tidbits memo highlighted our Apr 29 tweet [LINK] that Chevron’s start of Venezuela oil imports into the Gulf Coast is likely impacting Cdn WCS less WTI differentials and how Venezuela oil into the Gulf Coast will be increasing in March and April. On Monday, Bloomberg’s Tanker Tracker for Venezuela confirmed the increases in March and April. We tweeted [LINK] ‘Blame it on #Chevron. Seasonal narrowing for WCS-WTI differentials, but not as much as might be expected. Increasing PADD 3 Gulf Coast imports of VEN #Oil. Feb: 89 kbd. Mar: 115 kbd. Apr: 143 kbd. Thx @business Tanker Tracker, @lkassai. #OOTT”.* (ii) Here is what we wrote in our Apr 30, 2023 Energy Tidbits memo on the EIA monthly data. “*Our tweet included the below EIA graphs of crude oil imports into the Gulf Coast PADD 3. They remind how Cdn heavy/medium crude was able to penetrate PADD 3 (Gulf Coast) because there was a need with declining Mexico and Venezuela crude oil. Conversely, if Venezuela increases, it will mean more Venezuela crude to the Gulf Coast and less need/increased pressure on Cdn differentials.   It’s hard to see form the graph but we pointed to the first Venezuela oil imports into the Gulf Coast in about 3 ½ years were 40,000 b/d in Jan and 58,000 b/d in Feb, and this will be higher in March.”*

Figure 23: Gulf Coast PADD 3 Crude Oil Imports From Venezuela



Source: EIA

Figure 24: Gulf Coast PADD 3 Crude Oil Imports From Canada



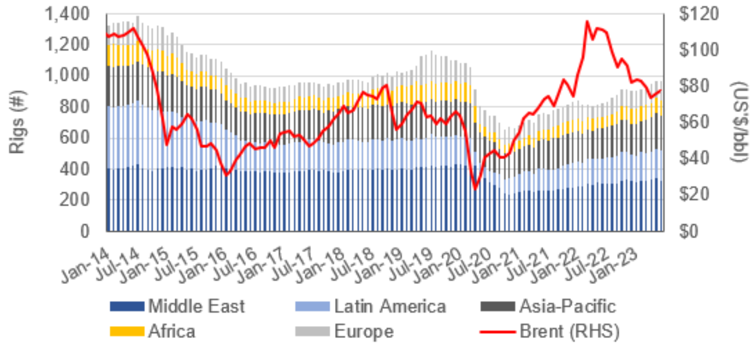
Source: EIA

Oil: Baker Hughes International rigs +2 MoM to 967 rigs in June

On Friday, Baker Hughes posted its monthly update to international rigs, in total, that show rigs in June were relatively flat MoM. (i) Total international rigs increased by +2 rigs MoM to 967 rigs in June, and total rigs are now up +161 rigs from the recent low of 806 in April 2022. (ii) Ukraine, Norway, and Algeria had the largest MoM increases of +7 to 44 rigs, +6 to 15 rigs, and +4 to 36 rigs, respectively. Notable this is the first time Ukraine has had any change in total rig count since January and June 2023 is +35 rigs YoY from 9 rigs in June 2022 post the Russia invasion. In contrast, Indonesia, Ecuador, Guyana, Kuwait, and Saudi all had rigs -3 MoM. (iii) Ukraine, Mexico, and Saudi Arabia are up +35 rigs, +21 rigs, and +17 rigs YoY. The largest YoY decreases were realized by Columbia, Ecuador, and Vietnam which had declines of -8 rigs, -6 rigs, and -3 rigs, respectively. (iv) June's count of 967 rigs was +17% YoY from 824 in June 2022, and down -15% vs pre-Covid June 2019 of 1,138 rigs. The YoY rig count is as follows: Africa +23, Asia-Pacific +30, Europe +35, Latin America +29, and the Middle East +26. (v) Rig counts continue to be solid in the major Persian Gulf countries but remain below pre-Covid levels. Since February 2022, the UAE has added +21 rigs to 55 active rigs in June 2023, while Saudi Arabia added +14 rigs and Iraq added +16 rigs each over the same period. Africa moderately increased its rig count YoY with Libya adding +14 rigs, Nigeria adding +3, and Algeria adding +3 rigs. Below is our graph of international rigs by region and avg monthly Brent price.

International rigs +2 MoM in June

Figure 25: Baker Hughes International Rig Count and Brent Price



Source: Baker Hughes, SAF

Oil: Pemex restored 600,000 b/d of 700,000 b/d offline from Friday platform explosion

Pemex platform explosion

As of our 7am MT news cut off, we have not seen any more current Pemex update since their 5:47pm MT tweet yesterday. Earlier this morning, we tweeted [LINK] "*#Pemex says still 100,000 b/d offline as of last night ie. 600,000 b/d back on of the halted 700,000 bpd. There are too many fires, accidents at @Pemex operations. Let's hope they use this tragedy of two workers people dying to put safety to #1 priority. #OOTT.*" Early Friday morning, there was an explosion and fire at an offshore platform that reportedly killed two workers and there is still worker missing in addition to the injured. It led to a peak of 700,000 b/d of oil shut-in and an undisclosed (probably around 0.6 bcf/d) amount of natural gas shut-in. Our tweet included the Pemex tweet [LINK] that said "*From the Quesqui field in #Huimanguillo , Tabasco, the General Director of #PEMEX , Eng. @OctavioRomero_O, reports today on the fire yesterday in Cantarell. The injured colleagues are stable and the search for the missing person continues. Regarding production, the incident reflected a loss of 700,000 barrels because practically all the wells in the area were closed, however, until a few moments ago, 600,000 barrels had already been recovered.*" We would assume that this would also mean almost all the natural gas is back onstream but we haven't seen any comments on natural gas. Pemex did not say when or if the remaining production will be back onstream. This is only one platform in the producing complex but it is effectively destroyed so we won't be surprised to see the remaining production offline for some time.

Pemex oil production including partner volumes slightly above 1.6 mmb/d

Here is what we wrote in last week's (July 2, 2023) Energy Tidbits memo on the latest Pemex oil production data. "*On Monday, Pemex reported [LINK] its data for May. Pemex's May oil production, including partners, was 1.611 mmb/. This represents a change of -4.7% YoY and +0.2% MoM. Excluding partner production, Pemex interest April production was 1.591 mmb/d. Pemex does not provide any color to the numbers. The story remains the same – Mexico (Pemex) oil production is stuck around 1.6 mmb/d. Pemex has been unable to grow Mexico oil production, which means that any increase in Pemex Mexico refineries will result in less Mexico oil for export including to the US Gulf Coast. Below is our table tracking Pemex oil production.*

Figure 26: 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		
July	2,157	1,986	1,823	1,671	1,595	1,701	1,707		
Aug	2,144	1,930	1,798	1,683	1,632	1,657	1,691		
Sept	2,113	1,730	1,808	1,705	1,643	1,709	1,685		
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

Mexico exported 1.087 mmb/d of oil in May +12.6% YoY

Here is what we wrote in last week's (July 2, 2023) Energy Tidbits memo on the latest Pemex oil export data. "*There have been a number of unplanned minor refinery outages, which has freed up a little more Mexico oil for export. Please note that we continue to expect Mexico oil exports to decline in H2/23 as they start up their new 340,000 b/d Olmeca (formerly known as Dos Bocas) refinery. On Monday, Pemex reported [LINK] its natural gas data for May, which were 1.087 mmb/d, +12.6% YoY and +9.9% MoM. This was the first time Mexico exports over 1 mmb/d since September 2022. Oil exports can normally vary +/- 1.0 mmb/d, but changes in export volumes can be impacted by varying production levels of petroleum products. Mexico oil exports in the US were 0.752 mmb/d in May, which is up +1.6% YoY, and +31.0% MoM. Pemex did not comment on what caused the MoM increases. Below is our table of the Pemex oil export data.*"

Figure 27: 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		
July	1,146	1,255	1,156	1,079	1,051	1,173	1,062		
Aug	1,261	1,114	1,181	1,082	1,190	1,099	915		
Sept	1,425	1,159	1,206	995	1,023	983	1,022		
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

Mexico's 3rd consecutive month natural gas production above 5 bcf/d

Here is what we wrote in last week's (July 2, 2023) Energy Tidbits memo on Pemex's latest natural gas production data. "*On Monday, reported [LINK] its natural gas data for May. Pemex reported May 2023 natural gas production of 5.030 bcf/d, which was +7.0% YoY and -1.3% 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. To be fair, the last three* *months have been the first consecutive months slightly over 5 bcf/d since Dec 2019/Jan 2020. Pemex does not provide any commentary along with its production data. Below is our ongoing table of Pemex reported monthly natural gas production*."

Figure 28: 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%	5.030	7.0%
June	5.253	4.840	4.843	4.754	4.727	4.744	0.4%		
July	5.216	4.856	4.892	4.902	4.725	4.815	1.9%		
Aug	5.035	4.898	4.939	4.920	4.656	4.796	3.0%		
Sept	4.302	4.913	5.017	4.926	4.746	4.798	1.1%		
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

Oil: Colombia oil production still below pre-Covid, May was 0.774 mmb/d

Colombia oil production down in May

It's hard to see how Colombia oil production ever sustainably rallies anywhere back to the 1 mmb/d or even 900,000 b/d given Colombia's goal to reduce oil and natural gas. Despite stronger oil prices post Covid, Colombia oil production has been stuck below 800,000 b/d. And it has been stuck around 780,000 b/d for the past seven months The National Hydrocarbons Agency (ANH) reported [LINK] May's oil production was down -1.0% MoM to 0.774 mmb/d. On June 26, ANH reported Colombia oil production in May was up +3.8% YoY to 0.774 mmb/d vs 0.746 mmb/d in May 2022 on higher drilling and exploration activities in its core producing fields. May's data brings the average YTD production to 0.772 mmb/d, up +2.39% YoY from 2022's 0.754 mmb/d but production remains -12.9% below pre-Covid levels of 0.886 mmb/d in 2019. Campetrol commented *"This negative behavior in production was mainly due to social conflict problems in the department of Meta and Arauca".*

Figure 29: Colombia Oil Production

mmb/d	2016	2017	2018	2019	2020	2021	21/20	2022	22/21	2023	23/22
Jan	0.986	0.860	0.860	0.899	0.884	0.745	-15.7%	0.740	-0.7%	0.774	4.6%
Feb	0.955	0.864	0.823	0.893	0.878	0.746	-15.1%	0.740	-0.8%	0.757	2.4%
Mar	0.917	0.804	0.856	0.885	0.857	0.745	-13.0%	0.751	0.8%	0.771	2.6%
Apr	0.915	0.857	0.865	0.891	0.796	0.745	-6.4%	0.751	0.8%	0.782	4.1%
May	0.904	0.851	0.866	0.895	0.732	0.703	-3.9%	0.746	6.1%	0.774	3.8%
June	0.888	0.857	0.864	0.892	0.730	0.694	-4.9%	0.752	8.4%		
July	0.843	0.856	0.860	0.869	0.735	0.731	-0.5%	0.748	2.3%		
Aug	0.827	0.858	0.866	0.883	0.742	0.748	0.8%	0.749	0.1%		
Sept	0.859	0.851	0.869	0.879	0.749	0.744	-0.7%	0.754	1.3%		
Oct	0.846	0.864	0.879	0.883	0.751	0.740	-1.5%	0.757	2.3%		
Nov	0.855	0.851	0.883	0.880	0.761	0.747	-1.9%	0.771	3.2%		
Dec	0.837	0.870	0.889	0.882	0.759	0.745	-1.8%	0.784	5.2%		

Source: ANH, SAF

Oil: Nigeria crude oil exports to hit 6-month high, up to 1.5 mmb/d for Aug

Nigeria oil exports up

On Tuesday, we tweeted [LINK] "*Another supply addition holding back some of the impact of Saudi voluntary #Oil cuts is Nigeria. See* 👇*""Nigeria to Lift Aug. Crude Exports to Six-Month High of 1.5M B/D" reports @business Sherry Su. #OOTT."* Most have just been assuming Nigeria is the normal – it just can't get its oil production and exports up higher. It may not be huge but, increasing oil exports by 200,000 to 300,000 b/d helps negate part of the impact of the Saudi cuts. Bloomberg wrote "*Nigeria to Lift Aug. Crude Exports to Six-Month High of 1.5M B/D. Nigeria to lift at least 46.4m bbl or 1.5m b/d of 19 major crude grades for August, according to loading programs seen by Bloomberg. * The daily volume will be the highest since February * Escravos exports will be four cargoes of 950k bbl each of for August; equivalent to 123k b/d, unchanged from July * Egina loadings will be three cargoes of 950k bbl each, totaling 92k b/d vs 65k b/d for July * Brass exports will be four cargoes totaling 77k b/d vs 31k b/d for July * Nigeria will also export one cargo of 950k bbl each of Pennington and Yoho.*" Below is Bloomberg's graph of Nigeria oil exports.

Figure 30: Nigeria crude oil exports

Source: Bloomberg

Oil: Russia says will cut "exports" by 500,000 b/d in August

Russia to cut oil exports in Aug by 500,000 b/d

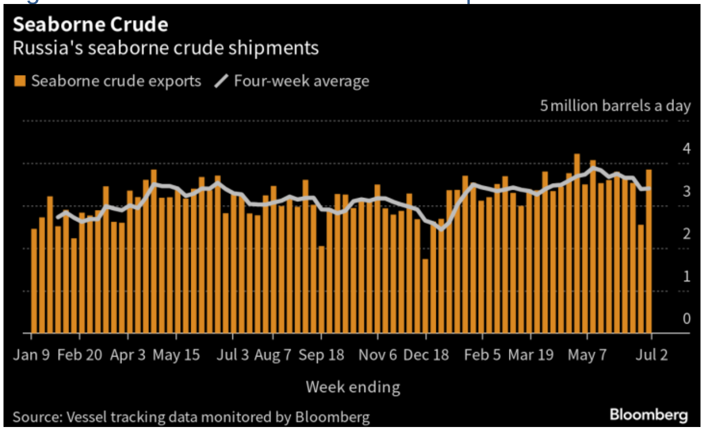
There is no question that markets aren't prepared to accept Russia's statements on oil until they see it show up in the numbers. But markets were surprised Monday morning with the TASS report on Russia Deputy Prime Minister Novak's comments that Russia will voluntarily reduce oil exports by 500,000 b/d in August. He was careful to say oil exports and not production ie. They are reducing their oil exports on the market. We aren't aware of anyone expecting Russia to say they will take oil off the market by reducing oil exports. On Monday morning, we tweeted [LINK] "*Two positives for #Oil this morning. Unexpected: Novak: Russia to reduce oil EXPORTS by 500,000 b/d in Aug. Expected: Saudi Ministry of Energy: KSA to extend 1 mmb/d voluntary cuts to incl Aug. #OOTT.*" TASS reported [LINK] "*Russia decided in August 2023 to voluntarily reduce oil exports by 500 thousand barrels per day (bpd). This was told to journalists by Russian Deputy Prime Minister Alexander Novak. "As part of efforts to balance the market, Russia will voluntarily reduce supplies to oil markets by 500,<> barrels per day in August by reducing exports by a designated amount," he said. Russia had previously decided to voluntarily reduce oil production by 500,<> bpd from the February average in March, then the decline in production was extended until June inclusive, then this decision was extended until the end of the year. The new decision concerns exports, not production.*" Our Supplemental Documents package includes the TASS report.

Oil: Russia's seaborne oil flows had just jumped back up

Russian seaborne oil flows

On Tuesday, we tweeted [LINK] "*Busted! Here's why Russia's Novak likely nudged to switch to committing to cutting 500,000 b/d to EXPORTS. See 👇 @JLeeEnergy: RUS seaborne oil* *flows rebounded to hit 7-week high ie. little evidence that supposed PRODUCTION cuts impacted flows. #OOTT."* We have to believe Russia's seaborne oil export data from the various tanker trackers was the reason why Russia was likely nudged to make some sort of commitment on to cut oil exports instead of its commitment to cut production. Bloomberg wrote "*Russia's seaborne crude oil flows to international markets rose sharply last week to hit a seven-week high and indicate that the previous week's drop was maintenance-related. Crude flows through Russian ports jumped by about 1.3 million barrels a day in the week to July 2, as flows through two key export terminals bounced back, following a well-established pattern that previously has been related to maintenance. Bigger shipments were seen from all regions, but the largest gains came from the Baltic and Pacific ports, which had been the hardest hit in the prior week's slump."* Our tweet included the below Bloomberg graph that shows the big bounce back in seaborne oil exports.

Figure 31: Russia's seaborne crude shipments



Source: Bloomberg

Oil: Russia, any war can end very fast with peace treaty or like US did using a nuke

Russia on how to end a war

It didn't impact oil markets but it was impossible to ignore Russian Security Council Deputy Chairman Dmitry Medvedev's comments on how wars end can end very fast – peace treaties or like the US did in using atom bombs on Japan to end WWII. We don't know how anyone can know the level of risk that Russia uses tactical smaller nuclear weapons but, there has to be some, even if small, element of risk to this event. On Wednesday, we tweeted [LINK] "*ICYM*I. *Russia's Medvedev ""any war, even a world war, can stop very fast," "Either if a peace treaty is signed or if one does what the US did in 1945, when it used its nuclear weapons and bomber to Japanese cities - Hiroshima and Nagasaki." Hoping for peace soon! #OOTT."* TASS wrote [LINK] "*The special military operation would end in several days if the US and its vassals stop sending weapons to Ukraine, Russian Security Council Deputy Chairman Dmitry Medvedev said Wednesday, answering a question from TASS. "In NATO, primarily the US and its vassals, stop shipping weapons and munitions to Ukraine, the special military operation would end in several months; and if they stop shipping their weapons now, then the special op will end in mere days," Medvedev said. "Actually, any war, even a world war, can stop very fast," he continued. "Either if a peace treaty is signed or if one does what the US did in 1945, when it used its nuclear weapons and bomber to Japanese cities -*

Hiroshima and Nagasaki. They have, indeed, ended the war campaign back then, at a cost of lives of almost 300,000 civilians."

Did Biden approve cluster bombs as Ukraine running out of 155mm shells?

One of the big US political stories was Biden approving US sending cluster bombs to Ukraine. This was controversial with as many countries, including the UK and Canada, signed prior agreement to ban and not use cluster bombs. And, objected in their political way with an ally by saying their countries don't use and didn't slam the us for supplying cluster bombs. Or, in the case of NATO, NATO saying it was up to countries to decide. CNN is playing the full interview later today with Fareed Zakaria but CNN posted a couple snippets from it including asking cluster bombs. Biden defended his position but also revealed what many believe – the now 500-day Ukraine war is draining munitions supplies especially the 155 mm shell. The 155 mm shell has been probably the standard for howitzers for the past several decades. And Biden seemed to link the supply of cluster bombs to Ukraine running out of 155 mm shells and the US inventory of 155 mm shells being low. Here is the transcript we made of Biden's on cluster munitions with Fareed Zakaria posted on July 7, 2023. [LINK] Items in "*italics"* are SAF Group created transcript. Zakaria on US providing cluster weapons, weapons a hundred nations banned including some of US closest allies, etc "*what made you change your mind and decide to give them these weapons?*". Biden "*Two things Fareed. And it was a very difficult decision on my part. And by the way, I discussed this with our allies, I discussed this with our friends up on the Hill. And we're in a situation where Ukraine continues to be brutally attacked across the board by munitions, by these cluster munitions that had dud rates that are very very low, I mean very high. That are danger to civilians. Number one. Number two, the Ukrainians are running out of ammunition. Ammunition that they call 155 millimeter weapons. This is a war relating to munitions. And they're running out of that ammunition, and we're low on it. And so, what I finally did, I took the recommendation of the Defense Department to, not permanently, but to allow for this transition period, while we get more 155 weapons, these shells, for the Ukrainian to provide them with something that has a very low dud rate. I think its about one, one five O, which is the least likely to be blown and its not used in civilian areas. They're trying to get thru those trenches and stop those tanks from rolling. And so, but it was not an easy decision. We're not signatories to that agreement, but it took me a while to be convinced to do it. But the main thing is they either have the weapons to stop the Russians now, from keep them from stopping the Ukrainian offensive through these areas, or they don't. And I think they needed them."*

Oil: Saudi Arabia extends voluntary 1 mmb/d cut to include August

Saudi voluntary 1 mmb/d cut

No one was surprised to see Saudi Arabia extend its voluntary 1 mmb/d cut to include August. And the reality is that oil would have been down if they hadn't extended. So, as expected, on Monday morning Saudi Arabia Ministry of Energy announced [LINK] "*An official sources from the Ministry of Energy announced that the Kingdom of Saudi Arabia will extend the voluntary cut of one million barrels per day, which had gone into implementation in July, for another month to include the month of August that be extended, and in effect, the Kingdom's production for the month of August 2023 will be approximately 9 million barrels per* *day. The source also noted that this cut is in addition to the voluntary cut previously announced by the Kingdom n April 2023, which extends until the end of December 2024."*

Oil: Saudi nest egg, its net foreign assets were up $12.6b MoM in May

Saudi net foreign assets

We continue to believe the #1 financial theme for Saudi Arabia in the 2020s will be their continued, and likely increasing, use of Other People's Money as they try to transition their country to MBS's Vision 2030. We believe this has been obvious with how Saudi Arabia's net foreign assets dropped by about $315b over the last nine years. We are surprised that markets and oil watchers didn't seem to pay attention to the Saudi net foreign assets data i.e., what we call their nest egg to help them thru the Energy Transition. Above $100 oil last year helped arrest the decline in the Saudi nest egg. But Saudi net foreign assets have dropped by $314.2 over the last 8 years & 9 months from is peak of $737.0b on Aug 31, 2014, to $422.8b on May 31, 2023. That is an average of $3.0b per month for the last 105 months since the peak. Oil prices remained relatively flat throughout the month with Brent crude averaging ~$75 in May compared to ~$80 in April. Given the lower oil prices, it was surprising to see Saudi Arabia's net foreign assets on May 31 were up +$12.6b MoM to $422.8b vs $410.1b in April, and $418.7b in March. This is the first month since November 2022 that Saudi's foreign assets have increased and it certainly wasn't due to oil prices. We have to wonder if there were some in and out transactions in April and May that made the April MoM decline larger than expected and the May MoM increase larger than expected. Even still we would not have expected Saudi Net Foreign Assets to be up from March 31. Saudi Arabia is far from going broke but there has been a huge decline in the last 8 years and 9 months, but it is still a very big nest egg. This net foreign asset depletion is why we have been highlighting that the primary financial theme for Saudi Arabia in the 2020s is getting Other People's Money (OPM) to fund as much of their Vision 2030 as possible. And no question, accessing OPM has helped to slow down and temporarily pause the decline in net foreign assets. Saudi Arabia's central bank (SAMA) doesn't provide explanations for the monthly swings. Below is our graph of Saudi Arabia net foreign assets updated for the May 31 data.

Figure 33: Saudi Arabia Net Foreign Assets

Source: Bloomberg

Oil: UAE capacity up to 4.5 mmb/d from 4.3 mmb/d, on track for 5.0 mmb/d by 2027

UAE capacity up to 4.5 mmb/d

One of the Wednesday morning stories out of Vienna, site of the OPEC International Seminar, was how UAE energy minister Suhail Al Mazrouei told reporters on thee sidelines that the UAE won't be making any further voluntary cuts and that the UAE is "doing enough" to contribute to the OPEC+ supply restrictions. No one was surprised by the UAE stance given UAE, in the June OPEC+ meetings, was able to negotiate an increase of 200,000 b/d. UAE has been like Saudi Arabia and in the midst of an aggressive oil capacity expansion and looks to be well on track to increase its capacity from 4.3 mmb/d to 5.0 mmb/d by 2027. On Tuesday, Energy Intelligence posted an update [LINK] on the expansion "*Adnoc Closes In on 4.5 Million b/d Output Capacity".* Adnoc is the UAE state oil company. Energy Intelligence reported "*Abu Dhabi National Oil Co. (Adnoc) has reached oil production capacity of around 4.5 million barrels per day, a key benchmark on its path towards boosting capacity to 5 million b/d by 2027. Energy Intelligence last year estimated that oil production capacity in Abu Dhabi had reached a level close to 4.3 million b/d, more than half of which is attributable to offshore fields, which include the giant Upper Zakum field, whose production capacity is now estimated at above 1 million b/d. The new capacity figure recently published by Adnoc for the first time on its website is a reflection of the state giant's investment drive in recent years and adjusted timelines for implementation, one industry source said."* And "T*he Mideast Gulf producer pushed for a higher quota in the past and, at the last Opec-plus meeting in early June, managed to negotiate an upward revision of 200,000 b/d to around 3.2 million b/d to come into force in 2024. Under the present Opec-plus arrangement, the UAE committed to pumping just below 2.9 million b/d — well below its capacity. Last year, Adnoc moved forward the company's official 5 million b/d oil production capacity target to 2027 from 2030."* Our Supplemental Documents package includes the Energy Intelligence report.

Oil: Feels like months not weeks for restart of Kurdistan/Iraq oil exports thru Turkey

Kurdistan oil still shut in

On Friday, we tweeted [LINK] "*Months, not weeks before Kurdistan/Iraq oil exports resumed via Turkey? Iraq oil minister Ghani: waiting on Turkey's assessment of damage & repair (read $$$ needed) to pipeline that was damaged by earthquake & caused a leak. Ghani says 475,000 bpd. Thx @dan_murphy! #OOTT."* We don't think it was a matter of translation but Ghani said they are waiting for Turkey to tell the impact and repair needed to fix the pipeline that was damaged in the earthquake early this year. The CNBC translator seemed clear that it was the pipeline that got damaged and not the Ceyhan port facilities as Turkey has previously said. In other words, Iraq is waiting for Turkey to tell them how much it will cost to restore operations. And we still haven't seen any reports that Turkey is planning to get this settled soon. It just seems Iraq is in a wait and hope situation. Our tweet included the transcript we made of comments by Iraq Oil Minister Hayyan Abdul Ghani, via CNBC translator, with Dan Murphy (CNBC) on July 7, 2023. [LINK] Items in "*italics*" are SAF Group created transcript. Ghani "*As you know, the negotiations are ongoing with Turkey and will start again. And through the port and the amount of petrol that's supposed to be exported this pipe could reach 475,000 barrels. Two weeks ago, especially two days before EID, we received a delegation from our brothers in Turkey. And we had negotiations and talks with them what is the way to return to export. And they explained there is a problem – a damage in the pipeline. And this happened because of the last earthquake. The damage caused a leak of oil and now they are assessing the amount of damage to repair and to start exporting again. We asked the Turkish side to send a technical delegation from Iraq to know the damage and how to fix it. And God willing, we are waiting for the results from that Turkish side.*"

Turkey previously raised the Ceyhan damage post the earthquake

We were surprised by the Iraq oil minister saying Turkey's damage was to a pipeline given that we had only previously heard that the damage issue was at the Ceyhan export port. This has been the key reason Turkey has given on its infrastructure issues that have held up a resumption of exports. Our June 18, 2023 Energy Tidbits memo highlighted the Rudaw report that noted that "*Turkey wants to inspect and rehabilitate the port tubes that might have been damaged following February's earthquake."* The earthquake damage at Ceyhan is not a new excuse. On Feb 7, we retweeted two Feb 7 tweets from TankerTrackers.com. The first [LINK] wrote "*Satellite imagery captured today by @planet now shows what appears to be two ruptured oil storage tanks at the Ceyhan terminal in Turkey. These tanks are fed with oil that derives from northern Iraq. Each one of these tanks can store a million barrels. #OOTT.".* The tweet included the below images. The second tweet was "*we anticipate that there may be more damage than meets the eye; particularly with the empty storage tanks. Also, future aftershocks may continue to create additional ruptures in the coming weeks and months. Our latest export figures will be published on Thursday*."

Figure 34: Ceyhan terminal in Turkey

Source: TankerTrackers

Oil: Haftar is back and warns need new sharing of oil revenues by Aug

Haftar warns need fair oil sharing

On Tuesday, we tweeted [LINK] *"Haftar is back! So increased risk to Libya's stable #Oil production of ~1.2 mmb/d for months. Haftar says need new fair distribution of oil revenues with eastern Libya by Aug or "the Libyan people will be on time to claim their legitimate right for wealth". Follows 👇06/25 tweet Eastern Libya head Hammad warned could halt oil exports unless get their fair share. #OOTT."* Markets shouldn't be surprised that Haftar has come out with his warning that there needs to be a new sharing of oil revenues with eastern Liibya as he follows the head of the eastern Libya parliament's warning from two weeks ago that they would halt oil exports without a fair sharing of oil revenues. Haftar had a similar warning that there needs to be a new revenue sharing but added one other issue – it needs to be done in July. On Tuesday, the Libya Observer (Tripoli based) reported [LINK] "*Rogue military commander Khalifa Haftar has demanded that the mechanism for distributing the country's wealth and oil revenues be reconsidered, threatening to take action if a plan in this regard is not ready by August. Addressing an audience of military and security figures on Monday, Haftar demanded that a high committee be formed to arrange a financial audit that distributes the revenues equitably. In case of any delay in establishing the relevant* *committee, "the Libyan people will be on time to claim their legitimate right for wealth," he said."* Our Supplemental Documents package includes the Libya Observer report.

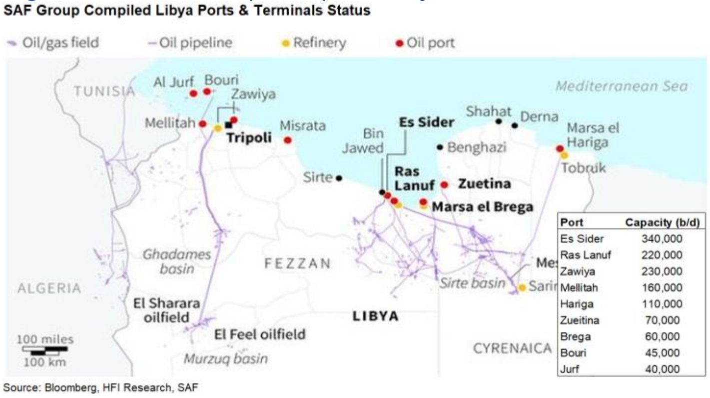
06/25/23: Eastern Libya threatens oil exports without proper revenue sharing
Above, we noted how Haftar's warning is a followup to the head of eastern Libya parliament warning two weeks ago. Here is what we wrote in our June 25, 2023 Energy Tidbits memo. "Earlier this morning, we tweeted [LINK] "*Risk to Libya's stable #Oil production that's been ~1.2 mmb/d for months? Looks like back to Eastern LIbya not believing getting their fair share of oil revenues. Eastern Libya govt head Osama Hammad warns could halt oil exports & declare force majeure. #OOTT. [LINK].*" Yesterday, the Libya Observer (Tripoli based) report "*New oil crisis looming as rival PM threatens to shut down oil sites in the east".* It looks like Eastern Libya is still not happy with the oil revenue sharing and are warning that they need this resolved or else they could shut down oil exports in the east. Libya Observer wrote "*Osama Hammad, who is heading the rival government in the east, warned on Saturday to take action and halt oil and gas operations in the main oil sites east of the country. Hammad accused the National Oil Corporation (NOC) of siding with the UN-recognized Government of National Unity based in Tripoli and giving it access to "seize" $16 billion in oil revenues. He warned to halt export operations and declare force majeure in response." Our Supplemental Documents package includes the Libya Observer report."*

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

Libya oil stable at ~1.2 mmb/d

It seems like the Libya National Oil Corporation is worried that outsiders will see the threats by Haftar and eastern Libya to disrupt oil exports as impacting Libya's current oil production because they gave three production updates this week. Last week's memo noted the NOC confirming production was ~1.2 mm/d following Haftar's threat and also the prior week following the head of the eastern Libya parliament threatening to halt oil exports without a fair split of oil revenues. Those two updates were the first in weeks and it looks only driven by the threats on impacting oil exports. This week, there were three updates on the NOC Facebook [LINK]. The latest was Friday.. The Google Translate version was "*Crude oil production reached one million and 207 thousand barrels per day, and condensate production reached 50 thousand barrels per day during the past 24 hours."* Libya oil production has been steady at ~1.2 mmb/d for the past several months.

Figure 35: SAF Group compiled Libya Ports & Terminals



Source: SAF, Bloomberg, HFI Reearch

Oil: The last Libya east vs west fight took oil production to almost zero

Risk of a Libya east vs west conflict

The eastern Libya threats to cut off oil exports without a fair sharing of oil revenues is not a new issue. It was one of the key reasons for the east vs west fighting and conflict that took Libya oil production to almost zero a few years ago. The conflict ended with the promise of a national election on Dec 24, 2021, which would also lead to a resolve over the fair sharing of oil revenues between east and west Libya. The promise of the election led to a restoration of production. The national election never happened and there is still no date for the election, which is why the eastern Libya threat to halt oil exports without a fair sharing of oil revenues is being watched.

Figure 36: Libya oil production Starting July 1, 2010

Source: Bloomberg, OPEC

Oil: No Covid updates this week on Chinese state media

No Covid reporting

We are still somewhat surprised to see no reporting on Covid given it was forecast to peak at the end of June. But, as of our 7am MT news cut off, we haven't seen any updates from state media (Global Times and Xinhua) on an update on Covid cases. The last reports wre pointing to less Covid cases and there have been no reports on hospitalizations. The only virus reports this week were on Monkeypox such as yesterday's Global Times report "*Experts call for calm as four more monkeypox cases were confirmed in two Chinese cities*" [LINK]

"*Authorities in Changsha and Tianjin reported four monkeypox cases on Friday, with total cumulative cases on the Chinese mainland reportedly reaching 10. Three monkeypox cases were identified in Changsha, Central China's Hunan on July 5, local health authorities confirmed Friday, saying that they have launched epidemiological investigation and the cases - three males aged 24, 28 and 38 — are receiving treatment in designated hospitals. They are all in stable condition, authorities said. Also on Friday, another monkeypox case was confirmed in North China's Tianjin Municipality. The infected individual is receiving treatment in a designated hospital and is in a stable condition, according to local officials. On Tuesday, authorities in Shenyang, Northeast China's Liaoning Province reported a monkeypox case, the sixth monkeypox case reported in the Chinese mainland since September 2022. Monkeypox is an infectious disease caused by the monkeypox virus. It can cause a painful rash, enlarged lymph nodes and fever. Most people can fully recover, however the severity of symptoms varies, according to the World Health Organization (WHO).*"

China's model predicted new Covid wave peaks at 65 million/week in late June
As a reminder, China had expected Covid cases to peak in late June. Here is what we wrote in our May 28, 2023 Energy Tidbits memo. "*On Monday, China admitted there is a new wave of Covid that their predictive model calls for a peak of 65 million cases per week at the end of June, but also thinks the impact wont' be as bad. On Tuesday, we tweeted [LINK] "China on market watch for next several weeks as to how severe is this new wave of Covid. State media: China's top respiratory disease expert says new COVID-19 wave will likely peak in late June at ~65 million cases per week. Thinks 2nd peak won't be as bad as 1st, now will hospitals be overloaded as usually mild symptoms. Also new variant XBB has no significant change in pathogenicity. Even if only mild, will slow down pace of recovery. #OOTT". Our tweet included the Global Times (China state media) reporting that included "A small wave of COVID-19 infections at the end of April and early May was "anticipated." Projections showed that a small peak of infections is likely at the end of May, with the number of infections peaking at about 40 million per week. By the end of June, the epidemic is expected to peak at about 65 million infections a week. The second peak won't be as bad as the first, nor will hospitals be overloaded as reinfection usually comes with milder symptoms, Wang Guangfa, a respiratory expert at Peking University First Hospital, told the Global Times on Monday."*.

Oil: No post holiday drop in China scheduled domestic flights, hits post Covid high

China scheduled domestic flights

On Tuesday, we tweeted [LINK] "*Looks positive. China scheduled domestic flights didn't give up increases from Dragon Boat national holiday Jun 22-24 travel. NOT like what happened after Apr 24-May 3 May Day holidays. +1.9% WoW to 97,572 flights, above May Day holiday burst, and new 18-mth, likely post Covid high. But still -18.1% below what was expected on Mar 28f for Apr. So a much more modest recovery, but recovering. Thx @BloombergNEF Claudio Lubis #OOTT.*" (i) BloombergNEF posted its Aviation Indicators Weekly on July 4. (ii) It's still a long way from where China's scheduled domestic flights were expected to be at the end of March but, even though it may only be one week, it is positive that China's scheduled domestic flights for the June 27-July 3 week were +1.9% WoW to 97,572 flights and not down this week. This followed last week's June 20-26 that were +3.4% WoW, but that made sense as it included a 3-day national holiday, Dragon Boat Festival, on Jun 22/23/24. A bump up for that holiday was what was seen in the 5-day May Day national holiday on Apr 29-May 3.

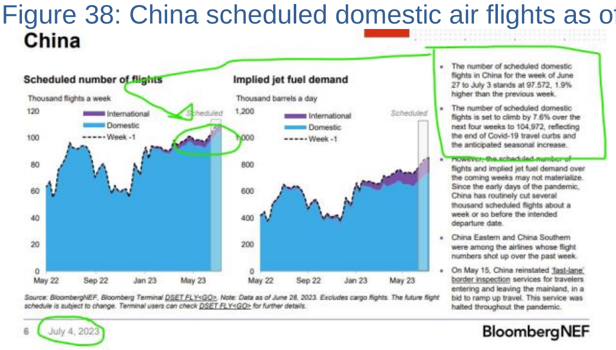
But right after May Day, flights gave back all the gains. And we didn't see this post Dragon Boat Festival. Rather it was up to 97,572 flights, which is a new high since BloombergNEF started reporting on it in Jan 2022. Positive but nowhere near what was expected at the end of March, when there 119,180 flights scheduled for the 4-week look ahead to April that never materialized ie. A much more modest recovery than expected. (iii) We checked back on Bloomberg and it looks like the first Aviation Indicators Weekly report was Jan 5, 2022, but they didn't have separate China graph until months later. But the point is that the 97,572 flights is the highest since BNEF started Aviation Indicators Weekly and we would assume the highest since they started cutting post Covid. (iv) So positives, but a reserved positives as scheduled domestic flights for June 27-July 3 at 97,572 flights are -18.1% vs what was scheduled on March 28 for the then next 4-weeks (ie. April) of 119,180 flights. But domestic scheduled flights are now just above the May Day holiday high. (v) Tuesday's number of scheduled domestic flights for the next four weeks is set to increase by +7.6% "over" the next four weeks to reach 104,972 flights. Despite flights being up the last two weeks, this is basically unchanged vs the last two weekly reports that had their then 4-week lookahead at 104,691 flights and 104,501 flights. This week's 4-week look-ahead of 104,972 is still -11.9% below the 4-week scheduled on March 28 for the end of April that was 119,180 domestic scheduled flights. This is still saying the big jump up in scheduled domestic flights for April didn't happen. (vi) So positive this week as it didn't drop back down post Dragon Boat Festival, and reached a new high at least for the past 18 months, if not post-Covid, but still a long way short of what was expected at the end of March. Ie. A much more modest recovery in scheduled domestic flights. Our tweet included the BloombergNEF charts from July 4 and March 28, and our listing of WoW changes from the prior BloombergNEF reports.

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

Jun 27-Jul 3: +1.9% WoW to 97,572 flights
Jun 20-26: +3.4% WoW to 95,724 flights
Jun 13-19: -0.9% WoW to 92,568
June 6-12: -1.2% WoW to 93,328
May 30-Jun 5: +0.2% WoW to 94,486
May 23-29: -0.1% WoW to 94,321
May 16-22: -2.8% WoW to 94,417
May 9-15: basically flat at 97,049
May 2-8: +2.8% WoW to 97,087
Apr 25-May 1: +0.04% to 94,471
Apr 18-24: +2.1% WoW to 94,138
Apr 11-17: +0.7% WoW to 92,231
Apr 3-10: -4.2% WoW to 91,567
Mar 28-apr 3: +6.8% WoW to 95,624
Mar 21-27: +1.5% WoW to 89,513
Mar 14-20: -0.6% WoW
Mar 7-13 week: -0.8% WoW
Feb 27-Mar 3 week: -2.6% WoW
Feb 21-27 week: +0.0% WoW (note this was +0.01%)
Feb 14-20 week -0.5% WoW
Feb 7-13 week -0.7% WoW
Jan 31- Feb 6 week +10.9% WoW
Jan 24-30 week -9.2% WoW
Jan 17-23 week +7% WoW
Jan 10-16 week +20% WoW

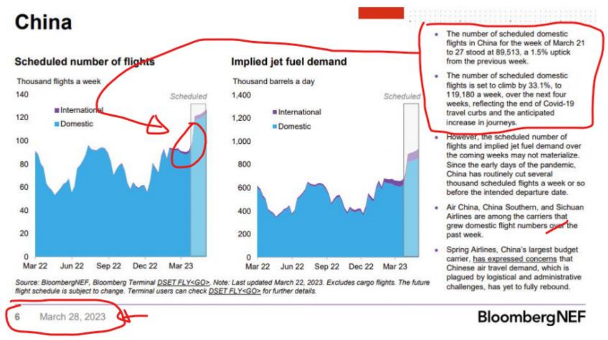
Source: BloombergNEF

Figure 38: China scheduled domestic air flights as of July 4



Source: BloombergNEF

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



Source: BloombergNEF

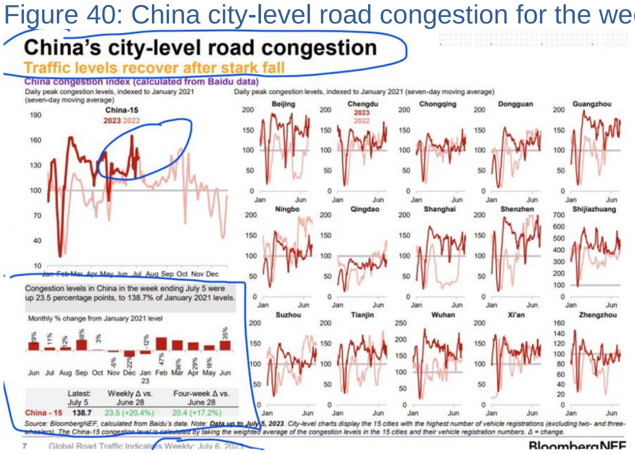
Oil: Baidu China city-level road congestion didn't recover all national holiday losses

China city traffic congestion

It looks like China's city-level road congestion jumped back up after the national holiday but nowhere near how much it crashed for the holiday. On Thursday, BloombergNEF posted its Global Road Traffic Indicators July 6 report, which includes the China Baidu city-level road congestion data for week ended July 5. We tweeted [LINK] "*China Baidu city-level road congestion continues to only be up small YoY vs Covid restricted June 2022. Headline "traffic levels recover after stark fall". But only +20.4% WoW vs 👇06/29 tweet -50.% crash due to 3-day national holiday June 22-24. Top 15 cities in June 2023 of 112 only up small YoY vs Covid restricted June 2022 of 108. Only 7 of top 15 cities are up YoY. Thx @BloombergNEF #OOTT.*" The key theme is that China's city-level road congestion continues to only be up small YoY vs Covid impacted June 2022. Headline is a positive "*Traffic levels recover after stark fall"* BUT the expected WoW recovery in city-level congestion was nowhere near as much as the prior week's massive WoW drop from the 3-day national holiday Dragon Boat Festival. And the final tally for June is that city-level congestion in China's top 15 cities is only up small YoY vs Covid restricted June 2022 and only 7 of these top 15 cities road congestion is up YoY. For the week ended July 5, 2023, Baidu data for China city-level road congestion was +20.4% to 138.7% of Jan 2021 levels. This is only a partial recovery of the prior week ended June 28 that had a massive -50.5% to 115.2% of Jan 2021 levels. A recovery was expected as last week's data was impacted by the 3-day national holiday

Dragon Boat Festival on June 22-24. But the recovery was only a small portion of the massive decline for the holiday. Note that China's top 15 cities, in aggregate, are still only up small YoY vs June 2022 when China still had Covid restrictions. Indexed to June 2021, June 2023 was 112 vs Covid impacted June 2022 indexed at 108. So up YoY. However, there are only 7 of the top 15 cities that are up YoY. Note this is indexed to June 2021 and not June 2020. Our tweet included the below graph and table from the BloombergNEF Global Road Traffic Indicators July 6 weekly report.

Figure 40: China city-level road congestion for the week ended July 5



Source: BloombergNEF

Figure 41: China city-level road congestion for the week ended July 5

China's city-level road congestion

Traffic levels remained elevated in June

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

Indexed to January 2021 = 100

	Jun 22	Jul	Aug	Sep	Oct	Nov	Dec	Jan 23	Feb	Mar	Apr	May	Jun
China-15	129	111	112	138	103	95	78	88	147	138	130	118	134
Beijing	104	144	145	171	107	78	59	107	172	164	150	138	151
Chengdu	130	94	85	75	104	94	93	83	134	126	131	110	131
Chongqing	117	98	61	130	86	31	52	81	125	111	110	98	116
Dongguan	134	103	110	140	120	135	92	47	128	130	109	114	127
Guangzhou	148	119	143	161	110	56	59	81	169	172	154	137	158
Ningbo	185	147	146	186	124	144	112	63	134	125	104	99	117
Qingdao	110	91	109	106	96	80	53	45	82	75	80	73	86
Shanghai	117	114	152	200	110	166	87	74	147	149	129	124	131
Shenzhen	166	125	151	149	140	175	109	79	167	166	138	130	165
Shijiazhuang	353	301	253	222	285	107	179	317	507	430	459	383	427
Suzhou	153	119	130	155	119	145	87	69	132	121	105	97	114
Tianjin	132	87	93	82	138	124	78	97	141	141	136	122	130
Wuhan	132	111	98	132	72	83	85	110	191	185	170	150	169
Xi'an	122	92	93	143	90	112	101	115	147	128	131	122	136
Zhengzhou	102	79	83	95	47	33	66	93	113	96	95	89	94

Indexed to same month in 2021 = 100

	Jun	Jul	Aug	Sep	Oct	Nov	Dec	####	Feb	Mar	Apr	May	Jun
China-15	108	96	106	87	89	80	59	88	236	98	91	95	112
Beijing	70	108	125	85	83	67	38	107	263	105	91	96	101
Chengdu	108	87	79	54	102	96	75	83	239	89	90	92	109
Chongqing	105	89	66	89	83	29	43	81	200	103	94	88	104
Dongguan	134	87	86	92	97	96	82	47	283	104	75	81	127
Guangzhou	174	101	106	98	85	48	45	81	357	130	106	107	186
Ningbo	166	122	106	125	97	102	82	63	245	88	79	94	105
Qingdao	97	80	113	79	104	79	55	45	163	64	59	63	75
Shanghai	100	107	135	125	97	125	67	74	241	102	95	[illegible]	111
Shenzhen	134	98	102	84	103	113	70	79	287	117	94	[illegible]	133
Shijiazhuang	127	117	109	56	96	44	44	317	210	104	129	133	153
Suzhou	137	124	139	123	108	127	65	69	224	93	87	86	102
Tianjin	106	83	87	47	112	88	57	97	202	99	102	98	104
Wuhan	103	100	115	77	63	72	63	110	333	114	116	120	131
Xi'an	96	85	97	96	83	92	109	115	196	76	75	90	107
Zhengzhou	116	69	153	79	51	40	60	93	181	85	88	105	108

Source: BloombergNEF calculations based on Baidu data. Note: Data up to July 5, 2023. Values for the latest month are month-to-date. The China-15 congestion level is calculated by taking the weighted average of the congestion levels in the 15 cities and their vehicle registration numbers.

8 Global Road Traffic Indicators Weekly: July 6, 2023 BloombergNEF

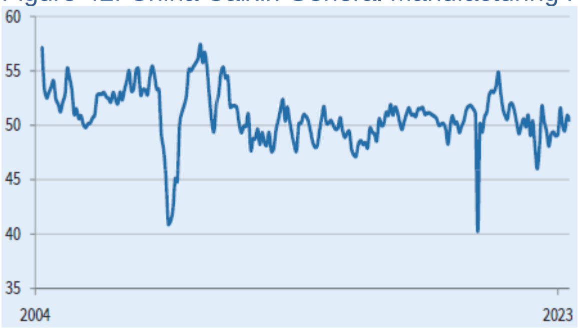
Source: BloombergNEF

Oil: Caixin Manufacturing PMI at 50.5 in June, but cautious or negative tone in writeup

Caixin manufacturing PMI down MoM

Last Sunday night, we tweeted [LINK], *"China Caixin Manufacturing PmI June 50.5 vs Est 50.0, May 50.9, Apr 49.5, Mar 50.0, Feb 51.6, Jan 49.2. Expansion, but down from May and commentary seemed to have more negative tone than positive. Thx @SPGlobalPMI. #OOTT".* No question a positive Caixin Manufacturing PMI is positive, but we just don't pick up the number from the headlines. Rather we like to read the commentary and we thought the commentary was cautious or even a little negative. As a reminder, there are two China manufacturing PMI data from S&P Global that come out each month. The Official Manufacturing PMI that normally comes out the day before the Caixin Manufacturing PMI data that we track. We have focused on the Caixin PMI as we view it more as a leading indicator for how the China recovery is doing as it is a more export-oriented PMI and export have been the big drive of China for the past 20 years. The expectation for the Caixin was a neutral 50.0 given the expansion and 11-month high in May. And the Caixin Manufacturing PMI for June was released at 7:45pm MT last Sunday night [LINK] and was positive at 50.5 in June but down MoM from 50.9 in May. We thought the commentary was negative even with a 50,5 reading in June. iHS wrote "*Manufacturers became less optimistic, with the reading for expectations for future output dipping to a low not seen since October, though it held above 50. Some of the surveyed manufacturers expressed concerns about the slower-than-expected economic recovery; In a nutshell, manufacturing activity growth suffered a marginal slowdown. Both supply and demand picked up slightly, the job market got worse, logistics improved, businesses stepped up purchasing, raw material inventories grew marginally, prices continued to slump, and manufacturers' optimism wavered; A slew of recent economic data suggests that China's recovery has yet to find a stable footing, as prominent issues including a lack of internal growth drivers, weak demand and dimming prospects remain"* Our Supplemental Documents package includes the Caixin China Manufacturing PMI for June. Below is a snapshot of the Caixin general manufacturing PMI.

Figure 42: China Caixin General Manufacturing PMI



Source: S&P Global

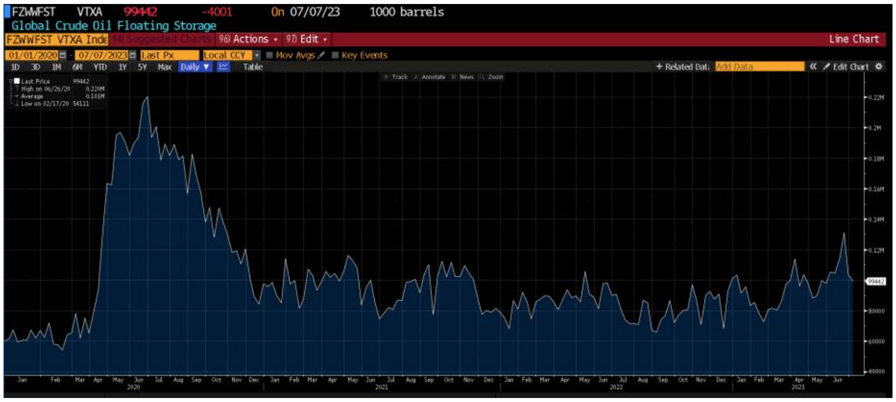
Oil: Vortexa crude oil floating storage at July 8 was 99.44 mmb, -4.00 mmb WoW

Vortexa floating storage

We are referencing the Vortexa global 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 July 1 at 9am MT. (i) As of 9am MT yesterday, Bloomberg posted Vortexa crude oil floating storage estimate for July 7 at 99.44 mmb, which is -4.00 mmb WoW vs upwardly revised June 30 of 103.44 mmb. Note June 30 of 103.44 mmb was revised +7.45 mmb vs 95.99 mmb posted on Bloomberg as of 9am MT on July 1. (ii) Note the very high June 23 of 130.93 mmb posted yesterday is basically unchanged from the very high 131.62 mmb for June 23 that was posted last week. This was the highest leel of floating oil storage since the pandemic year when Oct 23, 2020 was 137.58 mmb. But it looks, at least for now, that it was a big one-week aberration. (iii) Other than small negative revision to

June 23, all the other revisions were upward, the largest being +7.45 mmb to June 30, the rest were less than +2.5 mmb. The revisions from the estimates posted yesterday at 9am MT vs the estimates posted on Bloomberg at 9am MT on July 1 are as follows: June 30 revised +7.45 mmb. June 23 revised -0.71 mmb. June 16 revised +1.22 mmb. June 9 revised +2.47 mmb. June 2 revised +1.59 mmb. May 26 revised +0.74 mmb. May 19 revised +2.29 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 107.96 mmb vs last week's then seven-week average of 105.85 mmb. (v) Also remember Vortexa revises these weekly storage estimates on a regular basis and 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 (ie. 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) July 7 estimate of 99.44 mmb is -120.87 mmb vs the Covid peak of 220.31 mmb on June 26, 2020. (viii) July 7 estimate of 99.44 mmb is +33.83 mmb vs pre-Covid Feb 28, 2020 of 65.61 mmb. (ix) July 7 estimate of 99.44 mmb is +17.64 mmb YoY vs July 8, 2022 of 81.80 mmb. (x) Below are the last several weeks of estimates posted on Bloomberg as of 9am MT July 8, 9am MT July 1, and 9am MT June 24.

Figure 43: Vortexa Floating Storage posted on Bloomberg July 8 at 9am MT



Source: Bloomberg, Vortexa

Figure 44: Vortexa Estimates Posted July 8 9am MT, July 1 9am MT, Jun 24 9am MT

Posted July 8, 9am MT

FZWWFST VTXA Index

01/01/2020 - 07/07/2023

	Date	FZWWFST VT... Last Px
Fr	07/07/2023	99442
Fr	06/30/2023	103.443k
Fr	06/23/2023	130.932k
Fr	06/16/2023	114.11k
Fr	06/09/2023	104.427k
Fr	06/02/2023	105.497k
Fr	05/26/2023	97846
Fr	05/19/2023	99661
Fr	05/12/2023	90067
Fr	05/05/2023	88280
Fr	04/28/2023	97478

July 1, 9am MT

FZWWFST VTXA Index

01/01/2020 - 06/30/2023

	Date	FZWWFST VT... Last Px
Fr	06/30/2023	95990
Fr	06/23/2023	131.649k
Fr	06/16/2023	112.894k
Fr	06/09/2023	101.962k
Fr	06/02/2023	103.91k
Fr	05/26/2023	97206
Fr	05/19/2023	97374
Fr	05/12/2023	87365
Fr	05/05/2023	85040
Fr	04/28/2023	97959
Fr	04/21/2023	101.58k

June 24, 9am MT

FZWWFST VTXA Index

01/01/2020 - 06/23/2023

	Date	FZWWFST VT... Last Px
Fr	06/23/2023	120.329k
Fr	06/16/2023	111.372k
Fr	06/09/2023	103.467k
Fr	06/02/2023	105.268k
Fr	05/26/2023	98324
Fr	05/19/2023	98905
Fr	05/12/2023	88144
Fr	05/05/2023	85907
Fr	04/28/2023	99213
Fr	04/21/2023	101.163k
Fr	04/14/2023	95070

Source: Bloomberg, Vortexa

Oil: Vortexa crude oil floating storage WoW changes by regions, Asia is normal

Vortexa floating storage by region

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) There were some big revisions to some of the areas for the June 30 estimates. Middle East was revised +10.71 mmb and Other was revised -5.61 mmb. (ii) Asia was only revised small for June 30 and only +2.47 mmb WoW to 54.53 mmb. Asia floating oil storage is basically in line with the YTD average of ~52 mmb after being at 70.91 mmb for the June 23 week. (iii) Vs the revised June 30 estimates, the largest WoW changes were Middle East -8.77 mmb and Other +7.51 mmb. 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 June 23 that was posted on Bloomberg at 9am MT on June 24.

Figure 45: Vortexa crude oil floating by region

Vortexa Crude Oil Floating Storage by Region (mmb)				Original Posted	Recent Peak	
Region	July 7/23	June 30/23	WoW	June 30/23	Apr 7/23	July 7 vs Apr 7
Asia	54.53	52.06	2.47	51.26	60.94	-6.41
Europe	4.58	9.08	-4.50	9.14	24.78	-20.20
Middle East	5.81	14.58	-8.77	4.41	5.74	0.07
West Africa	8.72	9.72	-1.00	7.68	8.14	0.58
US Gulf Coast	1.19	0.90	0.29	0.79	3.09	-1.90
Other	24.61	17.10	7.51	22.71	11.22	13.39
Global Total	99.44	103.44	-4.00	95.99	113.91	-14.47
Vortexa crude oil floating storage posted on Bloomberg 9am MT on July 8						
Source: Vortexa, Bloomberg						

Source: Bloomberg, Vortexa

Oil: Global air travel continues to ramp up, now 96.1% of pre-Covid levels

Air travel up significantly in May

On Thursday, we tweeted [LINK] "*Global air travel continues to increase. @IATA May data. Overall, domestic + international was +39.1% YoY to 96.1% of pre-Covid levels. But domestic air travel above pre-Covid levels for 2nd consecutive month. International air travel up again in May, but still 9.2% below pre-Covid. #OOTT #JetFuel.*" Domestic air travel around the world was above pre-Covid levels for the 2nd consecutive month. International air travel keeps recovering but is still below pre-Covid levels. Everyone reads the news and hears plane travel is packed on domestic routes in most regions of the world but international travel, led by China, have a way to go to get back to pre-Covid levels. Those themes were reinforced when, on Thursday, the International Air Transport Association (IATA) released air passenger data for May 2023 [LINK]. (i) Total traffic in May, measured in revenue passenger kilometers (RPK), rose +39.1% YoY. April 2023 was +45.8% YoY. Please note the IATA splits out total market air travel into International travel vs Domestic travel. (ii) For May 2023, total global RPKs were -3.9% vs May 2019 levels, but that was split between International RPKs -9.2% vs May 2019 and Domestic RPKs +5.3% vs May 2019 levels. (iii) The IATA commented "*The improvement in passenger load factors was widespread across regions, indicating strong demand for air travel amid a broad-based recovery.*" Our Supplemental Documents package includes the IATA release.

Figure 46: May 2023 Air Passenger Market

	World share [1]	May 2023 (% year-on-year) RPK	ASK	PLF (%-pt)[2]
TOTAL MARKET	***100.0%***	**39.1%**	**35.0%**	**2.4%**
Africa	*2.1%*	38.6%	36.7%	0.9%
Asia Pacific	*22.1%*	130.4%	109.5%	7.0%
Europe	*30.8%*	19.1%	13.5%	4.0%
Latin America	*6.4%*	16.2%	16.5%	-0.2%
Middle East	*9.8%*	30.1%	23.8%	3.9%
North America	*28.8%*	14.0%	13.6%	0.3%
International	***58.0%***	**40.9%**	**34.7%**	**3.6%**

Source: IATA

Oil: Air cargo in May "Air cargo demand remains weak, amid soft drivers"

Air cargo demand down YoY in May

On Wednesday, we tweeted [LINK] "*Near-term economic weakness indicator - international air cargo demand continue to contract, but at lesser rate. @IATA "air cargo demand remains weak, amid soft drivers", May 2023 CTKs across the industry -5.2% YoY, consequently annual contraction in CTKs narrowed from 16.8% in Jan 2023 to 9.0% YTD May 31. #OOTT".* Air cargo is really the data that reaffirms the level of export orders and trade. So continued YoY contraction in air cargo reflects the continued YoY contraction in trade, at least trade via air. The IATA also notes that air cargo is losing market share to cheaper shipping cargo. On Wednesday, the International Air Transport Association (IATA) announced cargo data for the month of May [LINK]. The global demand in air cargo markets remained in a YoY deficit for the 15th consecutive month in May 2023. However, the IATA wrote "*Available cargo-tonne kilometers continued to climb this month after returning to pre-pandemic levels for the first time in April. ACTKs grew by 14.5% year-on-year and were 5.9% above May 2019 levels".* Global demand, measured in cargo tonne-kilometres, fell -5.2% YoY in May, compared to last month's -6.6% YoY decline. Despite the YoY weakness total demand was +5.9% above pre-pandemic levels. Cargo demand continues to be above 2019 levels, since total demand broke the threshold last month. On the international level, all regions except Latin America saw their YoY declines in May and continue to remain below levels seen a year ago. Asia-Pacific airlines saw their air cargo volumes decrease by -3.3% YoY in May (-0.4% YoY in Apr), Africa carriers saw a -2.4% YoY decline (+0.9% YoY in Apr), North American carriers posted a -8.1% YoY decrease (-13.1% YoY in Apr), European carriers saw a -7.2% YoY decline (-8.2% YoY in Apr), and finally, Middle Eastern carriers experienced an -3.1% YoY decline in cargo volumes (-6.8% YoY in Apr). Our Supplemental Documents package includes the IATA release.

Figure 47: May 2023 Air Cargo Market

	World share[1]	May 2023 (% year-on-year)		
		CTK	ACTK	CLF (%-pt)[2]
TOTAL MARKET	***100.0%***	**-5.2%**	**14.5%**	**-8.6%**
Africa	*2.0%*	-2.4%	9.2%	-5.3%
Asia Pacific	*32.4%*	-3.3%	38.3%	-18.2%
Europe	*21.8%*	-6.7%	5.6%	-6.4%
Latin America	*2.7%*	3.6%	14.7%	-3.6%
Middle East	*13.0%*	-3.1%	15.6%	-7.9%
North America	*28.1%*	-8.1%	1.2%	-3.8%

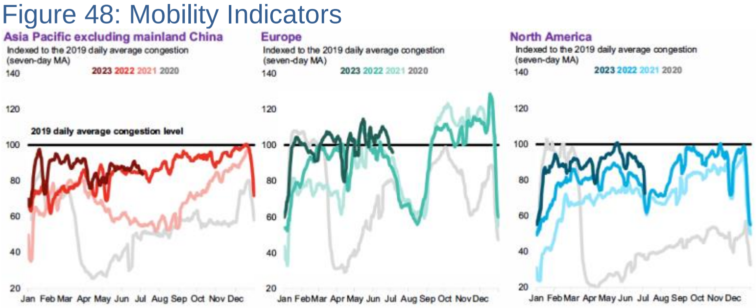
Source: IATA

Oil: TomTom mobility indicators: EU, Asia Pacific, and NA decreases

Global road traffic indicators

On Thursday, BloombergNEF posted its Global Road Traffic Indicators Weekly report, which recaps traffic indicators in all the major economic regions of the world i.e. mobility indicators like TomTom. For week ending July 4, European, Asia Pacific (ex-China), and North American traffic levels decreased by -6.7%, -5.3%, and -18.4%, respectively. Traffic levels in Europe, North America, and Asia Pacific (ex-China) traffic are -4.2%, -27.6% and -16.3% below the 2019 average and are +10.5%, -2.1% and +9.5%YoY, respectively. It is important to note that Canada and the US both had holidays this week. Traffic in Europe had been steadily increasing in June, but is now beginning to drop off. NA and Asia Pacific (ex-China) are continuing to decrease. It its 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



	Week-on-week (2019 average = 100)				Year-on-year (same week last year = 100)			
	Latest week: Jul 4	Δ vs. Jun 27	4-week MA	Δ vs. Jun 27	Latest week: Jul 4	Δ vs. Jun 27	4-week MA	Δ vs. Jun 27
Asia Pacific ex-China	83.7	-4.7 (-5.3%)	87.1	-0.7 (-0.8%)	97.9	-6.8 (-6.5%)	102.3	-1.3 (-1.2%)
Europe	95.8	-6.9 (-6.7%)	103.7	-2.2 (-2.1%)	110.5	-1.3 (-1.2%)	110.9	-0.8 (-0.7%)
North America	72.4	-16.4 (-18.4%)	86.0	-5.6 (-6.1%)	109.5	-4.7 (-4.1%)	111.9	-1.0 (-0.9%)

Source: BloombergNEF

Oil & Natural Gas: Biden doesn't focus on bashing the fossil fuel companies?

Biden on fossil fuel companies

One of our quarterly must reads is the Dallas Fed quarterly survey of energy companies, which is why we couldn't help tweeting out Gina McCarthy comments on Biden and fossil fuels in her Axios interview on June 9, 2023. [LINK] McCarthy is viewed as the key driver of Biden's climate change plan, or at least pushing him the hardest to be bold on climate. And she is very likely the most experienced and knowledgeable on climate actions. Yesterday, we tweeted [LINK] "*Agree/disagree question for next @DallasFed energy survey of #Oil#NatGas Co's. "Look, President Biden doesn't focus on, and neither do I, on bashing the fossil fuel companies. But frankly they have to get their act together." @Gina_McCarthy to @Alexi on 06/09. #OOTT.*" We created a transcript of her comments. "At 8:45 min mark, McCarthy "*Look, President Biden doesn't focus on, and neither do I, on bashing the fossil fuel companies. But frankly they have to get their act together. And we have to get our act together as a country to recognize that clean energy is the solution. Fossil fuels have actually created significant health challenges in our country, not just climate change. We're talking about pollution that's impacting people's lives. We're talking about billions of human beings every year across the world dying because it's related to climate and fossil fuels. We are talking about really risks that no longer need to be tolerated to our communities, which is why President Biden is really shifting his narrative on climate, not about climate, but about climate solutions*."

Oil & Natural Gas: Massive increase in BC wildfires since Friday

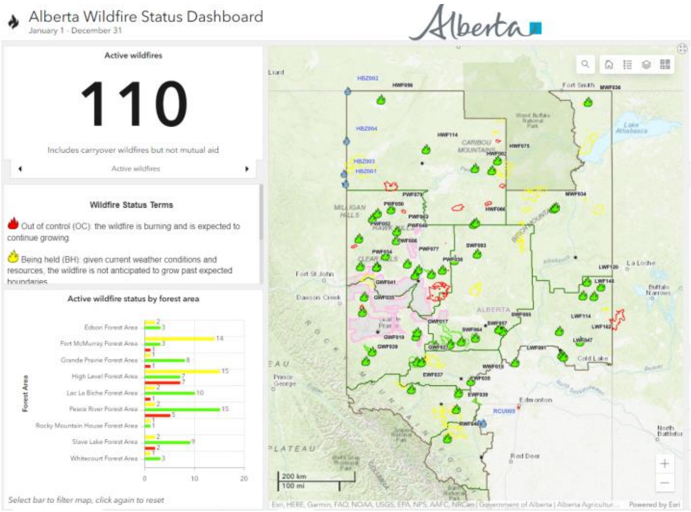
BC and Alberta Wildfires

There has been a massive increase in BC wildfires in the last 48 hours and it is inevitable that this massive increase will have a huge impact on people including evacuations. And there will inevitably be some impacts on business as the priority in BC will be in allocating all possible resources to getting people to safety, protecting homes and businesses. The day-to-day business workings will inevitably have some impact, the question is how much. Bad week for wildfires with increasing wildfires in both Alberta and BC this week. We made an exception to our 7am MT news cut off to see the BC wildfires situation and it's even worse this morning than last night. As a reminder, every new wildfire is basically an Out of Control wildfire until it is brought under control. Earlier this morning, we tweeted [LINK] "*BC wildfires up over last 14 hours. Total wildfires now 242 including 154 Out of Control wildfires. Basically every new wildfire is Out of Control. Note of 242 wildfires: 176 caused by lightning, 20 by people, 46 unknown case. Everyone stay safe!! #OOTT #NatGas.*" That update was the BC Wildfire Service posted update as of 9am MT. Last night, we tweeted on their 7pm MT update. Last night, we tweeted [LINK] "*BC wildfires have almost doubled in the last 24 hrs. 94 new wildfires in last 24 hrs, up to 222 active wildfires. All the new wildfires basically go into the Out-of-Control wildfires, which is now at crazy high of 144. Hope all our friends in BC can stay safe. #OOTT #NatGas.*" For perspective, the BC Wildfire count a week ago as of 7pm July 1 was 104 total wildfires and 51 Out of Control wildfires. Alberta wildfires were down a little bit, but still at high levels. Total wildfires in Alberta decreasing from 114 to 110 WoW including Out of Control wildfires decreasing from 17 to 16 WoW as of 7pm MT July 8.

Links to Alberta and BC wildfire status maps

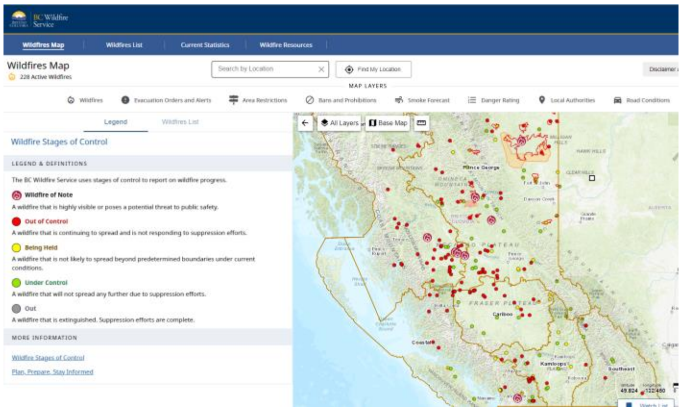
We recommend bookmarking the starting points for wildfire information are the Alberta Wildfire Status interactive map [LINK] and the BC Active Wildfires interactive map [LINK]. Please note these links have changed over the past few years. Both maps are interactive and open up for the information on any particular fire. Here are the wildfire maps as of 7pm MT last night and, for BC, also for 9am MT this morning, and the BC Wildfire Service wildfire statistics as of 9am MT this morning.

Figure 49: Alberta wildfire map as of 7pm MT on July 8



Source: Alberta Wildfire Status Dashboard

Figure 50: BC wildfire map as of 7pm MT on July 8



Source: BC Wildfire Service

Figure 51: BC wildfire statistics as of 9am MT on July 9

Wildfire Statistics

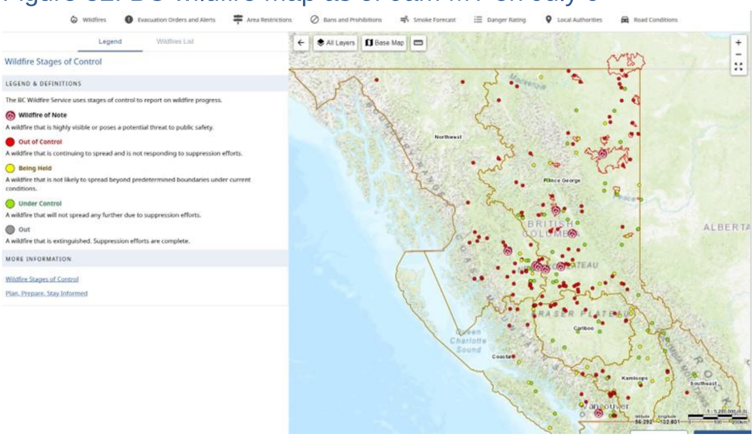
Wildfire Summary	
817	Fires this Year
242	Active Fires
82	Fires in the Last 24 Hours

Wildfire Cause Summary	
176	Fires Caused by Lightning
20	Fires Caused by People
46	Fires with Unknown Causes

Stages of Control Summary	
9	Fire of Note
154	Out of Control
36	Being Held
52	Under Control

Source: BC Wildfire Service

Figure 52: BC wildfire map as of 9am MT on July 9



Source: BC Wildfire Service

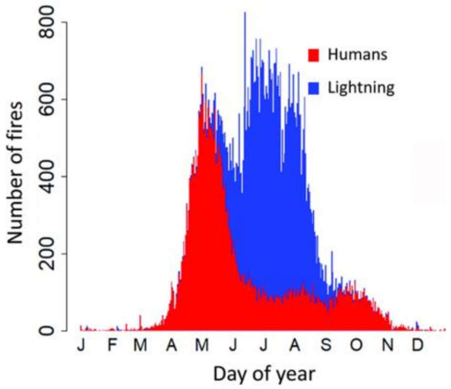
Oil & Natural Gas: Peak Cdn wildfire season is normally Jul/Aug & lightning is #1

Wildfire peak is normally July Aug

The BC Wildfire Service statistics remind how the vast majority of wildfires are caused by lightning. BC divides the causes of the 242 active wildfires by 176 caused by lightning, 20 caused by people, and 46 with unknown causes. In peak wildfires season (right now) lightning strikes are the major cause of wildfires. We don't track wildfires data outside Alberta/BC as our focus is on the oil and gas sector but, the big Canada story this year has been wildfires in eastern Canada because of the smoke drifting into the US. It's a reminder that wildfires are not just a western Canada. It's always better to see less wildfires. But we remind that wildfire season is just starting. Unfortunately, we have to remind that wildfire season peak isn't normally until July/Aug. (i) On May 9, we tweeted [LINK] *"#Wildfire season is, unfortunately, only just starting with normal peak Jul/Aug. See 👇 excerpts. SAF 06/13/21 Energy Tidbits re distribution of wildfires by month in Canada. SAF 05/07/23 Energy Tidbits re heightened 2023 risk with very low precipitation in Nov 1-Mar 31 & Apr. Hope everyone can be safe! #OOTT."* (ii) Our tweet included two graphs from our June 13, 2021 Energy Tidbits memo that shows the normal peak for Canada wildfires is July/Aug with a key reason being that is when lightning strikes normally peak. (ii) Our tweet also included the Alberta Environment maps of precipitation % of normal for Nov 1 thru Mar 31, and for the month of

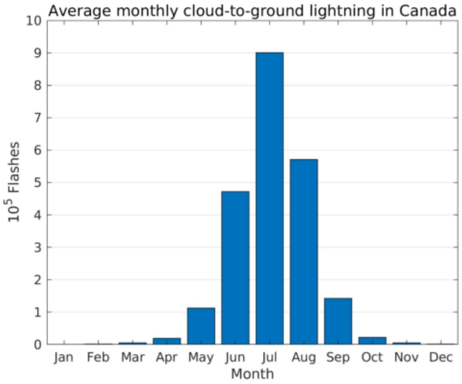
April that clearly show how dry it was this winter and especially so in April. Note we have updated the precipitation maps for the end of May. Below are Nov 1 thru Apr 30 and for the month of May maps showing precipitation % of normal. It's been dry.

Figure 53: Canada Wildfires Distribution Over Year



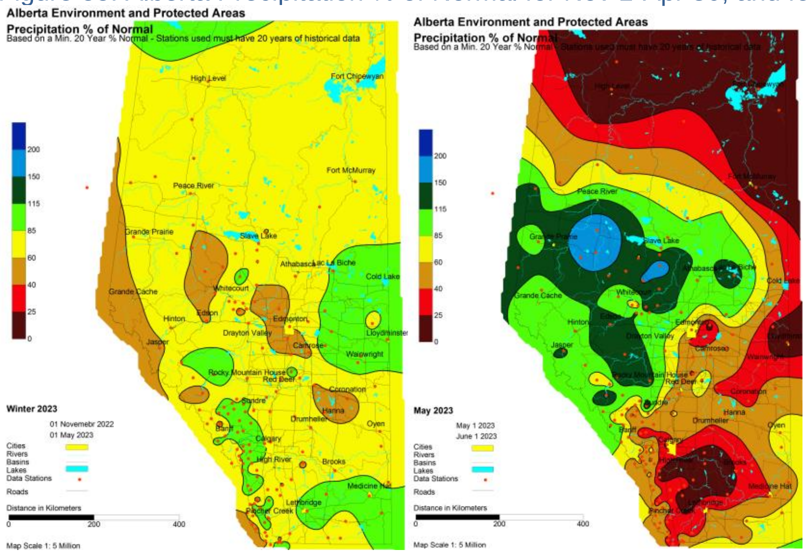
Source: Wildfire Today

Figure 54: Average monthly cloud-to-ground lightning in Canada



Source: Canada Environment and Natural Resources

Figure 55: Alberta Precipitation % of Normal for Nov 1-Apr 30, and for May



Source: Alberta Environment

Energy Transition: Did Gina McCarthy admit US doesn't have climate/tech answers?

Gina McCarthy admission?

Yesterday, we tweeted [LINK] "*An admission? "so what they are targeting is our [#BidenAdmin] inability to accelerate the answers to climate, the technologies we need moving forward" @Gina_McCarthy to @alexi. #EnergyTransition is going to happen but will take way longer, cost way more & be rocky road. #Oil #NatGas will be needed for longer. PS, note her advice to tech social media. #OOTT."* We didn't see the Gina McCarthy (White House national climate advisor) with Alexi McCammond (Axios political reporter) on June 9, 2023 [LINK] until this week. It was interesting to see her comments as she is viewed as the biggest driver for the energy transition push. And she is also likely the last to admit that something isn't working. McCarthy was talking about her advice to tech social media companies on avoiding disinformation on the Biden Administration's climate actions. One example she used was "*actually just trying to disengage the public from understanding the values of solar energy, the values of wind energy*". We don't believe people put down the value of solar and wind on emissions, renewable, etc. Rather, it seems like McCarthy doesn'' want the public to hear that solar and wind can't do it all as they don't generated power when the sun doesn't shine and the wind doesn't blow. But that's a detail. Rather, what caught our attention was her comments that seemed to acknowledge they are falling behind on their energy transition because of their inability to accelerate the answers to climate, the technologies that are needed for the energy transition. McCarthy said "*So what they're really targeting is our inability to accelerate the answers to climate, the technologies we need moving forward. That is equally dangerous to denial because we have to move fast*." Our Supplemental Documents package includes the transcript we made of McCarthy's comments.

Gina McCarthy's advice to tech social media companies

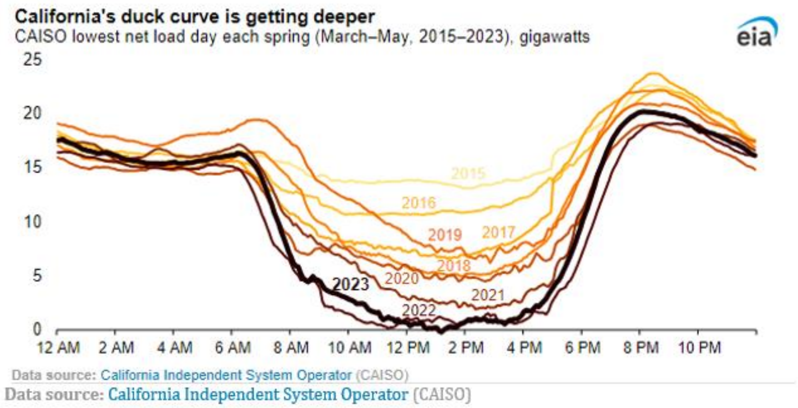
The Gina McCarthy Axios interview was on June 9 so a month ahead of the judge's ruling that the Biden Administration should stop contacting the tech social media companies. So it was interesting to see how her advice to the tech companies on not spreading climate misinformation. Here are some of her quotes from the transcript we made of her comments. "*so the challenge is now that we are moving from denial to actually just trying to disengage the public from understanding the values of solar energy, the values of wind energy, the benefits of clean energy. We have to get tighter, we have to get better at communicating and frankly the tech companies have to stop allowing specific individuals over and over again to spread disinformation. That's what the fossil fuels companies pay for. That's what folks who make money out of fossil fuels and don't make money and don't care about saving consumer's costs. That's what they do. We have to be smarter than that and we need the tech companies to really jump in*." "*So what they're really targeting is our inability to accelerate the answers to climate, the technologies we need moving forward. That is equally dangerous to denial because we have to move fast*."

Energy Transition: More solar = increased challenge on grid & other fuel availability

More solar in California

Contrary to what Gina McCarthy says above about people not recognizing the value of solar, there is no question that increasing solar power has made a huge dent in the need for fossil fuels or hydro or other fuels when the sun shines. No one disputes that. But McCarthy should be focusing on how that creates a challenge for grids in balancing/maintain power mix when the sun shines and how do they take care of the power needs when the sun doesn't shine or the big challenge as solar starts to sharply decline every day when there is still close to peak electricity demand. Two weeks ago, the EIA posted a blog "*As solar capacity grows, duck curves are getting deeper in California*" [LINK]. The EIA below graph notes how solar has ramped up in California, but that also means there is an increasing challenge on grids to manage stress but also to make sure they have the access to other fuels (ie. natural gas, battery storage, etc) to fuels as solar goes down every day. Here is an excerpt from the EIA blog "*The duck curve presents two challenges related to increasing solar energy adoption. The first challenge is grid stress. The extreme swing in demand for electricity from conventional power plants from midday to late evenings, when energy demand is still high but solar generation has dropped off, means that conventional power plants (such as natural gas-fired plants) must quickly ramp up electricity production to meet consumer demand. That rapid ramp up makes it more difficult for grid operators to match grid supply (the power they are generating) with grid demand in real time. In addition, if more solar power is produced than the grid can use, operators might have to curtail solar power to prevent overgeneration. The other challenge is economic. The dynamics of the duck curve can challenge the traditional economics of dispatchable power plants because the factors contributing to the curve reduce the amount of time a conventional power plant operates, which results in reduced energy revenues. If the reduced revenues make the plants uneconomical to maintain, the plants may retire without a dispatchable replacement. Less dispatchable electricity makes it harder for grid managers to balance electricity supply and demand in a system with wide swings in net demand."* Our Supplemental Documents package includes the EIA blog.

Figure 56: California's duck curve is getting deeper



Source: EIA

The "DUCK" curve for solar
Here is how the EIA described the above Duck curve. "*As more solar capacity has come online in California, grid operators at the California Independent System Operator (CAISO) have observed a drop in net load (or the demand remaining after subtracting variable renewable generation) in the middle of the day when solar generation tends to be highest. When graphed for a typical day, the pattern created by the midday dip in the net load curve, followed by a steep rise in the evenings when solar generation drops off, looks like the outline of a duck, so this pattern is often called a duck curve*."

Energy Transition: Shell "dangerous & irresponsible is cutting oil & gas production

Shell CEO warns on cutting oil and natural gas

New Shell CEO Wael Sawan continues to ruffle the feathers of the climate change side with his straight talk on the reality that the energy transition aspirations aren't ready to replace oil and natural gas as envisioned unless the world wants to have energy crisis and chaos. Sawan continues to speak out on the reality that trying to force out oil and natural gas without a replacement will be extremely negative to the world's economies. On Wednesday, we tweeted [LINK] *"#Oil#NatGas#LNG will be needed for longer. "What would be dangerous and irresponsible is cutting oil and gas production so that the cost of living, as we saw last year, starts to shoot up again" @Shell CEO Sawan. Thx @BBCSimonJack. #OOTT [LINK]." We couldn't find any video but the BBC interviewed Shell CEO Sawan and their report was titled "Oil giant Shell warns cutting production 'dangerous'* [LINK]. The BBC wrote "*Wael Sawan insisted that the world still "desperately needs oil and gas" as moves to renewable energy were not happening fast enough to replace it. He warned increased demand from China and a cold winter in Europe could push energy prices and bills higher again. Mr Sawan angered climate scientists who said Shell's plan to continue current oil production until 2030 was wrong. Professor Emily Shuckburgh, a climate scientist at the University of Cambridge, said firms such as Shell should focus on accelerating the green transition "rather than trying to suggest the most vulnerable in society are in any way best served by prolonging our use of oil and gas". Mr Sawan told the BBC: "I respectfully disagree." He added: "What would be dangerous and irresponsible is cutting oil and gas production so that the cost of living, as we* *saw last year, starts to shoot up again."* There was more in the BBC report. Our Supplemental Documents package includes the BBC report.

Energy Transition: Is France moving to UAE position for COP28

France/Saudi joint statement

It is important to remember that countries are careful when they sign off on joint statements and are careful to properly acknowledge items of agreement vs items that are only the position of one of the countries. Yesterday afternoon, France and Saudi Arabia issued a Joint statement between the Kingdom of Saudi Arabia and the Republic of France for cooperation in the field of energy [LINK], which was a joint communique following the meeting between HRH Prince Abdulaziz Bin Salman met with HE Agnes Pannier-Runacher, Minister for Energy Transition of the French Republic. There seemed to be a very clear message, which is why we tweeted [LINK] "*Is France moving to 👇07/01 tweet UAE view for COP28? "Addressing climate change AND promoting secure, reliable, affordable and sustainable supplies of energy are shared strategic priorities of Saudi Arabia and France". #Oil #NatGas will be needed for longer. #OOTT."* This statement certainly sounded like France has moved to the Saudi and UAE position of how to approach COP28 – yes climate change is a priority but an equal priority is to have secure, reliable, affordable and sustainable supplies of energy. Our Supplemental Documents package includes the France/Saudi joint statement.

France looks to be signing onto UAE COP28 President designate approach

Here is what we wrote in last week's (July 2, 2023) Energy Tidbits memo. "*Maybe there was some but very little western media coverage of a major speech by COP28 President Designate Dr. Sultan Al Jaber's speech at Energy Asia on Tuesday. The lack of western coverage is why, last night, we tweeted [LINK] "ICYMI. No media coverage on #COP28 Pres Designate speech. West didn't want to hear: "discuss sustainable energy pathways" "systematically decarbonize our current energy system" "ensuring energy always remains accessible, secure & affordable" "renewable energy alone will not be sufficient" "must ensure they [hydrocarbons] are the least carbon intensive" "can turn the climate challenge into a unique opportunity for building sustainable economic growth" See 👇SAF Group transcript. #Oil#NatGas#LNG will be needed for way longer. #OOTT." Our tweet included the transcript we made of most of his speech but the messages were clear, but not what the climate side wanted to hear ie. Why there was little if any coverage. Al Jaber talks about decarbonizing but not getting rid of our current energy system [read fossil fuels]. Making hydrocarbons the least carbon intensive, not getting rid of them. Ensuring the energy system is accessible, secure and affordable should be an acceptable message, but the western leaders know that means can't get rid of hydrocarbons. Needless to say, Al Jaber's message won't deter western leaders push to Net Zero, but hopefully it at least helps make a smoother energy transition than what appears to be unfolding. Our Supplemental Documents package includes the transcript we made of Al Jaber's speech."*

Energy Transition: What's next? China restricts exports of Gallium/Germanium

China restricts exports of key semi inputs

On Monday, we tweeted "*China's welcome mat to @SecYellen*" [LINK] "*What's next or could be next? China is dominant supplier of Gallium & major supplier of Germanium, putting in export controls on both that are critical to semi conductors, fibre optics, etc. See 👇03/30/23* *tweet, @vonderleyen EU relies on China for 98% of rare earths 93% of magnesium, 97% of lithium. EU/US Paris emissions, renewable, etc commitments were before they started China trade wars. #EnergyTransition #NatGas #OOTT."* We were a little surprised that there were many who seemed surprised by Chna's actions. China is well aware of its dominant global supply position in many critical minerals and rare earths needed for the 2020s and 2030s, that restricting exports of two key inputs for semiconductors is a warning shot to the US and Europe on what could be next. Global Times (China state media) reported ""*In order to safeguard national security and interests, with the approval of the State Council, it is decided to implement export controls on items related to gallium and germanium," the Ministry of Commerce (MOFCOM) and the General Administration of Customs (GAC) said in a notice. According to the notice, starting on August 1, items meeting certain characteristics shall not be exported without approval. The ministries listed eight items related to gallium, and six items related to germanium. Under the export control, exporters must file an application with local commerce authorities for exports of the relevant items and must be approved by the Ministry of Commerce before exporting such items. Exporters would face fines and criminal charges, if they export such items without permission. Both gallium and germanium are key in the making of semiconductors and other electronics. For example, germanium is used in fiber optics and semiconductors, while gallium is used in making chipsets for electronic devices such as computer motherboards or portable phones, according to media reports. China is the world's top producer of raw gallium, which is used in making chipsets to generate high frequency raid waves in 5G base stations, accounting for 95 percent of the global output, according to industry information provider Fierce Electronics. China is also a major supplier of germanium, which is mainly used in fiber and infrared optics, PET plastics, electronics and solar panels. The EU has listed the metal as a critical raw material, as it imports about 17 percent of its supplies from China, according to media reports."* Our Supplemental Documents package includes the Global Times report.

China supplies 98% of EU's rare earths, 97% of its lithium

Our tweet this week linked to a prior tweet on Europe's dependence on China for rare earths. Here is what we wrote in our April 2, 2023 Energy Tidbits memo. "*It's easy to see why there is an aggressive push into Africa and South America for critical metals and also why natural gas will be need for much longer than the EU's Net Zero aspirations. This was made clear by European Commission President Ursula von der Leyen on Thursday, who highlighted a key vulnerability – Europe relies on China for essentially all of its rare earth supply. On Thursday, we tweeted [LINKI] "#EnergyTransition reality check. @vonderleyen: "we rely on one single supplier" China 98% of rare earth, 93% of magnesium. 97% of lithium. How can EU not need #NatGas for way way longer than the NetZero aspirations? Thx @disclosetv #EnergyTransition #NatGas #OOTT." Our tweet included the transcript we made of of von der Leyen's comments [LINK]. Von der Leyen said "We know this is an era where we rely on one single supplier. China. 98% of our rare earth supply. 93% of our magnesium. 97% of our lithium, just to name a few. We are deeply mindful of what happened with Japan's imports or rare earths a decade ago. When foreign policy tensions between the two in the East China Seas became acute. Our demand for these materials will skyrocket as the digital and green transition speed up. Battery powering our electric batteries that are powering our electric vehicles are forecast to drive up demand for lithium by 17 times by 2050."*

Energy Transition: IEA Birol warns grid modernization/expansion is far behind

IEA warns on the grid

It's taken a long time but, it's interesting to finally see IEA Executive Director Fatih Birol admit there is one big potential problem for the energy transition – they are far behind on grid modernization and expansion. What took so long? (i) On Tuesday, we tweeted [LINK] "*OOPS! @IEA @fbirol warns West lack of priority on grid modernization/expansion = may be risking a lot of losing money, & put the energy security at risk & slowing down decarbonization of power sector. something only the NetZero side hasn't wanted to acknowledge. he didn't mention the other big roadblock - need for new high voltage transmission. #EnergyTransition is happening but will take way longer, energy will cost way more & be a bumpy/rocky road. #Oil #NatGas will be needed for longer! Thx @MLCleaningUp! #OOTT."* (ii) Reminder that the IEA is funded by developed countries like the US, Germany, France, UK, Canada, etc. So when we see Birol warning that something isn't ready, he just wants to make sure that his warning voice is out there so he can say he told them so. Because the reason for his warning isn't new unless people are die-hard energy transition believers. (ii) Birol warns the grid modernization and expansion is falling behind and increases the risk of losing money [we assume that means higher energy costs], puts energy security at risk [this is the key reason why he wants his voice on the record] and risks slowing down decarbonization. We created a transcript of his comments with Michael LIebreich. Posted on July 3, 2023 [LINK] "*This, in my view, is one of the blind spots of the current, clean energy transition. And, the politicians, the policy makers gave a lot of emphasis building the, the windmills, solar panels, but they didn't pay the same attention to grids - modernization and development of grids. There was a major offshore summit in Europe a couple of weeks ago in Ostend, Belgium. Heads of states, President Macron, Chancellor Scholz, and others were there. And I told them in the in the speech, it is something like, you are, building, manufacturing best car in the world - the electric car, very efficient and everything, but you forgot to build the roads without getting grids. And this is the reason I have commissioned the IEA, my colleagues here - making a major study on grids to ring alarm bells for the policymakers coming this fall. You will see that we may be risking a lot of losing money, and put the energy security at risk and slowing down of decarbonization of the power sector - if we don't pay attention to it. It is a European problem. Chinese, United States, and everywhere*." (iv) It seems like a clear warning to his bosses – the western governments. (v) Everyone should have realized a major roadblock will be modernizing and expanding the grid to handle huge increases in intermittent wind and solar generation and also the need to build to new high voltage transmission (which he didn't specifically mention).

IEA's Birol didn't mention the need for high voltage transmission

We were surprised that Birol only highlighted that they are behind on grid modernization and expansion, and he didn't mention the problems with getting new or expanded high voltage transmission as another major factor that will lead to delays in the aspirations of the energy transmission. This is not just a US challenge, it's a challenge in other key countries like Germany who many think will not be able to get at the state and local levels to bring new voltage transmission from offshore wind in the north to the industrial south.

Warren Buffet highlighted the inability to build new transmission in the US
Here is what we wrote in our May 14, 2023 Energy Tidbits memo. "*Warren Buffett highlighted what he sees is the big miss so far on the execution of the Energy Transition in his response to a question at the Berkshire Hathaway annual meeting last Saturday – the inability to get the needed transmission lines from new renewable energy sources to demand markets. (i) Buffett and Greg Abel went thru a lengthy explanation of the inability to get transmission lines done. And Buffett also didn't want to let it lie with their answer and stepped in and said he want to take an extra minute as this is very important. There were multiple comments such as Buffett "… but it is not easy when you cross state lines. Different jurisdictions, we should, this country should be ahead of where it is in terms of transmission." Abel ". Here we are in 2023 and we have a little more than 1/3 of that, at the time it was $6 billion transmission project. Today, we have a little more than 1/3 of it built and we've spent probably closer to $7 billion. It's the right outcome. It's still a great outcome for our customers, but that transmission is part of the transformation. You absolutely have to build it to move all that renewable energy and that's sort of the complexity Warren was highlighting. It is a, you can't just wake up one day and solve this problem. You start with transmission and you build the resources." Buffett "The present democratic system, I am not sure I know the answer, but I sure know the problem. If you've got an emergency, need to re-engineer the energy system of the US, I don't think you can do it without something resembling the machinery, the urgency, whatever. The capital is there, the people are there, the objective is obvious. We just don't seem to be able to do it in peace time where we're used to follow a given set of procedure and. China has got one country and we've got 50 states. And we got a whole different set of government. We should be up to the test but so far, it hasn't worked," (ii) Inability to get transmission done is something that has been obvious but one that leaders have put their head in the sand. Renewable energy, solar and wind, to the most part isn't generated near electricity demand areas. And mostly isn't in areas with existing major electricity transmission lines or sufficient electricity transmission capacity. So new transmission lines have to be built to take renewable energy to get to markets. And this means crossing many state lines. And each state has their way to stop it. After all, the only benefit to those states is whatever revenues come from the providing the transmission route. And then even within states, there is always the NIMBY as people don't want power lines thru their areas. (iii) The big difference for natural gas for power generation is you move the natural gas to power stations at the demand location and not move the electricity generated by natural gas demand thousands of miles. And there is a network of natural gas pipelines that can provide last mile delivery. Plus there is electricity loss as there is more distance of transmission so less efficient. Our Supplemental Documents package includes the transcript we made of the Buffett and Abel replies."*

Energy Transition: IEA joins earlier E.ON & BloombergNEF warnings on the grid

E.ON and BloombergNEF grid concerns

The IEA is funded by the western governments so it is understandable why they don't want to highlight problems with the energy transition until they see others have caught it. It is politically impossible for them to be early in saying there is a potential problem with the energy transition. But, at least with the IEA joining the chorus, it means that their western bosses will or should hear the concern. On Friday, we tweeted [LINK] "*Here's why* *transmission & grid strengthening is a big roadblock. 03/15/23 tweet. E.ON CEO, every windmill needs a grid connection, every grid connection drives more backbone reinforcement. [LINK]. 04/06/23 tweet. @BloombergNEF transmission & distribution grid for electricity fast becoming the main bottleneck. staggering 600GW of solar/wind stuck in lines for connection. [LINK]. @IEA @fbirol joining the chorus will help. #Oil #NatGas will be needed for longer. #OOTT.* Below are what we wrote on the prior E.ON and BloombergNEF comments.

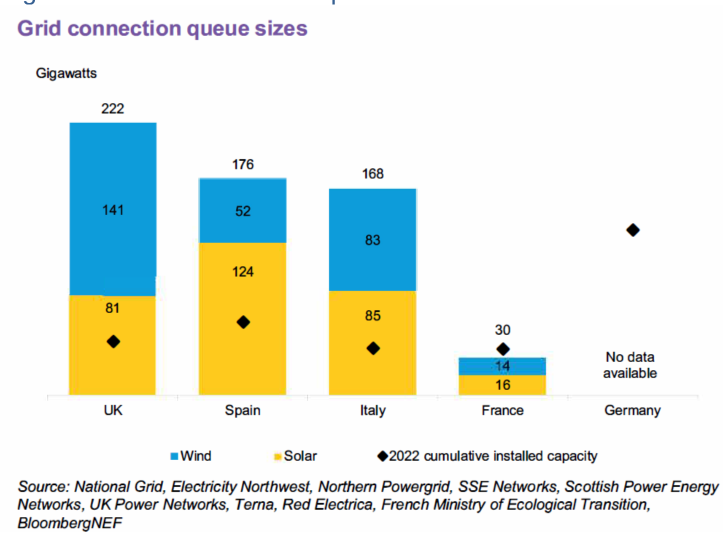
E.ON CEO reality check on the Energy Transition

Here is what we wrote in our March 19, 2023 Energy Tidbits memo. "*E.ON reported Q4 on Wednesday and its CEO Leonard Birnbaum made a number of comments on Bloomberg Markets Europe that had a a clear message – Europe is far behind on the energy transition and how Germany's energy policies have led to lost competitiveness and Germany facing the danger of deindustrialization. Here are a few of his key points. (i) Windmills & EVs aren't enough. We continue to believe that many just focus on wind/solar installations and EV penetration and not focus enough on being able to transmit wind/solar power and strengthening the grid to take more intermittent power. As Birnbaum reminded, every windmill added to the grid drives the need for more grid strengthening. On Wed, we tweeted [LINK] "#NatGas & its existing power infra will be needed for longer. #EnergyTransition is much more than windmills & EVs. #E.ON CEO every windmill needs a great a grid connection, every grid connection drives for more backbone reinforcement ...*
Thx @annaedwardsnews M. Cudmore. #OOTT." Our tweet included a 25-second clip of his comments on windmills. (ii) need to massively invest in energy infrastructure. This was his key warning. On Wednesday, we tweeted [LINK] "over/under? #E,ON CEO "do not have the infra in place for the #EnergyTransition" "need to massively invest into infra" if can "achieve at sufficient speed" can make it happen. "If not, we are going to run into trouble"#NatGas will be needed for longer. Thx @annaedwardsnews #OOTT." Our tweet included a 1:10 min clip of these comments. (iii) High energy prices have led to Germany loss of competitiveness. Birnbaum was blunt on how Germany has been hard hit by high energy prices. We tweeted [LINK] "E.ON CEO on #EnergyTransition ""we [Germany] have clearly lost competitiveness with the high energy costs" "unless we actually save energy & get prices down...... we will not see investments that we need and then, Yes, the danger of deindustrialization can not be neglected" #OOTT." Our tweet included the transcript we made of Birnbaum's comments to Bloomberg's Anna Edwards. "Edwards ".. do you see Germany as deindustrializing right now …… how different is the German economy going to look when we get to the other side of all this Energy Transition?" Birnbaum "I see investment, let me put it this way, I see investment decisions more and more taking place to the detriment of Europe and actually also Germany. Because we have clearly lost competitiveness with the high energy prices and we have not delivered any compensation for that. And so for me, unless we actually save more energy and get prices down. Unless we work much harder to compensate for the loss of competitiveness in energy somewhere else, we will not see investments that we need and then, Yes, the danger of deindustrialization can not be neglected. So that is challenge". (iv) our reminder is that any delays on having the energy infrastructure to support the energy transition should be a positive for natural gas."

BNEF: Staggering 600GW of EU solar/wind stuck waiting grid connection

Here is what we wrote in our April 9, 2023 Energy Tidbits memo on BloombergNEF's concerns on the lack of grid connectivity in Europe. "*We continue to see clear indicators that the energy transition will take way longer than expected, which means natural gas and its existing power infrastructure will be needed for way longer than aspired in Europe. One critical area that is being overlooked by leaders and others is the need to upgrade the grid to accommodate more intermittent power. Windmills and solar panels are great but they have to be hooked into the grid and the grid capacity must be enhanced so it can reliably accommodate more intermittent power. Otherwise adding more wind and solar will sit and wait, which means natural gas and its existing power infrastructure will be needed for way longer than aspired in Europe. (i) On Thursday, we tweeted [LINK] "Here's why #NatGas & its existing power infra is needed for way longer! @BloombergNEF staggering 600GW #Solar #Wind projects stuck in lines in UK, ES, IT, FR, DE. 2x existing capacity. See 👇03/15 tweet, #E.ON CEO warned every windmill needs grid connection/reinforcement #OOTT." (ii) BloombergNEF posted its "European Energy Crisis Indicators: April 2023" and had a clear warning. "Europe's grid connection backlog threatens net-zero goals. The transmission and distribution grid for electricity is fast becoming the main bottleneck that could delay the scale-up of renewables in Europe, just as targets to decarbonize loom ever closer. • There is a staggering 600GW of solar and wind projects stuck in lines in the UK, Spain, Italy, France and Germany. This is equivalent to twice their existing solar and wind capacity. • Grid operators are struggling to keep up with connection requests and upgrade their networks to allow for timely connections. Waiting times and connection costs are on the rise. In some markets like the UK, the earliest a developer can secure a connection is 2028 and beyond in most cases. In addition to long timeframes, costs are more often becoming prohibitively expensive, due to extensive works needed to allow the adoption of further capacity. • Securing a grid connection is only one stage of developing a renewable energy project. Other lengthy processes such as planning permissions could mean that project timelines easily reach 10 years, significantly slowing down additional renewable energy coming online in the future years. Below is the BloombergNEF chart attached to our tweet."*

Figure 57: Grid connection queue sizes



Source: BloombergNEF

Energy Transition: EU needs another $760b every year for green shift

EU needs $700b per year for green shift

Another to add to their voice, but not in a direct way, that the energy transition isn't working anywhere near their aspirations is the EU. But indicating they need a lot more money every year is an admission that they are nowhere near their energy transition plan. On Thursday, we tweeted [LINK] *"Big OOPS! EU must invest an additional €700b PER YEAR for green shift & shut out cheap Russian fossil fuels reports @johnainger @AlbertoNardelli. Reinforces #EnergyTransition will take way longer, cost way more & be rocky road. And #Oil #NatGas #Coal will be needed for longer. Thx @johnainger @AlbertoNardelli. #OOTT."* Bloomberg reported Europe says it needs an additional $763 billion per year for the green transition and that most needs to come from private money! That seems like a pretty clear admission that their energy transition plan isn't working. Bloomberg wrote *"The European Union must invest an additional €700 billion ($763 billion) a year if it's to green the economy and shut out cheap Russian fossil fuels, according to a draft report from the bloc's executive arm. Most of that figure will have to be privately sourced, the European Commission said in the draft seen by Bloomberg News. The vast sum — significantly higher than that proposed by Commission President Ursula von der Leyen less than two years ago — underlines the escalating costs of reaching net zero goals. "The green transition requires unprecedented investments," the commission said in its so-called Strategic Foresight report, which is still subject to change before publication Wednesday. "The full costs and consequences of the climate and biodiversity crisis are unknown".* Note that the Bloomberg reporting was accurate. We checked the final 2023 Strategic Foresight Report website Q&A [LINK] and it said "*The increasing pressure to ensure sufficient private and public funding for sustainability: the green transition requires unprecedented investments. Overall, additional investments of about EUR 620 billion annually will be needed to meet the objectives of the Green Deal and of our REPowerEU plan, with an additional EUR 92 billion needed to address the objectives of the*

Net-Zero Industry Act over the 2023-2030 period." Our Supplemental Documents package includes the Bloomberg report.

Energy Transition: IMO backs off shipping Net Zero ambitions with "revised" strategy

IMO "revised" emissions strategy

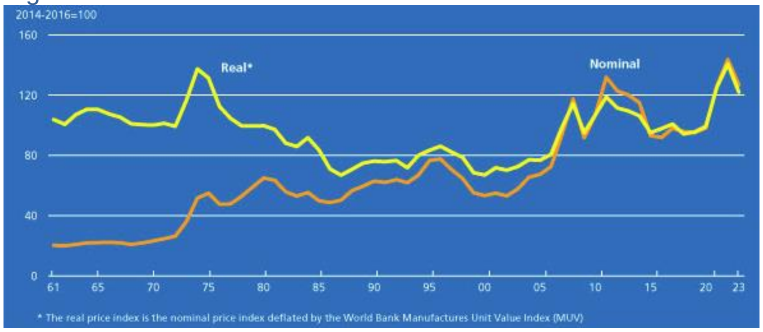
It's been a very busy last two weeks of world leaders admitting, albeit not necessarily directly, that they have to push back their energy transition and Net Zero ambitions. And their words also point to well known, at least to most, reasons such as they don't have the technology advancements assumed in Net Zero plans. We knew this admitting that the energy transition plan has to be revised was coming (see below items). The latest example was the World Meteorological Organization on Friday. (i) On Friday morning, we tweeted [LINK] "*Big #NetZero Reality check! @IMOHQ adopts "REVISED" [read slower & way less certain] emissions reductions strategy. Headlines will be "reach net-zero GHG emissions by or around ie. close to 2050". NOTE the big caveat "taking into account different national circumstances". That's countries saying we will do what we can but can't do what you want ie. take it or leave it. #Oil#NatGas will be needed for way longer than #EnergyTransition aspirations. #OOTT."* (ii) We reviewed the release and 21-page Annex for the then just released WMO "*Revised GHG reduction strategy for global shipping adopted*". [LINK]. (iii) The headlines on the key climate criticism on the WMO was that there wasn't a clear commitment for the shipping industry to hit Net Zero. WMO wrote "*to peak GHG emissions from international shipping as soon as possible and to reach net-zero GHG emissions by or around, i.e. close to 2050*". (iv) The overlooked and the key reason why the shipping industry isn't planning to get to Net Zero was the next part of the WHO sentence "*taking into account different national circumstances*". Those are the buzz words to get countries onside to sign something when they aren't onside or unable to meet the commitments. It's what gives the out to countries who are basically saying we will do what we can but we can't do what you want so take it or leave it. (v) The different national circumstances is really focused on the realities that developing countries can't/won't commit to the same emissions reductions commitments and that shows up in the 21-pg Annex. Pg 2, the WMO adopts this revised strategy and "*ACKNOWLEDGES the challenges that developing countries, in particular least developed countries (LDCs) and small island developing States (SIDS), may face in the implementation of the 2023 IMO GHG Strategy*." And then a big one is they clearly say that before they adopt measures for the Revised strategy, they have to consider an impact assessment and address any "*disproportionately negative impacts*". But what is interesting that they are going to assess these impacts in a range of items that would seem to give an easy out for a disproportionately negative impact including "*When assessing impacts on States, the impact of (a) measure(s) should be considered as appropriate, inter alia, in the following terms: .1. geographic remoteness of and connectivity to main markets; 2. cargo value and type; 3. transport dependency; 4. transport costs; 5. food security; 6. disaster response; 7. cost-effectiveness; and .8 socio-economic progress and development."* (vi) Again, they admit one of the items we have been highlighting for a couple years – future technology innovations/advancements are integral to meet the revised IMO emissions strategy. IMO writes "*identifies levels of ambition for the international shipping sector noting that technological innovation and the global introduction and availability of zero or near-zero GHG emission technologies, fuels and/or energy sources for international shipping will be integral to achieving the overall level of ambition carbon intensity of the ship to decline through further improvement of the energy efficiency for new ships".* Our Supplemental Documents package includes the IMO release and excerpts from the IMO Annex.

Capital Markets: UN FAO Food Price Index decreases in June and is down YoY

UN food price index down MoM

Other than a small blip in April 2023, the UN Food Price Index has declined for 12 months in a row. But a decline in commodity food prices really hasn't translated into a proportional decline in grocery food pries, or anywhere near that. So it's good news that food commodity prices seem to be easing and hopefully these will ultimately work their way thru the added costs in the supply chain before they get to grocery stores prices. We recognize the UN FAO Food Price Index isn't a measure of what people pay when they go to the grocery store. Grocery store prices. The UN global food price index decreased in June 2023. On Friday, the UN posted its monthly update of its FAO Food Price Index [LINK] titled "*FAO Food Price Index continues to fall".* Note that the index is calculated on a Real price basis. The FFPI averaged 122.3 points in June, which was a decrease of -1.4% MoM from 124.3 in May, and is down -23.9% YoY. The FFPI also reported MoM declines for most of its sub-indices in June. The Meat Price Index was up +0.2% MoM and is now -6.4% YoY. In contrast, the Vegetable Oil, Dairy, Sugar, and Cereal Price Indices were all down from last month by -2.4% (-45.3% YoY), -0.1% (-22.2% YoY), -3.2% (+29.8% YoY), and -2.1% (-23.9% YoY), respectively. Below is the all time FFPI graph.

Figure 58: UN FAO Food Price Index



Source: UN

Loblaw explained why grocery prices go up higher than food commodity prices

Here is what we wrote in our May 7, 2023 Energy Tidbits memo. "*As we keep saying there is a big difference between what the UN and USDA say is the inflation on commodity food prices because there is a big supply chain by the time a commodity gets turned into the price someone pays when they go to the grocery store. Loblaw had their Q1 call on Wednesday and mgmt. noted how the prices they pay for product to put on their grocery store shelves keeps going higher than the underlying food commodity price increase. In their prepared remarks, mgmt said "We are continuing to see elevated cost increase from our food suppliers. This includes small and medium-sized Canadian vendors catching up on costs and we're doing our best to expedite those. More concerning, we're still seeing outsized cost increases rolling in from large global consumer goods companies, exceeding what we would be expecting at this point." And then in the Q&A, mgmt. was a little more specific confirming it was relative to the commodity price increases. Mgmt replied "We wanted to call it out because it is one of the big drivers of cost inflation that we are seeing. You also heard Richard mention the small Canadian mid-sized* *manufacturers. So, we're kind of catching up to the inflationary costs. But yes, we are definitely seeing more inflationary cost pressure from the large multinational CPGs than we would have expected at this time based on what's happening in the commodity cost environment."*

Demographics: China's >60 population would be the 4th most populous country

>280 million Chinese over 60 yrs old

China is increasingly facing the challenge of a rapidly growing and already large aging population. We scan the Chinese state media (Global Times, Xinhua and People's daily) most days and saw an interesting demographic tidbits in the People's daily July 6 report "*China's solution for tackling aging population challenge*" [LINK]. People's Daily wrote "*Official data showed that China's population aged 60 and above had reached 280 million by the end of 2022*." That's a lot of >60 years old and, at 280 million, would be the 4th most populous country in the world. The UN's estimates July 1, 2023 populations are India 1.429 billion, China 1.426 billion, US 0.340 billion, Indonesia 0.278 billion, Pakistan 0.240 billion, Nigeria 0.224 billion, Brazil 0.216 billion and then Bangladesh 0.173 billion.

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

@Energy_Tidbits on Twitter

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

LinkedIn: Look for quick energy items from me on LinkedIn

Look for energy items on LinkedIn

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

Misc Facts and Figures

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

HeinzUK says "*FYI: Ketchup goes in the fridge!!!"*

Everyone has been to breakfast places, diners, very casual restaurants where you sit down and see all the condiments including ketchup on the table. And you know they were left there from the previous night. So it's understandable that many believe ketchup doesn't need to be refrigerated. Last Wednesday, HeinzUK asked where people their keep their ketchup – in the fridge or n the cupboard. The results were 63.2% in the fridge and 36.8% in the cupboard. The HeinzUK tweet [LINK] was "*FYI, Ketchup goes in the fridge*!!!". HeinzUK did not provide any explanation, but HeinzUK tweeted in 2017 [LINK] "*Because of its natural acidity, Heinz® Ketchup is shelf-stable, but refrigerate after opening to maintain product quality*."

Surprised didn't see more local caddies at US Women's Open at Pebble Beach
Anyone who has played courses like Pebble Beach or St. Andrews knows local knowledge is a huge advantage, whether it be on when not to hit driver on sloped fairways, or where to avoid when hitting to the greens and, in particular, reading the break and speed of the greens. The last became clear when we saw Annika Sorenstam putt a 30-footer and end up 7 feet off-line. It made sense that Michelle Wie West and Annika had their husbands on the bags in their swan songs for the US Open. But we were surprised that, for the first time for many of the LPGA pros playing Pebble Beach, that we didn't hear of them using the local caddies. We have to believe there were a few of the local caddies helping the amateurs, but we didn't hear of them on the bag for the pros. For anyone who ever goes to lay, we highy recommend getting our own local caddy for the round.