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Energy Tidbits

July 17, 2022

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Turning Point For Oil Markets: MBS Warns Saudi Can Take "Capacity" to 13 mmb/d And Then No More

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. A turning point for oil markets and reinforce peak oil supply is coming as MBS warned peak Saudi oil "capacity" will be reached once they get to 13 mmb/d by 2027 [LINK]
2. Has MBS's success this week with Biden's visit now set the stage for him to become Saudi King in the coming months? [LINK]
3. Looks like Europe's big fear is coming true – increased expectation for Nord Stream maintenance to be extended [LINK]
4. Oil consumers better hope OPEC MOMR's first look at oil demand is too optimistic [LINK]
5. Israel PM reminds it has a much sooner threshold than the US and others on Iran's nuclear efforts [LINK]
6. We had an earlier than normal news cut off at 5am MT due to travel.
7. Please follow us on Twitter at [LINK] for breaking news that ultimately ends up in the weekly Energy Tidbits memo that doesn't get posted until Sunday noon MT.
8. For new readers to our Energy Tidbits and our blogs, you will need to sign up at our blog sign up to receive future Energy Tidbits memos. The sign up is available at [LINK].

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Table of Contents

Natural Gas – Natural gas injection of +58 bcf, storage now -252 bcf YoY deficit

YoY storage at -252 bcf YoY deficit

The YoY storage deficit started the winter at -282 bcf YoY at Oct 31 and is now -256 bcf YoY. The EIA reported a +58 bcf build (+58 bcf expectations) for the July 8 week, which was the same as the 5-yr average build of +55 bcf, and last year's injection of +55 bcf. Storage is 2.369 tcf as of July 8, decreasing the YoY deficit to -252 bcf vs -261 bcf last week and is -319 bcf below the 5-year average vs -322 bcf below last week. Below is the EIA's storage table from its Weekly Natural Gas Storage Report [LINK].

Figure 1: US Natural Gas Storage

	Stocks billion cubic feet (Bcf)				Historical Comparisons: Year ago (07/08/21)		Historical Comparisons: 5-year average (2017-21)	
Region	07/08/22	07/01/22	net change	implied flow	Bcf	% change	Bcf	% change
East	501	482	19	19	540	-7.2	568	-11.8
Midwest	586	562	24	24	659	-11.1	650	-9.8
Mountain	143	138	5	5	180	-20.6	169	-15.4
Pacific	249	240	9	9	249	0.0	276	-9.8
South Central	890	890	0	0	994	-10.5	1,027	-13.3
Salt	221	233	-12	-12	283	-21.9	292	-24.3
Nonsalt	669	657	12	12	711	-5.9	735	-9.0
Total	**2,369**	**2,311**	**58**	**58**	**2,621**	**-9.6**	**2,688**	**-11.9**

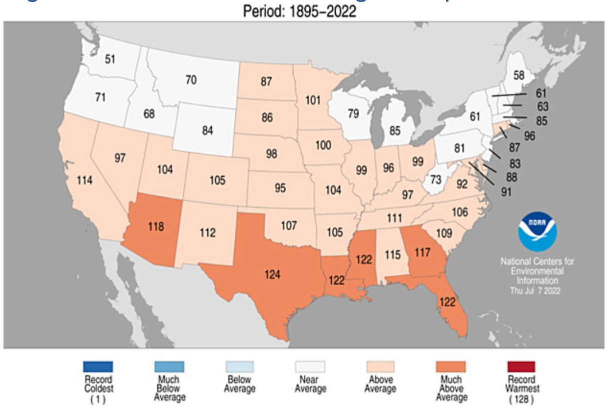
Source: EIA

Natural Gas – It was a hot June in the US and positive for natural gas

June weather recap

It was a good June with warmer than usual temperatures in the US ie. there was some weather related air conditioning demand. On Monday, NOAA posted its lookback at US weather for June [LINK] that showed June 2022 was the 15th-warmest June in 128-years. So there was a benefit to natural gas demand.

Figure 2: US Statewide Average Temperature Ranks June 2022



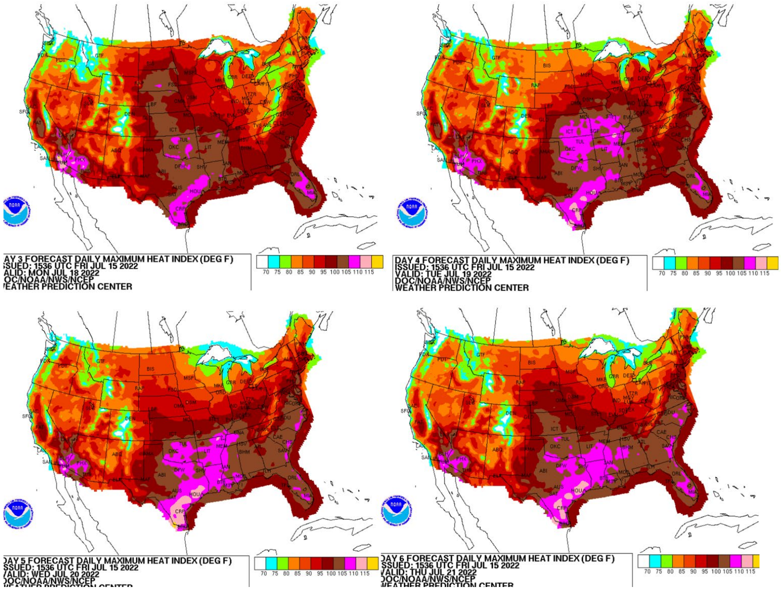
Source: NOAA

Natural Gas – Continues to be mostly hot temperatures in US

Continued hot weather in July

The weather headlines are all about Texas and how they have been narrowly avoiding any significant power outages. As noted above, it was warmer than normal in June and July has continued on the same heat wave. It looks like July is temperatures are in line with the recent (see our July 3, 2022 Energy Tidbits) NOAA new July forecast for warmer than normal temperatures. NOAA's National Weather Service posts daily updated Maximum Heat Index Forecasts, which still call for a warm start to start this week Monday thru Thursday. Below are NOAA's maximum heat index maps for Mon thru Thurs. [LINK]

Figure 3: Maximum heat index maps for Monday thru Thursday



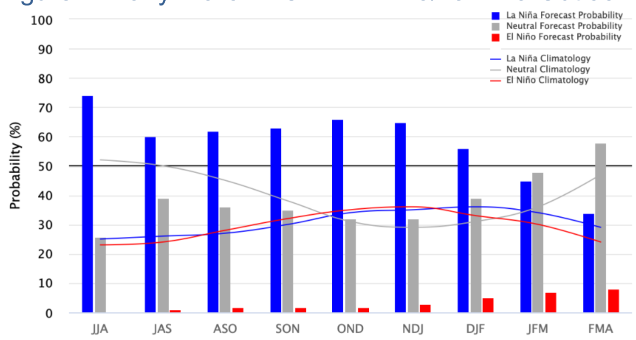
Source: NOAA National Weather Service

La Nina/El Nino conditions this summer

Natural Gas – La Nina/Normal conditions continue to support hurricane forecasts

All the hurricane forecasts are for above average hurricane/tropical storm activity in 2022. The CPC/IRI El Nino/La Nina outlook is issued on the 2nd Thurs of every month [LINK]. The new July forecast for JAS is 60% (was 52%) La Nina, 39% (was 46%) Neutral and only 1% (was 2%) for El Nino conditions. The new ASO forecast is 62% (was 54%) La Nina, 36% (was 43%) Neutral and 2% (was 3%) El Nino conditions. ASO is the peak period for Atlantic hurricane season. Again, weather is never 100% the same, but El Nino summers are normally associated with low Atlantic hurricane seasons, whereas neutral/La Nina conditions are more likely normal hurricane seasons. Below is the CPC/IRI official ENSO forecast.

Figure 4: Early-March NOAA El Nino/La Nina Outlook



Source: CPC/IRI

U.S. gas production +2.68 bcf/d in 2022

Natural Gas – EIA forecasts US gas production growth of ~6 bcf/d by year end 2023

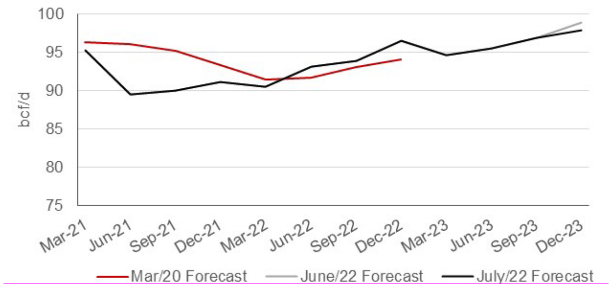
The EIA released its monthly Short Term Energy Outlook July 2022 [LINK]. The EIA revised down its 2022 and 2023 forecast for US natural gas production. (i) Please keep in mind that the rate of US natural gas supply growth is still a wildcard. The EIA's new forecast calls for ramp up in US growth from today, though it has been revised down slightly from last month's forecast. They forecast 95.5 bcf/d in Q2/22, up 2.5 bcf/d to 98.0 bcf/d in Q4/22, and then up another 3.3 bf/d in a year to reach 101.3 bcf/d in Q4/23. So call it, up to 6 bcf/d in the next 18 months. That doesn't sound unreasonable given HH gas pries, but we remind all forecast models are based on assumptions. We think the next few months of actuals will be key to determining how much the US will grow its natural gas supply. We have been highlighting how US natural gas growth is only now getting back to Nov levels. The EIA's Q2/22 of 95.5 bcf/d is still below Q4/21 of 96.5 bcf/d. So it's too early to assume the growth is in the bag, but we should get a better comfort level over the next few months if we start to see the ramp up in Q3/22. (ii) The EIA forecast shows US natural gas above the Q4/19 peak of 96.58 bcf/d, with Q4/22 US natural gas of 97.89 bcf/d (up 1.31 bcf/d from peak). (iii) For 2021, the EIA did not revise US natural gas production, which is flat at 93.55 bcf/d. (iv) US natural gas production is expected to average 96.23 bcf/d in 2022 (97.50 bcf/d previously) and 2022 is up 2.68 bcf/d YoY. 2023 production estimates were released and see Q1/23 production entering at 98.4 bcf/d (99.94 bcf/d previously) and exiting in Q4/23 at 101.3 bcf/d (102.66 bcf/d previously) for a 2023 average of 99.98 bcf/d. (v) The EIA wrote *"We forecast dry natural gas production will average 96.2 Bcf/d in 2022 in the United States, an increase of 2.7 Bcf/d (3%) compared with 2021. In 2023, we expect dry natural gas production to increase by 3.7 Bcf/d (4%) to reach 100.0 Bcf/d."* Our Supplemental Documents package includes excerpts form the STEO.

Figure 5: EIA STEO US Natural Gas Supply Forecasts by Forecast Month

bcf/d	Q1/20	Q2/20	Q3/20	Q4/20	2020	Q1/21	Q2/21	Q3/21	Q4/21	2021	Q1/22	Q2/22	Q3/22	Q4/22	2022	Q1/23	Q2/23	Q3/23	Q4/23	2023
July-2022	95.29	89.59	89.99	91.15	91.49	90.59	93.15	93.86	96.53	93.55	94.61	95.51	96.88	97.89	96.23	98.4	99.62	100.6	101.3	99.98
June-2022	95.29	89.59	89.99	91.15	91.49	90.59	93.15	93.86	96.53	93.55	94.61	95.48	96.9	98.94	96.5	99.94	101.3	102.3	102.7	101.6
May-2022	95.29	89.59	89.99	91.15	91.49	90.59	93.15	93.86	96.53	93.55	94.66	95.82	97.17	99.14	96.71	100.3	101.6	102.4	102.4	101.7
Apr-2022	95.29	89.59	89.99	91.15	91.49	90.59	93.15	93.86	96.63	93.57	95.41	97.01	97.94	99.23	97.41	99.72	100.6	101.4	101.7	100.9
Mar-2022	95.29	89.59	89.99	91.15	91.51	90.59	93.15	93.86	96.57	93.54	95.69	96.09	96.97	98.00	96.69	96.11	98.75	99.60	100.10	98.64
Feb-2022	95.29	89.59	89.99	91.15	91.51	90.59	93.15	93.86	96.69	93.57	95.43	95.54	96.26	97.12	96.09	97.11	97.57	98.34	98.84	97.97
Jan-2022	95.29	89.59	89.99	91.14	91.50	90.59	93.15	93.89	96.33	93.49	95.94	95.55	95.96	96.69	96.04	96.71	97.13	97.89	98.45	97.55
Dec 2021	95.29	89.59	89.99	91.14	91.50	90.48	93.20	94.01	95.59	93.32	95.22	95.35	96.1	97.21	95.97					
Nov 2021	95.29	89.59	89.99	91.14	91.50	90.48	93.20	94.52	94.94	93.29	95.41	96.00	97.12	98.18	96.68					
Oct 2021	95.29	89.57	89.99	91.14	91.50	90.30	92.89	93.32	93.65	92.54	94.38	95.41	97.12	98.69	96.40					
Sept 2021	94.80	89.68	89.83	91.15	91.36	90.30	93.05	92.64	92.70	92.18	93.17	94.54	96.25	97.59	95.40					
Aug 2021	94.79	89.68	89.83	91.15	91.35	90.29	92.49	92.67	93.11	92.15	93.34	94.15	95.51	96.47	94.88					
July 2021	94.79	89.68	89.83	91.15	91.35	90.31	92.88	93.17	93.80	92.55	93.65	94.10	95.16	95.82	94.69					
June 2021	94.79	89.68	89.83	91.15	91.35	90.53	92.26	92.63	93.26	92.18	93.13	93.48	94.31	94.81	93.93					

Source: EIA STEO

Figure 6: EIA STEO US Natural Gas Supply Forecasts by Forecast Month



Source: EIA STEO

Natural Gas – EIA STEO forecasts Nov 1, 2022 storage to be down 197 bcf YoY

EIA STEO storage forecast

The EIA STEO also forecasts US gas storage. Its forecast is positive for natural gas. (i) Winter 2021/22. US gas storage started winter 2021/22 at 3.66 tcf, which was down -283 bcf YoY. But the EIA now forecasts end of winter (March 31, 2022) at 1.4 tcf, which is -395 bcf YoY and ~14% below the 5-yr average. (ii) Summer 2022. The EIA forecasts start of winter 2022/23 storage at 3.47 tcf, which is -197 bcf YoY. The start of 2022/23 winter forecast is -3% below the 5-yr average. This forecast has been increased due to the Freeport LNG shut-in. (iii) The EIA wrote *"Working natural gas inventories ended March 2022 at 1,401 Bcf, which was 17% less than the five-year average for that time of year and the least natural gas held in U.S. underground storage at the end of March (the traditional end of the heating season) since 2019. As the Freeport LNG outage returns about 2 Bcf/d of natural gas to the domestic market, we expect end-of-October storage will be closer the five-year average than we did in last month's forecast."*

Figure 7: EIA STEO forecast US gas storage

	Storage	2016-2023				
	Level	Low	High	Range	Average	Deviation
Mar 2016	2,486.3	1,184.9	2,486.3	1,301.4	1,835.6	35.4%
Oct 2016	4,012.7	3,236.3	4,012.7	776.4	3,624.5	10.7%
Mar 2017	2,062.5	1,184.9	2,486.3	1,301.4	1,835.6	12.4%
Oct 2017	3,816.5	3,236.3	4,012.7	776.4	3,624.5	5.3%
Mar 2018	1,390.3	1,184.9	2,486.3	1,301.4	1,835.6	-24.3%
Oct 2018	3,236.3	3,236.3	4,012.7	776.4	3,624.5	-10.7%
Mar 2019	1,184.9	1,184.9	2,486.3	1,301.4	1,835.6	-35.4%
Oct 2019	3,762.0	3,236.3	4,012.7	776.4	3,624.5	3.8%
Mar 2020	2,029.4	1,184.9	2,486.3	1,301.4	1,835.6	10.6%
Oct 2020	3,928.5	3,236.3	4,012.7	776.4	3,624.5	8.4%
Mar 2021	1,800.6	1,184.9	2,486.3	1,301.4	1,835.6	-1.9%
Oct 2021	3,665.4	3,664.6	4,012.7	348.1	3,838.6	-4.5%
Mar 2022	1,401.5	1,184.9	2,486.3	1,301.4	1,835.6	-23.6%
Oct 2022	3,468.3	3,236.3	4,012.7	776.4	3,624.5	-4.3%
Mar 2023	1,540.6	1,184.9	2,486.3	1,301.4	1,835.6	-16.1%
Oct 2023	3,781.9	3,236.3	4,012.7	776.4	3,624.5	4.3%

Source: EIA

Natural Gas – Does Biden dare shut in Cheniere's 5.9 bcf/d LNG for emissions reasons

Cheniere is offside emissions limits

We had a number of calls on our item from last week's (July 10, 2022) Energy Tidbits memo on the reports that Cheniere was offside emissions limits. We don't believe Biden could or would shut it in until they got the emissions onside. Rather, we think the more likely scenario is some staged or staggered corrective measures being put in place over a period of a couple years. We see the risk that Cheniere ends up having a period of lower than capacity volumes as it fixes emissions on a staggered basis. Here is what we wrote last week on the issue. "*There was a great Reuters scoop on Friday "Exclusive: Top U.S. LNG producer Cheniere asks Biden admin to drop pollution rule" [LINK] that the title didn't necessarily reflect the potential huge impact on global, including US and Canada, natural gas and LNG markets. It's why we immediately tweeted [LINK] "Does #Biden dare shut in #Cheniere 5.9 bcfd #LNG in whole or staggered basis to force compliance to emissions? Would doom EU to #NatGas shortage & more massive prices, hammer US HH price. Or exempt for now & push supply interruption down the road? Great scoop @ValerieVolco! #OOTT". We believe the report raises the risk of a temporary shut-in or staggered by train temporary shut-in of Cheniere's 5.9 bcf/d LNG capacity. And if there is any shut-in, the impact would be huge given what happened to LNG, TTF, HH and AECO prices with the temporary shutdown of Freeport LNG's 2.2 bcf/d capacity. Cheniere's LNG export capacity is 5.9 bcf/d. Sabine Pass has six trains with ~30mm tpa or 3.95 bcf/d. Corpus Christi has three trains with ~15mm tpa or 1.97 bcf/d. We don't know who leaked the report, but we have to wonder if someone wanted to leak it to make sure there was an environmental push on Biden to not cave in and give Cheniere a waiver. Cheniere's natural gas turbines in all of its LNG trains put Cheniere offside emissions, so have asked for a waiver to comply. This wasn't an issue pre Biden, but in Feb 2020, the Biden admin removed the exemption for natural gas turbines from these emissions limits. The question is if Biden will give an exemption to Cheniere in the face of the global gas crisis and need for US LNG on global markets? Or will he hold Cheniere to the same emissions levels as others? If not, the turbines would have to be retrofitted. The below Reuters report says Cheniere reportedly said it would take several years to do so. That seems way too long. Although there is no question supply change issues would be adding months or a year, maybe more? We have just seen how Germany has been asking Canada* *to return the Siemens turbines so Russia won't have any excuse on resuming Nord Stream volumes. Can you imagine the pressure from Germany, France and others to make sure Cheniere isn't shut-in with the panic to try to fill storage and the need for US LNG all winter? It would be very tough to shut it in and still expect the EU partners to stay firm on Russia sanctions. If Cheniere is cut off for some period, it would lead EU to not longer worry about a shortage and a massive EU energy crisis, but to move to a shortage plan. And of course, Putin would love it. Environmentalists in the US would, if anything, see a win to the US in terms of impact on inflation. Force more US natural gas to stay within the US would lead to much lower HH gas prices. However, we should at least consider the potential for some sort of shut in. Again, think about what happened with Freeport LNG shut-in. If he doesn't give an exemption, in light of the EU crisis, we have trouble believing they would force a full shut down of Cheniere. Rather, I would expect to see some sort of short time to start implementing and more of a staggered temporary shut down on a train by train basis. Maybe if it is a staggered train by train basis, then the impact on prices would be smaller. But is there any other choice? And then we have the added issue of the mid-terms in less than four months. It's a big dilemma for Biden. Our Supplemental Documents package includes the Reuters report." And "Will Cheniere have to do his retrofit someday if not now? We still wonder who leaked the report. Was it some anti fossil fuels Democrat who wanted to put Biden on the spot to pressure him to not give into fossil fuels? Or who? Regardless, we have to believe the Europeans will be putting huge pressure on Biden to kick the can down the road on Cheniere being offside the emissions limits. But now that this has raised its public profile, we have to believe there will be a needed retrofit someday, if not now. And we would still believe the most likely scenario would be some sort of staggered by train retrofit to ensure high level of LNG capacity is on line. Similar to what Australia did with Gorgon LNG on a staggered by train fix. So unless Biden gives a permanent pass to Cheniere, this will add some positive impact to mid term LNG and TTF prices and a negative impact to HH gas prices. Conceptually like seen with the Freeport LNG shutdown. But if it can be done on a train by train basis, the impact will be about 1/4 the impact of Freeport LNG."*

Natural Gas – More buyers (Shell and Vitol) lock up long term LNG supply

Two more long term LNG deals

The rush continues for LNG buyers locking up long term LNG supply as there has been 10.52 bcf/d of long-term LNG supply locked up since July 1, 2021. We say continues because it started a year ago and was well underway before Russia invaded Ukraine. But no question it has accelerated post the invasion. Our March 13, 2022 Energy Tidbits memo noted Europe's plan to move away from Russian pipeline natural gas and LNG is a global game changer for energy for at least the 2020s. We were already seeing clear signals of the bullish LNG for 2020s call since the end of June 2021 with the abrupt shift of Asian LNG buyers to long term contracts. Now, with Russia, the rush continues and from more than Asian LNG buyers. There continues to be a consistent news flow of more long-term LNG supply deals, especially for the quickest to market LNG from the US Gulf Coast. (i) On Tuesday, Shell and Mexico Pacific announced [LINK] they have signed a sales and purchase agreement for Shell to offtake 0.34 bcf/d of LNG from the first two trains of Mexico Pacific's anchor LNG export facility. Under the agreement, Shell will purchase LNG on a free on-board basis over a term of 20 years, expected to commence in 2026. We still think the takeaway from the last 18 months in LNG markets is that major global LNG suppliers need diversity of supply. Whether its Shell at Prelude, Shell in its Russian LNG, Chevron at Gorgon, TotalEnergies and Exxon at Mozambique, or Freeport LNG, the big LNG story has been unplanned supply interruptions. These major LNG players like Shell want that diversity of LNG supply, and they need to replace Russia LNG. (ii) On Wednesday, Delfin Midstream finalized a binding LNG sale and purchase agreement with Vitol Inc. [LINK], which is the world's largest independent trader of energy. Vitol has also finalized a strategic investment in the company. Under the agreement, Delfin will supply 0.065 bcf/d for 15 years on a free on-board basis at the Delfin Deepwater Port to Vitol. Our Supplemental Documents package includes the releases.

Major LNG suppliers are also buying other's LNG for their supply portfolios
This week's transactions by Shell and Vitol highlight one of the different themes in 2022 – we have seen an increasing number of major global LNG suppliers lock up long term LNG supply for their LNG supply portfolios. We saw Chevron, Exxon and Shell in prior deals. This week, it's Shell again and now Vitol. This gives them the flexibility to have other LNG supply in the event of outages in their own LNG supply projects. One of the major LNG stories of the past year has been LNG supply outages including at Chevron's Gorgon LNG and Shell's Prelude LNG.

Asia is still well in front of Europe in securing long term LNG supply
Our March 13, 2022 Energy Tidbits memo noted that Europe LNG buyers were starting 9 months behind the wave of Asian LNG buyers who started to lock up long term LNG supply starting in July 2021. The LNG supply crunch is not a 2022 development. 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 10.52 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 10.52 bcf/d of long term LNG deals since July 1, 2021. 65% 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. And as seen in the Equinor deal, major LNG supply companies like Exxon, Shell and now Equinor are locking up long term LNG supply to add to their portfolios for LNG supply to others. Below is our updated table of Asian and Europe LNG buyers new long term supply deals since July 1, 2021.

Figure 8: Long Term LNG Supply 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
Sept 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	0.20	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
July 5, 2022	China Gas Holdings	NextDecade	China / US	0.13	20.0	2027	2047
Total Asian LNG Buyers New Long Term Contracts Since Jul/21				**6.80**			
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
March 7, 2022	Shell	Venture Global LNG	US / US	0.26	20.0	2024	2044
March 16, 2022	NFE	Venture Global LNG	US / US	0.13	20.0	2023	2043
March 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	0.67	15.0	n.a.	n.a.
June 9, 2022	Equinor	Cheniere	Norway / US	0.23	15.0	2026	2041
June 21, 2022	EnBW	Venture Global LNG	Germany / US	0.20	20.0	2026	2046
June 22, 2022	INEOS Energy	Sempra Infrastructure	UK / US	0.18	20.0	n.a.	n.a.
June 22, 2022	Chevron	Venture Global LNG	US / US	0.26	20.0	n.a.	n.a.
June 22, 2022	Chevron	Cheniere	US / US	0.26	15.0	2027	2042
July 12, 2022	Shell	Mexico Pacific Ltd	US / Mexico	0.34	20.0	2026	2046
July 13, 2022	Vitol	Delfin Midstream	US / US	0.07	15.0	n.a.	n.a.
Total Non-Asian LNG Buyers New Long Term Contracts Since Jul/21				**3.73**			
Total New Long Term LNG Contracts since Jul/21				**10.52**			
*Excludes Asian short term/spot deals							
*on Dec 20, CNOOC also agreed to buy an additional 0.13 bcf/d from Venture Global for an undisclosed shorter period							

Source: Company reports, SAF Group

Natural Gas – Shell Prelude 0.47 bcf/d FLNG loadings reported delayed thru Julyu

Shell Prelude FLNG 0.47 bcf/d

We still wonder if Shell Prelude FLNG 0.47 bcf/d will have more delays. (i) On Thursday, we tweeted [LINK] "*No surprise: #Shell cancels #LNG loadings at 0.47 bcf/d #PreludeFLNG thru July after a workers' strike extended an outage at the facility, according to people with knowledge of the matter, reports @SStapczynski. Still wonder if 👎 union email raises risks to timing? #NatGas #OOTT.*" Bloomberg reported "*Shell Scraps Prelude LNG Cargoes for July After Strike Extended. Shell canceled several liquefied natural gas cargoes scheduled to load in July from the Prelude LNG export plant in Australia after a workers' strike extended an outage at the facility, according to people with knowledge of the matter.*" (ii) Prior to the Bloomberg report, we were wondering if Shell Prelude FLNG might be in for a longer period of reduced LNG loadings. On Monday, we had tweeted [LINK] "*Will 👎union email be* *dismissed as negotiating tactic or are there real safety track record incidents/close calls/what if moments to be reviewed ie. potentially causing a longer than expected pause in #Shell #PreludeFLNG 0.47 bcf/d #LNG loadings? #OOTT [LINK].”* We were referencing a letter the union posted from one of their members on Shell and its management of the Prelude FLNG> we wondered if this type of public commentary puts Shell on the spot. We recognize that this is a union member’s email so there are complaints on the negotiations, but there are some statements in here that look to put Shell on the spot for how they have operated. Note that this union person appears to be someone who has been involved with Prelude FLNG going back to when the FLNG was being built in Korea. Maybe, its Australia regulator is well aware of this and has been doing so, but it doesn’t feel like it and that would be the reason for our question. At a minimum, the regulator should want to check their files to make sure they are not surprised. Plus, if Shell hasn’t done so, we would assume they would want to make sure they know their responses to the union member’s accusations We recognize that there is pressure to produce LNG, but companies like Shell tend to be good quality operators. We just wonder if the accusations cause a little bit more delay to a period of reduced LNG loadings? Here are a couple of the union member accusations. “*Years of busted lifts, busted equipment, inadequate maintenance responses, minimal control of band aid solutions, poor illogical decisions by a few poor managers, a culture created onboard by a few toxic managers to bully and influence other decent managers?” “Why has it taken our Union action to get you off your backsides after so many incidents, close calls, just so many 'what if' moments that we have been lucky to get away with? Are you completely blind to what the rest of us know and have known since before we left Korea?”* Our Supplemental Documents package includes the Bloomberg report and union member letter.

Figure 9: Shell Crux Project Overview

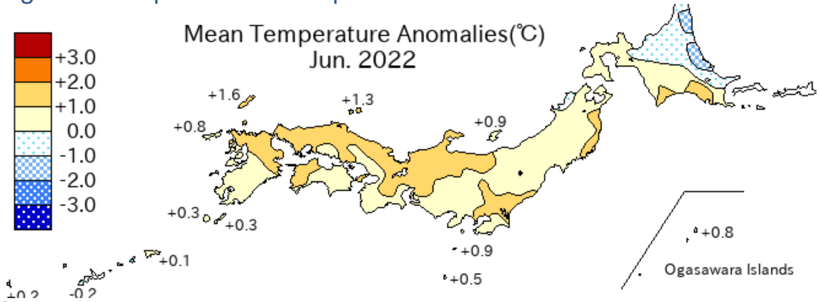
Source: Shell

Natural Gas – Above average weather demand for natural gas in June in Japan

Japan June temperatures

The Japan Meteorological Agency recap of June temperatures in Japan were that there were above normal temperatures for most of Japan in June ie. providing continuing support for weather related natural gas consumption ie. hot enough to justify air conditioning. On Wednesday, the Japan Meteorological Agency posted its recap of June weather [LINK] and their mean temperature anomalies map (below) shows the mean temperature breakdown for the month. Their recap noted, "*In late June, extreme hot weather condition was dominant in eastern and western Japan because the North Pacific Subtropical High enlarged its area to the mainland of Japan.*"

Figure 10: Japan Mean Temperature Anomalies June 2022



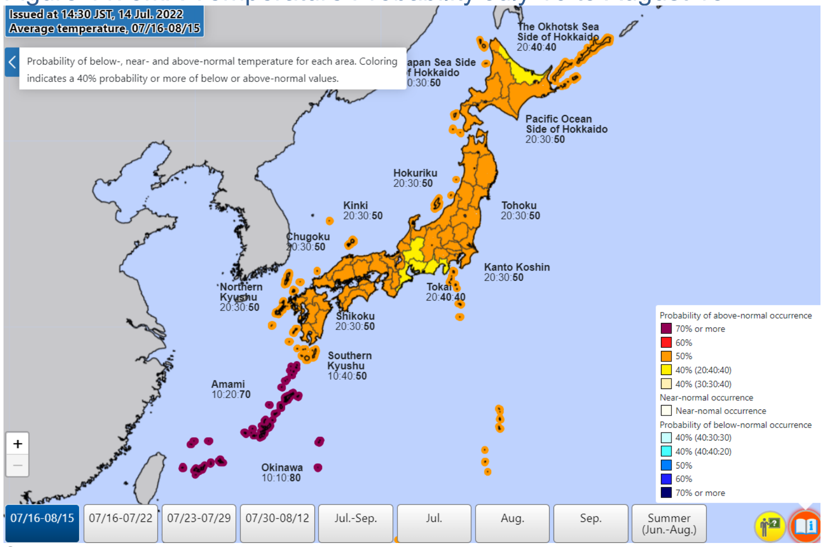
Source: Japan Meteorological Agency

Natural Gas – Continued hot weather for Japan thru mid Aug

Still hot in Japan

The warm weather continues in Japan with JMA forecasting much warmer than normal temperatures through mid August. And even with Tokyo and other Japanese cities pushing citizens to use less natural gas, hot weather in the summer is always a positive for natural gas demand. The Japan Meteorological Agency posted its July 16 to August 15 weather forecast [LINK] calling for warmer than normal temperatures. This type of weather will drive some significant weather-related natural gas demand for air conditioning.

Figure 11: JMA Temperature Probability July 16 to August 15



Source: Japan Meteorology Agency

Natural Gas – Seems like an extended maintenance at 5.3 bcf/d Nord Stream

Extended Nord Stream maintenance?

The big day, July 21, is Thursday and there has been no official word if the Nord Stream maintenance will be competed as scheduled and natural gas will flow to Europe. And, if natural gas flows, will it flow at capacity 5.3 bcf/d or the reduced volumes (down 60%) that was seen prior to the maintenance. Based on Gazprom's Wednesday tweet, it feels like the set up for an "operational" excuse for an extended maintenance. As expected, it was a weak of increasing anxiety in Europe, in particular in Germany, that Nord Stream's annual maintenance that started on Monday would extend beyond its scheduled July 21 finish. Last week's memo noted the standard announcement for the 5.3 bcf/d Nord Stream maintenance. [LINK] That anxiety rightfully ramped up. Most had expected that there might not be as much of an excuse with the reports that Canada agreed to release the repaired gas turbines to Germany to give to Russia. But surely after holding up the release for weeks, Europe shouldn't expect Russia to go like gangbusters to catch up? Plus we would expect Russia to want to take the time to check there isn't any funny business with the repaired gas turbines. On Wednesday, we tweeted [LINK] "*Buckle up! For near term EU TTF #NatGas #LNG prices have to go higher with pretty clear warning that #NordStream 5.3 bcf/d July 11-21 maintenance will take longer. Also will raise winter gas supply panic. Assume #Gazprom does extra checks to make sure nothing unusual. #OOTT #LNG."* We included the Gazprom tweet [LINK] that said "*Gazprom does not possess any documents that would enable Siemens to get the gas turbine engine for the Portovaya CS out of Canada, where that engine is currently undergoing repairs. In these circumstances, it appears impossible to reach an objective conclusion on further developments regarding the safe operation of the Portovaya CS, a facility of critical importance to the Nord Stream gas pipeline*."

Natural Gas – Shell CEO warns really tough winter and may have to ration energy

Shell CEO warnts on winter in Europe

No surprise, the warnings and panic in Europe about running out of natural gas continue to escalate. This shouldn't surprise anyone. Our concern is that it doesn't seem people are taking these increasing warnings to heart? Is it because they don't worry about shortage, just high prices that they would expect more subsidies? Regardless, the warnings are increasing. On Thursday, Shell CEO van Beurden go the big energy headlines for his warning that Europe will be facing a really tough winter for energy and may have to ration energy this winter. The FT reported on van Beurden's comments [LINK] at an energy conference. The FT wrote "*Shell chief warns Europe may have to ration energy during winter. Head of oil major says prices will rise 'significantly' if Russia continues to limit supply."* And "*I think we will be facing a really tough winter in Europe," van Beurden told an energy conference in Oxford on Thursday. "Maybe some countries will fare better than others, but I think we will all be facing very significantly escalating pricing, so there will be a lot of pressure on industry and therefore there will be a lot of pressure on the economy," he added. "In the worst case, we will be in a situation where we have to ration."* Our Supplemental Documents package includes the FT report.

Natural Gas – Uniper (Germany) withdrawing gas from storage in summer

Germany's blunt warning on shortages

We have been highlighting the increasing panic in Europe, especially in Germany, on the increasing fear of continuing low or no volumes on Nord Stream. This week, there was another good data point to add to that fear – Uniper is withdrawing natural gas from storage when it should be injecting natural gas into storage. Summer is the natural gas injection season and not the natural gas withdraw season. On Thursday, Bloomberg reported "*Germany started to pull natural gas from stockpiles that it's been building up for winter, with declining flows from Russia tightening available supply." "Germany has warned that the Nord Stream link, currently halted for maintenance, may not fully return once the works end later in*

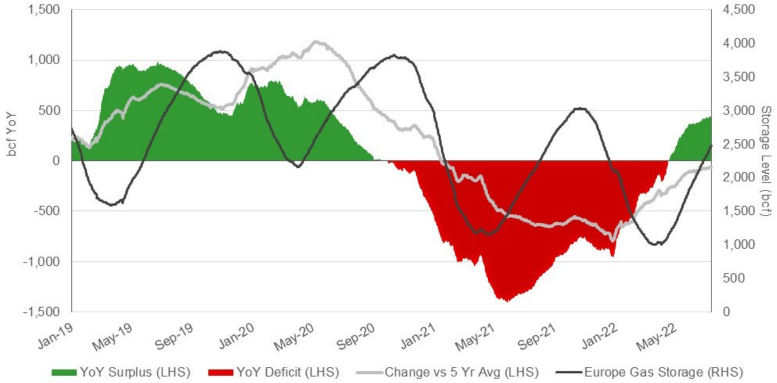
July. Russia's deliveries via Ukraine have also been curtailed for weeks. The tightening supply situation has forced Uniper SE, Germany's largest buyer of Russian gas, to signal that it has no choice but to pull volumes from storage to meet contractual commitments. "We cannot store more for now, something that we would like to do and the legislation provides for," Uniper Chief Executive Officer Klaus-Dieter Maubach said on Friday. The company is "focused on complying with the gas contracts we have with our clients." Our Supplemental Documents package includes the Bloomberg report.

Natural Gas – Europe storage is now +10.90% YoY ie. 62.94% full vs 51.61%

The urgency to refill Europe storage post Russia has worked, at least so far, but the real test is now here with the cut back in Nord Stream volumes in the last two weeks and the full shut down with annual maintenance on July 11-21. But, the YoY Europe storage gap changed to a YoY storage surplus and it continues to build this week. Europe gas storage started the winter down 18.52% YoY and is now a YoY surplus of 10.90%. Inventories are rising all across Europe, as is normal during spring and early summer. Europe gas storage started last winter (Nov 1/20) at basically full levels at 94.66% and had dropped by 65.77% to be 28.89% at Apr 1/21. Europe storage levels bottomed in late Apr at 29%, which was the lowest level since Apr 2018. This winter began (Nov 1/21) with gas storage at 77.14% capacity, down 18.52% YoY. The YoY deficit has turned to surplus after months of the deficit tightening. Thanks to the warm weather and US LNG, storage as of July 14 is at 62.94%, which is +11.33% greater than last year levels of 51.61% and are -1.44% below the 5-year average of 64.38%. As spring injections continue, we expect to see a decline in demand for LNG as less is used to heat homes. Below is our graph of Europe Gas Storage Level.

Europe storage now 62.94% full

Figure 12: Europe Gas Storage Level



Source: Bloomberg

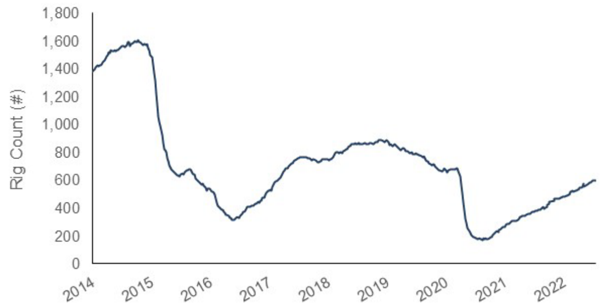
Oil – US oil rigs +2 WoW to 599 oil rigs at July 15

Baker Hughes released its weekly North American drilling activity data on Friday. There are still strong oil, NGLs and natural gas prices and industry has higher YoY 2022 capex budgets, but the reality is that industry needs to crank up drilling to increase the depleted inventory of DUCs. This week US oil rigs were +2 WoW at 599 oil rigs. Oil rigs are +427 off the bottom of 172 in Aug14/2020 week. Note the Permian was -1 to 348 rigs this week. This is normally just something like a rig move, however, below, we note the Mark Rossano

US oil rigs +2 WoW

comments on the Permian frac spreads that suggests we will want to watch Permian rigs. The Bakken was flat at 37 rigs after no change last week. US oil rigs hit their 2020 peak at 683 on March 13 and have since fallen by -84 to 597 oil rigs (-13%). US gas rigs were flat at 153 rigs.

Figure 13: Baker Hughes Total US Oil Rigs



Source: Baker Hughes

Oil – Was the US frac spreads -6 to 279 for the week ending July 15 a one-off?

Mark Rossano (C6 Capital Holdings) held his weekly US frac spread recap for the week ending July 15 on the Primary Vision network. YouTube video is at [LINK]. For the week ending July 15, US frac spreads at the high point in the week were -6 WoW to 279 spreads. The decline was a surprise and his video was titled "*Counter Seasonal Slowdown: Will it Last?".* As the title noted, Rossano was surprised by the -6 week, he didn't give the Permian declines but it feels like it was at least few spreads, and actually raised the risk that this could be a pivot if there isn't a snap back this week. Rossano noted that, typically, there is a ramp up after the 4th of July thru the end of the month until a slow down in Aug with heat & vacations to take spreads back to where they were in June, and then a bit of ramp post Labor Day thru Oct, and then the slowdown in Nov/Dec especially the six weeks starting around Thanksgiving. So what is driving the drop of 6 spreads. Denver was down but it was a moving day as there was an increase in Powder River. Saw increase in Anadarko as expected. Slowdowns in the smaller basins as well as in the Permian, but Permian was moving day. Rossano also noted the very hot temperatures in Permian and how that may be impacting equipment, but he expects a sizeable bump going forward but something to watch to see if this data point holds or is there this snap back next week. Because this could be a pivot, its only one data point but the decline was counter seasonal and counter economics. So next week is important to see if there is a pivot or just a one-off data point.

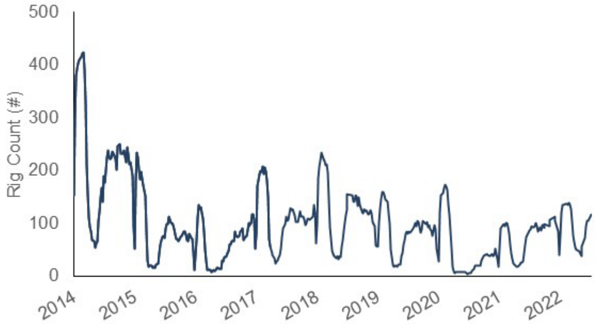
Frac spreads -6 to 279

Oil – Total Cdn rigs +16 WoW at 191 total rigs, +41 rigs YoY

Total Cdn rigs were +16 total rigs this week at 191. Cdn oil rigs were +9 at 125 rigs. Cdn gas rigs were +7 at 66 gas rigs. We expect some of the oil rig additions were for heavy oil and oil sands drilling. Total rigs are now +178 since the June 26, 2020 all-time low. Cdn drilling has recovered YoY, a year ago Cdn oil rigs were 94 and Cdn gas rigs were 55 for a total Cdn rigs of 150, meaning total Cdn oil rigs are +31 YoY and total rigs are +41 vs 2021.

Cdn rigs +16 WoW

Figure 14: Baker Hughes Total Canadian Oil Rigs



Source: Baker Hughes

Oil – Q3 Cdn drilling to surpass normal winter peak for only 2nd time in ~40 years

Precision sees big 2022 Cdn drilling year

On Monday, Precision posted a new July slide deck, which, no surprise, had the same themes as their Q1/22 earnings call. (i) We tweeted [LINK] "*More indicators for strong Cdn #Oil #NatGas E&P momentum into 2023. New #PrecisonDrilling slide deck: For only 2nd time in ~40 yrs, Cdn Q3 drilling will surpass normal winter peak. Plus faster drilling/higher well productivity in #Montney. #OOTT*" and [LINK] "*The Q3 Cdn drilling to surpass normal winter peak for only the 2nd time in ~40 yrs was said by #PrecisionDrilling CEO Neveu on Q1 call on 04/28. see 👇 excerpt from SAF Group May 1, 2022 Energy Tidbits memo. #OOTT*." They didn't say it in the new slide deck, but the comment about only the 2nd time in ~40 years was based on comments from Precision CEO Neveu on the Q1 call. (ii) US. Almost at full capacity for super spec rigs. "*Modest increases in U.S. land rig count could result in full utilization of "super spec" rigs in 2022*". Note that this is significantly because it means that growth in future rigs should see less productivity per well for those less than super spec rigs. (iii) AlphaAutomation is leading to faster drilling and better wells. They still use Delaware (Permian) example and Montney as examples. Our Supplemental Documents package includes excerpts from the new Precision slide deck.

Oil – US weekly oil production -0.1 mmb/d to 12.0 mmb/d

US oil production -0.1 mmb/d WoW

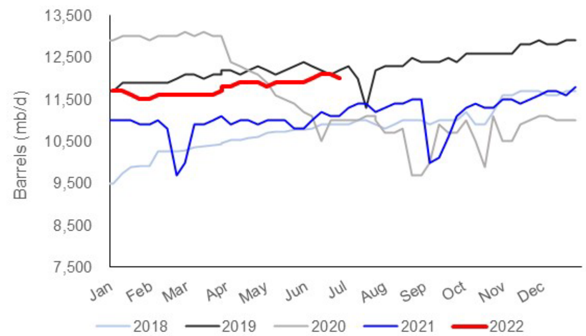
US oil production was -0.1 mmb/d to 12.0 mmb/d for the week ended July 8 after a slight increase last week. Lower 48 production drove total production and was down -0.1 mmb/d from last weeks level at 11.6 mmb/d this week, with Alaska having immaterial change. US oil production is up YoY at +0.6 mmb/d, but is still down significantly at -1.1 mmb/d since the 2020 peak of 13.1 mmb/d on March 13. Even with the dip down in WTI below $100 and HH below $7, we expect producers to maximize near term production adds, albeit under the continued capital discipline capex plans. Plus there has been a big drawdown in DUCs, which should be supporting some near term growth in production.

Figure 15: EIA's Estimated Weekly US Oil Production

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
2020-Jun	06/05	11,100	06/12	10,500	06/19	11,000	06/26	11,000		
2020-Jul	07/03	11,000	07/10	11,000	07/17	11,100	07/24	11,100	07/31	11,000
2020-Aug	08/07	10,700	08/14	10,700	08/21	10,800	08/28	9,700		
2020-Sep	09/04	10,000	09/11	10,900	09/18	10,700	09/25	10,700		
2020-Oct	10/02	11,000	10/09	10,500	10/16	9,900	10/23	11,100	10/30	10,500
2020-Nov	11/06	10,500	11/13	10,900	11/20	11,000	11/27	11,100		
2020-Dec	12/04	11,100	12/11	11,000	12/18	11,000	12/25	11,000		
2021-Jan	01/01	11,000	01/08	11,000	01/15	11,000	01/22	10,900	01/29	10,900
2021-Feb	02/05	11,000	02/12	10,800	02/19	9,700	02/26	10,000		
2021-Mar	03/05	10,900	03/12	10,900	03/19	11,000	03/26	11,100		
2021-Apr	04/02	10,900	04/09	11,000	04/16	11,000	04/23	10,900	04/30	10,900
2021-May	05/07	11,000	05/14	11,000	05/21	11,000	05/28	10,800		
2021-Jun	06/04	11,000	06/11	11,200	06/18	11,100	06/25	11,100		
2021-Jul	07/02	11,300	07/09	11,400	07/16	11,400	07/23	11,200	07/30	11,200
2021-Aug	08/06	11,300	08/13	11,400	08/20	11,400	08/27	11,500		
2021-Sep	09/03	10,000	09/10	10,100	09/17	10,600	09/24	11,100		
2021-Oct	10/01	11,300	10/08	11,400	10/15	11,300	10/22	11,300	10/29	11,500
2021-Nov	11/05	11,500	11/12	11,400	11/19	11,500	11/26	11,600		
2021-Dec	12/03	11,700	12/10	11,700	12/17	11,600	12/24	11,800	12/31	11,800
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						

Source: EIA

Figure 16: US Weekly Oil Production



Source: EIA, SAF

Oil – EIA lowers 2022 and 2023 oil production forecast

EIA forecasts US 2022 oil exit at 12.34 mmb/d

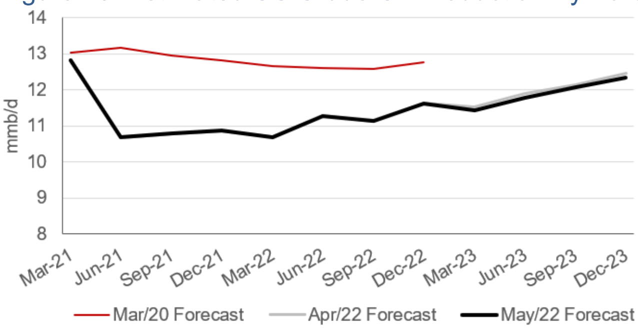
The EIA STEO slightly decreased its forecast for US oil production for 2022 and 2023. The EIA notes that their forecasts are subject to greater uncertainty amid the rapidly evolving conflict in Europe, production decisions of OPEC+, and the rate at which U.S. oil and natural gas producers increase drilling. (i) Similar to our view on US natural gas growth, we also believe the first real test for growth in US oil production will be Q3/22 and to see if we start to see a ramp up in oil production. We have previously noted how the EIA's numbers for US tight/shale oil were basically flat for months and only started to show modest growth in June. It's why we think Q3/22 oil production will be the first real ramp up in oil production. (ii) The EIA forecast kept US crude expectations flat in Q4/21, still not returning anywhere near the Q4/19 peak of 12.88 mmb/d, with Q4/21 US crude of 11.63 mmb/d (down 1.23 mmb/d from peak). Full year 2020 US oil production is flat at 11.28 mmb/d and is down 1.10 mmb/d YoY from 12.29 mmb/d in 2019. (iii) Full year 2021 also stayed flat at 11.19 mmb/d, which is down -0.09 mmb/d YoY from 2020. (iv) The EIA forecasts a shift back to YoY growth in 2022 with production averaging 11.91 mmb/d, +0.73 mmb/d YoY (was 11.92 mmb/d previously), with Q4/22 production of 12.34 mmb/d, is still down -0.54 mmb/d from Q4/19. (v) The 2023 outlook projects crude production to begin Q1/23 at 12.54 mmb/d and close the year in Q4/23 at 13.17 mmb/d for an average of 12.77 mmb/d in 2023.

Figure 17: Estimated US Crude Oil Production By Forecast Month

(million b/d)	Q1/20	Q2/20	Q3/20	Q4/20	2020	Q1/21	Q2/21	Q3/21	Q4/21	2021	Q1/22	Q2/22	Q3/22	Q4/22	2022	Q1/23	Q2/23	Q3/23	Q4/23	2023
July-2022	12.81	10.68	10.79	10.87	11.28	10.69	11.28	11.13	11.63	11.19	11.46	11.75	12.08	12.34	11.91	12.45	12.58	12.87	13.17	12.77
June-2022	12.81	10.68	10.79	10.87	11.28	10.69	11.28	11.13	11.63	11.19	11.45	11.71	12.08	12.43	11.92	12.64	12.82	13.07	13.33	12.97
May-2022	12.81	10.68	10.79	10.87	11.28	10.69	11.28	11.13	11.63	11.19	11.42	11.78	12.07	12.35	11.91	12.56	12.71	12.94	13.18	12.85
Apr-2022	12.81	10.68	10.79	10.87	11.28	10.69	11.28	11.13	11.63	11.19	11.52	11.90	12.15	12.46	12.01	12.73	12.88	13.02	13.17	12.95
Mar-2022	12.81	10.68	10.79	10.87	11.28	10.69	11.28	11.13	11.62	11.18	11.59	11.89	12.15	12.48	12.03	12.75	12.91	13.06	13.24	12.99
Feb-2022	12.81	10.67	10.79	10.87	11.28	10.69	11.28	11.13	11.69	11.20	11.67	11.86	12.06	12.27	11.97	12.46	12.54	12.63	12.75	12.60
Jan-2022	12.81	10.67	10.79	10.87	11.28	10.69	11.28	11.12	11.54	11.16	11.58	11.7	11.88	12.05	11.8	12.26	12.33	12.46	12.58	12.41
Dec-2021	12.81	10.67	10.79	10.87	11.28	10.69	11.28	11.11	11.63	11.18	11.67	11.72	11.91	12.09	11.85					
Nov-2021	12.81	10.67	10.79	10.87	11.28	10.69	11.28	11.07	11.47	11.13	11.69	11.77	11.97	12.16	11.90					
Oct-2021	12.81	10.67	10.79	10.87	11.28	10.69	11.28	10.98	11.13	11.02	11.54	11.64	11.78	11.96	11.73					
Sept 2021	12.81	10.67	10.79	10.87	11.28	10.69	11.28	11.06	11.28	11.08	11.42	11.58	11.81	12.06	11.72					
Aug 2021	12.81	10.67	10.79	10.87	11.28	10.69	11.22	11.26	11.30	11.12	11.46	11.62	11.86	12.11	11.77					
July 2021	12.75	10.81	10.81	10.90	11.31	10.70	11.20	11.17	11.34	11.10	11.54	11.72	11.95	12.20	11.85					
June 2021	12.75	10.81	10.81	10.90	11.31	10.70	11.04	11.17	11.38	11.08	11.55	11.67	11.88	12.05	11.79					

Source: EIA STEO

Figure 18: Estimated US Crude Oil Production By Forecast Month



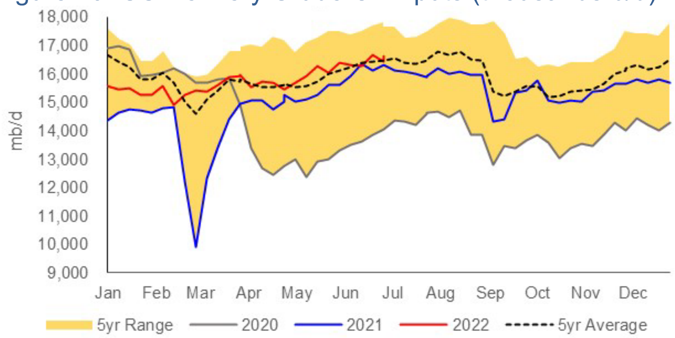
Source: EIA STEO

Oil – Refinery inputs +0.202 mmb/d WoW at 16.640 mmb/d

Refinery inputs up WoW

US refineries continue to run at high capacity utilization levels in the face of very high crack spreads to pump out more gasoline and diesel and running their refineries at 95% capacity. The EIA crude oil input to refinery data is for the week ended July 8. This is the season that normally sees increasing processing volumes in Q2 every year, and the EIA reported crude oil inputs to refineries up 0.202 mmb/d to 16.640 mmb/d for the week ended July 8 and are +0.547 mmb/d YoY. Refinery utilization was up to 94.9%, which is +3.1% YoY; refineries have exited the maintenance season with ramped up summer demand. Note that hurricane season in the US is here, with the official start of the season on June 1. Total products supplied (i.e., demand) increased WoW, down -1.744 mmb/d to 18.720 mmb/d, and Motor gasoline was down -1.351 mmb/d at 8.062 mmb/d from 9.413 mmb/d last week. The 4-week average for Motor Gasoline was down -0.759 mmb/d YoY to 8.726 mmb/d. The 4-week average of total demand was down -0.855 mmb/d YoY to 19.771 mmb/d.

Figure 19: US Refinery Crude Oil Inputs (thousands b/d)



Source: EIA

Oil – US "net" oil imports down -0.576 mmb/d WoW at 3.651 mmb/d

US "net" oil imports down WoW

US "NET" imports were down -0.576 mmb/d to 3.651 mmb/d for the July 8 week. US imports were down -0.164 mmb/d to 6.675 mmb/d. US exports were up +0.412 mmb/d to 3.024 mmb/d. The WoW increase in US oil imports was driven by US's Top 10 imports by country which were up by 0.150 mmb/d from Top 10. Some items to note on the by country data. (i) Canada was up this week by 0.024 mmb/d to 3.827 mmb/d. (ii) Saudi Arabia was up 0.236 mmb/d to 0.634 mmb/d this week. (iii) Colombia was flat at 0.213 mmb/d. (iv) Ecuador was up 0.007 mmb/d at 0.149 mmb/d. (v) Iraq was down 0.060 mmb/d to 0.302 mmb/d. (vi) Mexico was down -0.092 mmb/d to 0.610 mmb/d.

Figure 20: US Weekly Preliminary Oil Imports by Major Countries

(thousand b/d)	Apr 29/22	May 6/22	May 13/22	May 20/22	May 27/22	June 3/22	June 10/22	June 17/22	June 24/22	July 1/22	July 8/22	WoW
Canada	3,492	3,284	3588	3498	3444	3603	3394	3344	2887	3803	3827	24
Saudi Arabia	554	306	420	588	345	349	681	760	701	398	634	236
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	553	693	832	872	747	711	608	374	743	702	610	-92
Colombia	313	276	365	218	215	143	292	228	215	213	213	0
Iraq	181	326	242	282	326	196	555	100	76	362	302	-60
Ecuador	66	351	43	250	48	259	227	124	59	142	149	7
Nigeria	43	136	127	39	193	194	181	43	201	108	143	35
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	5,202	5,372	5,617	5,747	5,318	5,455	5,938	4,973	4,882	5,728	5,878	150
Others	1,130	897	951	739	900	699	1,047	1,253	1,116	1,111	797	-314
Total US	6,332	6,269	6,568	6,486	6,218	6,154	6,985	6,226	5,998	6,839	6,675	-164

Source: EIA, SAF

Oil – OPEC MOMR's first look at 2023 is very bullish for oil

OPEC MOMR

On Tuesday, OPEC released its Monthly Oil Market Report at 6am MT. (i) OPEC included its first forecast for 2023, which is very bullish for oil. We tweeted [LINK] "*Very bullish for #Oil if #OPEC 's MOMR 1st 2023 fcast is reasonable. Key takeaway - an increased call +0.9 mmbd on OPEC when OPEC is nowhere near meeting current quota. Plus global crude oil stocks still -177 mmb vs 2015-19 ave. #OOTT*". If OPEC's forecasts are close, it's very bullish. (ii) The OPEC MOMR July showed a tighter oil market ahead with the first look at 2023, and did not change the 2022 demand forecast. It also increased the call on OPEC when OPEC isn't able to deliver on its quota. This is a set up for tight oil markets in H2/22 that either needs a negative demand hit or Iran oil to keep things under control. However, OPEC warns on the risk to the world economy which makes it seem like there is downside to their 2023 demand outlook. (iii) The July MOMR forecasts Q3/22 demand was +2.32 mmb/d QoQ vs Q2/22. The only surplus capacity is in Saudi Arabia, UAE and a bit in Kuwait to meet demand increases. OPEC's share of the May production quota increase was +275,000 b/d MoM. Secondary Sources had the OPEC quota countries at +234,000 b/d MoM. (iv) For 2021, full year average demand was also unchanged at 96.92 mmb/d and +5.73 mmb/d YoY. 2021 remains down -3.28 mmb/d vs pre-covid 2019 of 100.10 mmb/d. (v) Oil demand growth in 2022 was also unchanged at +3.36 mmb/d YoY. 2022 demand average was unchanged at 100.29 mmb/d, up 0.09 mmb/d from pre-covid 2019 of 100.20 mmb/d. OPEC wrote. Revisions normally refer to the prior month's forecast. Both Q1/22 and Q2/22 were revised higher, but Q3/22 was revised lower with no change to Q4/22. Last month, we thought their writeup was suggesting risk to their demand forecast. They made no change in 2022 demand because they say, "*World economic growth in 2022 remains broadly unchanged at 3.5%.*" (vi) Oil demand growth was forecasted at +2.70 mmb/d to 102.99 mmb/d for 2023. Major YoY growth areas are: China +0.73 mmbd YoY to 15.99 mmb/d. Americas +0.48 mmb/d YoY to 25.75 mmb/d. Other non-OECD Asia +0.36 mmb/d YoY to 9.48 mmb/d. Middle East +0.32 mmb/d YoY to 8.39 mmb/d. India +0.24 mmb/d YoY to 5.37 mmb/d. Their summary comment on 2023 oil demand is "*Oil demand in 2023 is expected to be supported by a still solid economic performance in major consuming countries, as well as improved geopolitical developments and containment of COVID-19 in China.*" (vii) There was immaterial change to non-OPEC supply growth for 2022, now +2.14 mmb/d at 65.73 mmb/d. Key YoY non-OPEC growth areas for 2022 are US +1.28 mmb/d (unchanged), Canada +0.19 mmb/d (was +0.17 mmb/d), Brazil +0.15 mmb/d (was +0.16 mmb/d), China +0.15 mmb/d (was 0.11 mmb/d), and Kazakhstan +0.12 mmb/d (unchanged). (viii) Lookback at April commercial oil stocks was revised +41.5 mmb/d to 2,669.5 mmb. June MOMR had April at 2,628 mmb. Our Supplemental Documents package includes excerpts from the OPEC MOMR.

Oil – IEA OMR: neutral, demand fears but physical market tightness

IEA Oil Market Report

On Wednesday, the IEA released its monthly Oil Market Report for July at 2am MT. They only release very limited public info, but Bloomberg provided tables and added color from the report. So big thanks, as usual, to the Bloomberg team. (i) While many people are highlighting the demand risk outlook of the report, we think this IEA OMR is fairly balanced. The numbers continue to paint the picture for an even tighter oil market for 2023, especially with OPEC surplus capacity down to historic lows. IEA executive director Birol was highlighting the demand risk, which fits in with the inflation fears, reducing global GDP forecasts, etc. (ii) IEA's 2023 demand forecast was "modestly trimmed", reduced by -0.3 mmb/d to 101.3 mmb/d which is +2.1 mmb/d YoY and above pre-Covid 2019 of 100.4 mmb/d. The 2022 demand forecast was reduced by -0.2 mmb/d to 99.2 mmb/d, still below pre-covid levels. (iii) Non-OPEC supply growth for 2023 was forecasted at +0.1 mmb/d YoY to 65.6 mmb/d. 2022 non-OPEC supply increased to 65.5 mmb/d (was 64.3) for 2022, which is +1.8 mmb/d YoY. On the overall global supply theme, the IEA stated, "*persistent physical crude price tensions and extreme refinery margins highlight underlying imbalances for crude and products supply*". (iv) The IEA estimates 4.6 mmb/d of sustainable capacity split between 4.0 mmb/d OPEC and 0.6 mmb/d for non-OPEC. The IEA included 2.2 mmb/d as Saudi sustainable capacity, and we do not see how that is possible. The IEA defines Sustainable Capacity as "*capacity levels can be reached with 90 days and sustained for extended period*". (v) The IEA commentary on OECD stocks still looks positive, but shows modest builds in May and June helped by SPR releases. The IEA wrote, "*Global observed oil inventories rose by a modest 5 mb in May as a sharp increase in non-OECD crude stocks was offset by lower OECD stocks and oil on the water. OECD industry stocks rose by 15.2 mb to 2 691 mb, still 301.3 mb below the 2017-2021 average, helped by the release of 32.1 mb of government stocks. Preliminary data for June show total OECD stocks built by 22 mb.*" Our Supplemental documents package includes the IEA release and the Bloomberg reports.

Figure 21: IEA Global Demand Forecast By OMR Report Month

mmb/d	2020	2021	21-20	Q1/22	Q2/22	Q3/22	Q4/22	2022	22-21	Q1/23	Q2/23	Q3/23	Q4/23	2023	23-22
July-22	91.0	97.5	6.5	99.3	97.8	99.4	100.2	99.2	1.7	99.8	100.8	102	102.7	101.3	2.1
June-22	91.0	97.5	6.5	99.3	98.2	99.8	100.4	99.4	1.9	100.5	101.1	101.9	102.7	101.6	2.2
May-22	91.0	97.5	6.5	98.8	98.2	100	100.4	99.4	1.9						
Apr-22	91.0	97.5	6.5	98.5	98.3	100.1	100.5	99.4	1.9						
Mar-22	91.0	97.5	6.5	99	98.8	100.2	100.6	99.6	2.1						
Feb-22	91.0	97.4	6.4	98.9	100.1	101.7	101.6	100.6	3.2						
Jan-22	91.0	96.4	5.4	97.8	99.3	100.9	100.8	99.7	3.3						
Dec-21	91.0	96.2	5.2	97.9	99.1	100.8	100.3	99.5	3.3						
Nov-21	91.0	96.3	5.3	98.5	99.2	100.6	100.3	99.7	3.4						
Oct 21	91.0	96.3	5.3	98.6	99.1	100.5	100.2	99.6	3.3						
Sep 21	91.0	96.2	5.2	98.2	98.9	100.3	100.7	99.5	3.3						
Aug 21	91.0	96.2	5.2	98.0	98.8	100.1	100.2	99.3	3.1						
July 21	91.0	96.4	5.4	98.2	98.7	100.3	100.6	99.5	3.1						

Source: IEA, SAF

Oil – Saudi reduces oil for electricity by importing more Russian fuel oil

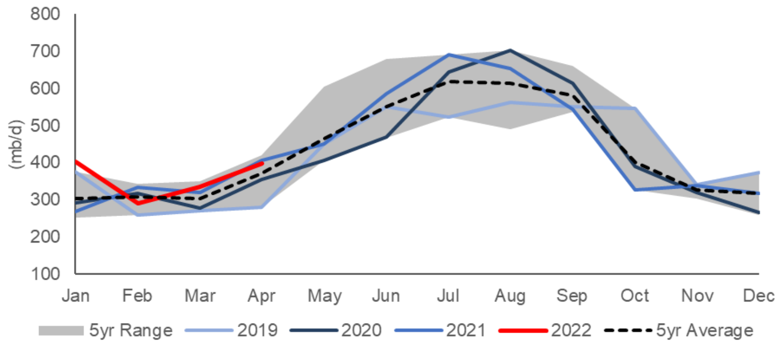
Saudi summer oil use for electricity

Saudi Arabia is in its peak summer season for use of its domestic oil production to generate electricity. Last week's (July 10, 2022 Energy Tidbits highlighted that summer oil domestic consumption for electricity can be 300,000 to 400,000 b/d more than during winter. It is still the peak season, but it looks like Saudi Arabia will be using of its own oil for electricity as it importing more Russian fuel oil for electricity generation. This also allows helps Russia maintain exports. On Thursday, Reuters reported [LINK] "*Saudi Arabia, the world's largest oil exporter, more than doubled the amount of Russian fuel oil it imported in the second quarter to feed power stations to meet summer cooling demand and free up the kingdom's own crude for export, data showed and traders said. Russia has been selling fuel at discounted prices after international sanctions over its invasion of Ukraine left it with fewer buyers. Moscow calls the war in Ukraine a "special military operation". The increased sales of fuel oil, used in power generation, to Saudi Arabia show the challenge that U.S. President Joe Biden faces as his administration seeks to isolate Russia and cut its energy export revenues.*" "*Data obtained by Reuters through Refinitiv Eikon ship tracking showed Saudi Arabia imported 647,000 tonnes (48,000 barrels per day) of fuel oil from Russia via Russian and Estonian ports in April-June this year. That was up from 320,000 tonnes in the same period a year ago.*" Our Supplemental Documents package includes the Reuters report.

Saudi normally uses 300-400,000 b/d more in summer for electricity

Here is what we put in our July 10, 2022 Energy Tidibits. "*As noted above, Saudi oil production, one way or another, will be in the news with the Biden/MBS meeting. On Wednesday, we tweeted [LINK] the reminder "just moving into peak Jul/Aug/Sep period in Saudi Arabia when day time highs average ~45C, and Saudi cranks up its use of #Oil for electricity ie. a little less for exports. #OOTT." For the last several years, we have highlighted this reminder that Saudi Arabia uses more than twice as much oil for electricity in the summer vs the winter. This means that increased production in the summer months doesn't mean increased oil exports. The ramp up* *really cranks up in May, June, July and August. The JODI data for Saudi Arabia oil supply and demand for April was updated on Monday [LINK]. And one of the key data pieces is Saudi Arabia's use of oil for electricity. Saudi used more oil for electricity in April vs March. This is attributed to the warmer temperatures experienced throughout April. The peak summer use was July at 691,000 b/d, that declined to 339,000 b/d in Nov and now reported +62,000 b/d MoM to 397,000 b/d for April. April 2022 is down -10,000 b/d YoY from April 2021 of 407,000 b/d. April was above the 5-yr average of 370,000 b/d."*

Figure 22: Saudi Arabia Direct Use of Crude Oil For Electric Generation



Source: JODI

Oil – White House knows Biden didn't get anything from MBS or Arab leaders

White House website

We think it is significant for oil that Biden didn't get any real wins from MBS in Saudi Arabia or from the GCC Arab Leaders because, as noted below, we think it's part of our June comments that this will pave the way for MBS to ascend to the crown. We had an early news cut off of 5am MT due to travel so do not have any of the Sunday morning cable news shows on politics, but, we haven't yet seen anyone who believes Biden won anything from his meetings with Saudi Arabia with MBS, and from the meeting with the GCC Arab leaders. And we believe the White House knows Biden didn't get any wins. Earlier this morning, we tweeted [LINK] "*Ouch! Best indicator #Biden didn't get any wins on #Oil supply or #Iran from MBS & Gulf Arab leaders meetings. Go to @WhiteHouse home page, nothing to even indicate he was in Jeddah. Didn't expect the MBS fist bump, but there would be something he thought he won something. #OOTT.*" It was hard not to notice when we went to the White House website this morning. We assumed maybe a picture of Biden with the GCC Arab Leaders but there was nothing on the home page to even indicate he was in Jeddah to meet with MBS or the GCC Arab Leaders. In fact, there was nothing on the last two days. It was like they hadn't updated their website. No question they want to turn the page as quickly as possible on the meetings. But when the political machines don't highlight something, it means that there is nothing to highlight or nothing they can spin as a win. Our Supplemental Documents package includes the screen shot we took of the White House home page at 4:28 MT.

Oil – Will Biden's loss lead to MBS becoming Saudi King in the coming months?

We think the most significant item to come out of the Biden's lack of success is that it will likely lead to MBS becoming Saudi King in the coming months. And as seen in the Biden meetings, he is a positive for Oil. Earlier this morning, we tweeted [LINK] "*#MBS certainly looks like the big winner post #Biden meetings. if so, see 👎 as @gulf_intel @sean_evers June 20 prediction is likely right, time for MBS to become king. And as seen in not giving anything to Biden on #Oil, MBS is a positive for Oil. #OOTt .*" Below is what we wrote in our June 26, 2022 Energy Tidbits on this idea of the Biden meeting being a catalyst for MBS to become King.

Is stage being set for MBS to become King

> **June 26, 2022 Energy Tidbits excerpt**
>
> ***Should we be prepared for MBS to become Saudi King in the coming months?***
>
> *We can help wonder if the stage is being set for MBS to become Saudi King in the coming months, perhaps ahead of the G20 leaders summit in October? There were two unrelated items on Monday morning that make us wonder. (i) On Monday, we tweeted [LINK] "Hmmm! #Biden/#MBS meet. "i think what MBS ultimately gets, in my opinion is the final blessing of Washington to ascend to become King. I think that is the real big prize here for him. Because up to know, they haven't given that" said @sean_evers. MBS is a positive for #Oil. #OOTT" There was a direct comment from Sean Evers (Gulf Intelligence founder) on their daily podcast. We have been listening to his daily podcast for the past year or two and he is an experienced oil follower, who generally doesn't make any outrageous type statements. He is in UAE. Here is what he said this morning "I struggle, I can see what the Saudis obviously get and the region. I think what MBS ultimately gets is, in my opinion, is the final blessing of Washington to ascend to become King. I think that is the real big prize here for him. Because up to now, they haven't given that." (ii) A Bloomberg report on Monday morning "Saudi Arabia's de facto ruler will go on a rare regional tour to build bridges ahead of US President Joe Biden's visit." The "rare" description caught my eye. Leaders don't normally do "rare" things without some reason. If we hadn't listened to Evers comments, we might not have linked it. (iii) So two unrelated events but we have to wonder. Then the question is what does this mean? There are so many potential implications but a few to come to mind. It will be the end of a redemption tour post Khashoggi killing. At least from MBS perspective. So we think there could be two items: First, If we accept the premise that MBS has been the de facto leaders, then it means continuation of what has been happening ie. aggressively using OPM to fund Vision 2030, no change to their oil policy (it's working), building relations with Israel (we think this is more the enemy of my enemy is my friend), continued negative vs Iran, cracking down on the Saudi wealthy who don't agree with him, etc.). Second, the real question is has MBS has been holding back on some items post the Khashoggi killing to get to this redemption, if he backs off of some of these to go back to his original approach pre-Khashoggi, or if he is agreeing with Biden's team to keep on some of these relaxed items as part of this deal. Ie. will he keep trying for some sort of peace with the Houthis or go back to blowing them away. Will he maintain the truce with Qatar for the past year or go back to trying to squeeze Qatar. We think this will be one of the key quesitons, will he go back to causing regional conflicts in Yemen, Qatar."*

"

Excerpt June 26, 2022 Energy Tidbits
Remember MBS's Atlantic March 3 interview
We still wonder what MBS is getting from Biden because there has to be a lot more than the chance to be smiling/gloating in a photo op with Biden. We can't help remember what we wrote in our March 6, 2022 Energy Tidbits. "Oil – Saudi MBS "simply, I do not care" if Biden misunderstands something about him. The Atlantic's March 3 report "Absolute Power" [LINK] based on its interviews Saudi crown prince Mohammed bin Salman got some good headlines. MBS says their "aim is to keep it and strengthen it" talking about their long historical relationship with the US. The headlines were on his Biden comments and warning to not interfere in Saudi domestic issues. The Atlantic wrote "We asked whether Biden misunderstands something about him. "Simply, I do not care," he replied. Alienating the Saudi monarchy, he suggested, would harm Biden's position. "It's up to him to think about the interests of America." He gave a shrug. "Go for it." For now, MBS's main request to the outside world, and especially the United States, is the usual request of misbehaving autocrats—namely, to stay out of his internal affairs. "We don't have the right to lecture you in America," he said. "The same goes the other way." Saudi affairs are for Saudis. "You don't have the right to interfere in our interior issues." It reminds that no one should expect the Saudi's to bend over in anyway to the US on oil. The problem for Biden and the Democrats is that it's difficult to reverse their view on MBS. We look at it as another of the situations where Biden and the Democrats like to have a villain to make sure they can get people onside their views. But by doing so, it makes it difficult for Biden to back track in a public way. It's like now with the oil companies, they really can't say anything positive about them or ask them to help without looking very weak. They made the oil companies the villains to sell energy transition for so long. How can they go back and say something good. They made MBS out to be a huge villain, Biden's team making it clear that Biden wouldn't meet or talk with MBS, only the King, they pulled out a Patriot missile defense system from Saudi Arabia, and have supposedly not given in to Saudi's request for more Patriot missiles to replace the shot missiles. So no surprise by the MBS comments on US. And unfortunately for the US, it means that Saudi isn't likely to help the US unless it helps them. We will be watching to see if there are reports on restocking Patriot missiles and any potential MBS/Biden meeting. Our Supplemental Documents package includes The Atlantic report."

Oil – Biden's lack of relationship with Saudi doomed his chances of success

Biden has no relationship with Saudi

There was a good reminder from CNBC's Hadley Gamble the day before the Biden/MBS meeting as to why oil followers in the UAE and Saudi thought Biden wouldn't walk away with any real success on oil. It's not just what Biden said on the campaign trail on making Saudi a pariah. Since Biden took office 18 months ago, he did nothing to establish a relationship ie. kind of what he does with oil and gas where he avoids speaking directly to them. She said it clearly – Biden has no relationship with the King and MBS so why should they expect anything. We tweeted [LINK] *"Why mkt followers in KSA/UAE expected no real result from #Biden hope for more #Oil from #MBS. It's not just Biden's election attacks on MBS. Yesterday, @_HadleyGamble summed it up, Biden had zero relationship with KSA & impossible to ask for favors without a relationship. #OOTT."* We created a transcript of Gamble's comments on Thursday, a day ahead of the Biden/MBS meetings. SAF Group created transcript of CNBC Hadley Gamble's comments on July 14, a day before Biden's meeting in Saudi Arabia. [LINK] Items in "*italics*" are SAF Group created transcript. Gamble "*people in this part of the world remember and they have been watching what has been happening over the past couple years coming out of Washington. They went from an agreement essentially behind the scenes with Donald Trump where he could literally pick up the hot line to Riyadh. Pick up the hotline frankly to Moscow and talk oil prices with President Putin. Talk oil prices with the King and the Crown Prince of Saudi Arabia to a situation today where Joe Biden, unfortunately, seems to have literally no relationship with the King and the Crown Prince. And as you know, that is absolutely essential, not just for the security of the region, but also oil prices and what happens next in oil markets. They are the de factor leader of OPEC*".

Biden fist bump with MBS didn't go over well in the US

We guess Biden thought the fist bump instead of a handshake with MBS would show less of a respect, but that wasn't how it was viewed by US media. Rather the headlines were much like Politico "*Biden fist bump with MBS triggers backlash*". "*The exchange prompted immediate backlash from human rights activists who criticized Biden for offering what they called too-friendly of a greeting to the crown prince. The president also received criticism from Washington Post publisher Fred Ryan, who called the fist bump "shameful."*"

Figure 23: Biden and MBS fist bump

Source: Politico

Oil – US says Saudi is going to do more than its commitment on OPEC+ increases

US says Saudi is doing more than its commitment

The Biden administration are not the only politicians that use crafty drafting. It is an essential of all political leaders. The US and Saudi Arabia issued a joint communique after the Biden/MBS meeting. A joint communique is signed off by both sides. However, the Biden administration also issued a "*FACT SHEET: Results of Bilateral Meeting Between the United States and the Kingdom of Saudi Arabia",* which isn't signed off by Saudi Arabia. [LINK]. There was some crafty drafting as the Biden administration is saying Saudi will do more on increasing oil production than Saudi has committed to under OPEC+. Maybe that is true, but, if so, why wasn't it in the joint communique? The White House wrote "*New Cooperation on*

Energy Security: Saudi Arabia has committed to support global oil market balancing for sustained economic growth. The United States has welcomed the increase in production levels 50 percent above what was planned for July and August. These steps and further steps that we anticipate over the coming weeks have and will help stabilize markets considerably." The US is saying there are "further" steps beyond Saudi's already planned July and Aug oil production increases.

Oil – Saudi was clear there were no separate commitments to US on oil production

It seemed like Saudi Arabia went out of its way to make sure the world knew they didn't make any separate commitment to the US to increase oil production. Rather, Saudi Arabia confirmed they make their oil supply decisions within the context of OPEC+. A day after the Biden/MBS meeting, Arab News interviewed Saudi Arabia Minister of State for Foreign Affairs Adel Al-Jubeir. They posted an interview and a 2+ min clip of his comments on oil markets n their July 16 report "*INTERVIEW: Adel Al-Jubeir on why Biden's Saudi visit is a success, and US commitment to Kingdom's security"* [LINK]. We created a transcript. Al Jubeir said "*So increasing crude oil supplies to the US is not going to alleviate that problem. But going back to the global situation, Saudi Arabia's policy is to work within OPEC and OPEC+ to make sure the markets are adequately supplied and we have been doing that. And I believe that the Biden administration is aware of this. If you look at only the last year alone, Saudi Arabia was able to increase oil production on a fairly regular basis. As well as within OPEC and OPEC+ in order to meet the demands of the market, and Saudi Arabia will continue to assess market needs and take decisions according to that. But I think that this idea that he asked for oil increase and they said no, or he asked for oil and they said yes is an over-simplification and over-dramatization of the situation. The US administration is fully aware of Saudi Arabia's policies in this regard and what Saudi Arabia is doing. And also appreciates the responsible manner in which Saudi Arabia has managed its production and export of crude oil*."

Saudi didn't commit anything new to US

Oil – Peak oil supply! MBS says Saudi Arabia isn't able to go above 13 mmb/d capacity

Peak oil supply! We thought there as a very bullish comment from MBS on the future of oil in Saudi Arabia and therefore in the world – MBS said that Saudi Arabia will be capped out at 13 mmb/d capacity and won't be able to go any further. This is the first time we have ever heard Saudi Arabia say they will be tapped out. And if Saudi Arabia is to be capped in five years, it means peak oil supply is likley coming in a similar time frame. On Friday, we tweeted [LINK] "*sounds like a turning point for #Oil markets. Saudi finally admits it is reaching peak oil capacity and supply. key question is after reaching peak in four or five years or so, how long can saudi maintain production and then how fast are the declines. bullish for oil. #OOTT."* We tweeted the Energy Intelligence tweet [LINK] "*Saudi crown prince said: the kingdom has plans to increase its oil production capacity to 13 million bpd and after that it will not have the ability to increase production further. #OOTT*". TThe actual MBS quotes were *"The kingdom will play its role in this era as it attempts to increase the maximum sustainable capacity to more than 13 million barrels," and "Beyond that, the kingdom will not have any further production capacity."* The 13 mmb/d is the previously stated Saudi Aramco plan to increase its maximum sustainable capacity from 12. 2 mmb/d to 13 mmb/d by 2027. But MBS is saying there isn't any more production capacity above 13 mmb/d.

Saudi can't go above 13 mmb/d capacity

Russia has long admitted the majority of its oil reserves need high oil prices

The other key reminder is that Russia has long admitted the majority of its oil reserves need high oil prices. Earlier this morning, we tweeted [LINK] "*Peak Oil Supply! Saudi will reach peak #Oil capacity in by 2027. Don't forget majority of Russia's oil reserves only work at high oil prices. See Jan 27, 2021 tweets [LINK]. Bullish for #Oil thru 2020s. #OOTT.*" Here is part of what we put in our Sept 5, 2021 Energy Tidbits that links to the Jan 27, 2021 tweets. "*Russia says 50% of its oil reserves are not profitable at $50 oil. We will ask the same rhetorical question as we did in our Jan 31, 2021 Energy Tidbits – imaging what markets would say if Exxon were to come out in their year end reporting and say only 50% of its existing oil reserves are profitable at $50? On Thursday, we tweeted [LINK] "Only half of Russia's #Oil reserves are profitable at $50 says Deputy Energy Minister Sorokin. Fits Jan 27 linked tweet. Bullish for mid/long term oil prices. Detailed comment in SAF Group Jan 27, 2021 Energy Tidbits memo". There was a typo in the tweet as we should have said the Jan 31, 2021 Energy Tidbits memo that was titled "Russia Says Increasing Water Cut, Deteriorating Development, Etc Mean Only 36% of Its Oil Reserves are Profitable." This week, Russia's Deputy Energy Minister Sorokin came out with almost identical comment as he did on Jan 27, 2021 saying "even in our current structure of reserves, a significant part of it is unprofitable at a price of $50 – about half there. There is a very large layer of opportunities for working with the current resource base: with small fields, with depleted, with tailing assets, with deeper and more difficult layers. What you need to concentrate on". Sorokin's Jan 27 comments were basically overlooked as they were only in the TASS Russian news version. But we thought then and still think know that this is a significant admission from Russia as to the mid/long oil supply and we believe a bullish comment for oil in the 2020s. One difference is that Sorokin gave much more insight into the uneconomic oil reserves in his Jan 27 comment in Russia. Below is what we wrote in our Jan 31, 2021 Energy Tidbits on his comments..*"

Oil – Reminder MBS was talking "*capacity*" and not production levels

Capacity vs production

It is important to remember MBS was talking about "capacity" and not production levels. Saudi Arabia has always wanted to maintain a level of production capacity for surge or emergency needs. We should note that Saudi can also surge production out of its oil storage. But no one should expect Saudi Arabia to produce at its capacity for anything more than a burst. Plus we have to believe they also don't want to be put on the spot to produce at capacity for long periods just in case they can't do so! And it seems like more are finally starting to understand there is a difference between capacity and the production levels that Saudi would produce at on a sustainable basis.

Even the US got the message as they lowered expectations for MBS meeting

We guess the US was hoping for a miracle breakthrough so didn't want to lower expectations for he MBS meeting too far in advance. That is, until a couple days before Biden went to Jeddah. But they did and, in doing so, acknowledged the known by everyone in the oil industry Saudi Arabia approach of never having to produce at its capacity. On Wednesday, we tweeted [LINK] "*US lowering expectations for #Biden/#MBS. @JakeSullivan46 "we also want that energy supply to be sustainable over time, meaning having spare capacity is part of the equation".*

ie. US will message a win if KSA sustains #OPEC+ Aug quota of 11.00 mmbd. See 👎👎 @michaelwmuller #OOTT."

Vitol, smart money is Saudi sustainable capacity is 11 point something

Our June 5, 2022 Energy Tidbits memo was titled "*Vitol's Muller "Smart Money is of the View that the Saudi Current Sustainable Production Limit is Somewhere 11 Point Something".* In that memo, we wrote "*As usual, there was some excellent food for thought on oil from Mike Muller (Head, Vitol Asia) on his monthly appearance on the Gulf Intelligence PODCAST: Daily Energy Markets earlier this morning. [LINK]. Earlier this morning, we tweeted [LINK] "Buckle up! #Vitol Asia head @michaelwmuller "smart money is of the view that the Saudi current sustainable production limit is somewhere 11 point something", a huge gap vs "surge" KSA #Oil of high 12's mmbd. Very bullish for oil as demand keeps going up. Thx @gulf_intel. #OOTT." Everyone knows Saudi Arabia has spare capacity, but Muller reminds there is a big difference between what Saudi can produce on a surge basis, vs what they can or want to produce on a sustainable basis. That becomes even more critical in a still recovering oil demand market. If Saudi's "sustainable" oil capacity is 1 mmb/d less than what most expect, it is a big plus to oil for the 2020s. We created a transcript of Muller's comments. At 3:30 min mark, Muller ".. what actually happens to OPEC+ output of course is a different matter. There is a commonly held view that really only the UAE and Saudi have spare capacity. And the debate now focuses on what exactly is that number, what can those two countries produce, sustainably. Because no one really knows, it's subsurface and it's not been tested other than a couple of surge production, high watermarks set by the Saudis to much fanfare, of course, just before Covid struck and those were in the high 12's. But the smart money is of the view that the Saudi current sustainable production limit is somewhere 11 point something and that's a pretty wide range. And yes, the quota gets them to 10.8 and above. And we must remind ourselves that most OPEC+ members are already at their limits and therefore this provides an open door for Saudi and UAE to make up the shortfall. Notably also, some may recall there was a month, which I believe was March, just a few months back, when the Saudi OSPs went very because of the formula and a lot of people felt that was too much at once and there was an undenomination. So I think there is a little up their sleeves as well."*

Oil – Saudi reminds US it has a gasoline shortage not a crude oil shortage

US's problem is gasoline not oil

A day after the Biden/MBS meeting, Arab News interviewed Saudi Arabia Minister of State for Foreign Affairs Adel Al-Jubeir. They posted an interview and a 2+ min clip of his comments on oil markets n their July 16 report "*INTERVIEW: Adel Al-Jubeir on why Biden's Saudi visit is a success, and US commitment to Kingdom's security"* [LINK]. We created a transcript and tweeted [LINK] "*Ouch. Saudi reminds US it has gasoline shortage, not crude oil. "With egards to the price of #Gasoline in the US, that's really a function of a lack of refining capacity ...So increasing crude #Oil supplies to the US is not going to alleviate that problem." Thx @NoorNugali #OOTT."* Al-Jubeir said "*With regards to the price of gasoline in the United State, that's really a function of a lack of refining capacity. The US has not built a refinery in more than 40 years and it has something to do with a regulatory environment that has now led to having many different blends of gasoline in different regions of the United States, which makes it complicated to supply gasoline into the American market. So increasing crude oil* *supplies to the US is not going to alleviate that problem."* Al-Jabeir also reminded that Saudi Arabia makes it oil decisions within OPEC and OPEC+. Al-Jabeir said "*But going back to the global situation, Saudi Arabia's policy is to work within OPEC and OPEC+ to make sure the markets are adequately supplied and we have been doing that. And I believe that the Biden administration is aware of this. If you look at only the last year alone, Saudi Arabia was able to increase oil production on a fairly regular basis. As well as within OPEC and OPEC+ in order to meet the demands of the market, and Saudi Arabia will continue to assess market needs and take decisions according to that."* There were other relevant Al-Jabeir oil comments. Our Supplemental Documents package includes the transcript we made of the Al-Jabeir oil comments.

Oil – Biden seemed to lower bar on IRGC being on the terrorist list

Biden highlights Quds force

We recognize that Biden's comments in his interview with Israel's N12News were viewed as shooting a hole in the potential for a return to the JCPOA. And rightly so because of the clips that were played. However, we thought that, if you listened to the sentence before, Biden seemed to leave the door open to a return to the JCPA and gave Iran the signal of what he would accept on the IRGC terrorist designation. Biden is very clear on the part of the IRGC called the Quds Force (the fighting side). But his comments seemed to fit our prior comments that Biden is leaving the door open to leaving part of the IRGC (the Quds force) on the terrorist and not all of IRGC. Here is the excerpt from the interview, note how he distinguishes the Quds Force. [LINK] "*So following on from what you said, sir, I want to continue from this point and ask you about Iran. You know, most Israelis oppose a return to an agreement with Iran, and America's partners in the region are in doubt. I wanted to ask, and many Israelis wonder, why are you determined to return to the agreement? "Because the only thing worse than today's Iran is Iran with nuclear weapons, and if we can go back to the agreement and 'keep them short' ... I think the previous president made a huge mistake when he left the agreement, Iran is now closer to developing nuclear weapons than it used to be. "Whether Quds Force continues to operate or not in the region. We can act against them and still reach an agreement that will curb the nuclear program. I still think it makes sense. We went to the negotiating table, drafted an agreement, proposed it and now it depends on Iran." And you pledge to keep the Revolutionary Guards on the list of terrorist organizations even if it eliminates the agreement? "Yes". You have said before, and you say again, that you will do everything to ensure that Iran does not have nuclear weapons. Does this also mean that you will act forcefully against Iran if necessary? Is that the intention? "As a last resort - yes."*

Quds force highlight fits White House trial balloon on this in April

This Quds force highlighting jumps out at anyone who has been watching the White House language ove the past three months. Recall in Feb, there was the momentum that a JCPOA deal was near but that died with the US blaming additional demands by Iran. We started to see trial balloons floated including this Quds force distinguishment. Here is an excerpt from the US State Department April 8, 2022 press briefing. [LINK] Question: "*Hi, Jalina. One follow-up for you on Iran. Can you say whether the Biden administration shares General Milley's view that the IRGC's Qods Force specifically should remain on the U.S. list of terror organizations?* Porter "*Thanks, Elizabeth. I'd say that the President shares the chairman's view that IRGC Qods Forces are terrorists, and beyond that we aren't going to comment on any of the topics in the nuclear talks. But what I would say is out of the 107 Biden administration designations in* *relation to Iran, 86 have specifically targeted the IRGC-related persons as well as affiliates.*

Oil – Israel reminds its threshold on Iran's nuclear efforts is very different than US

Israel's has different position on Iran

While we don't think most appreciate the different positions from Israel vs others like the US on what they can't live with for Iran's nuclear program, we have no doubt Iran listens and hears this different position. However, we worry that others interpret similar words as having the same message but we see a totally different position. We thought there was a clear differentiating message from interim Israel Prime Minister Lapid speak at the short Biden/Lapid press conference on Thursday. And Lapid is not playing any political game and not saying something standing beside Biden and then talking differently when he is away from Biden. We tweeted [LINK] "*Note @IsraeliPM Lapid "only thing that will stop Iran is knowing that, if they CONTINUE TO DEVELOP their nuclear program, the free world will use force". Vs @POTUS "never obtains a nuclear weapon". #Oil risk premium? #OOTT."* Lapid's red line is not to stop Iran from getting a nuclear weapon or becoming nuclear capable. Rather Lapid is warning on Iran "continue to develop" ie. can't go any further on development. We think Lapid spoke clearly and forcefully. And his clarity on Iran has to make us think there is increasing risk to something is going to happen against Iran. Certainly a bigger risk if no JCPOA soon. And we still think a risk if a JCPOA at least to the same type of mysterious fires, explosions, assassinations that have happened in the past couple years. And Lapid clearly says diplomacy won't work. So it's all about stopping Iran to continue to work on nuclear development. This is different than the US and others who worry about enrichment levels and not allowing Iran to obtain or develop or get to a nuclear ready stage. And if there is this risk, then our tweet asks shouldn't there be some sort of risk premium in oil? That is, unless everyone believes Israel is bluffing. And Lapid also reinforced that Israel reserves the right to act freely on this subject of Iran's nuclear program.

Israel PM Lapid on Iran's nuclear program at press conference with Biden

There was a transcript later posted by the White House, but our tweet included the following transcript we made of the Lapid and Biden comments. *SAF Group created transcript of excerpts from Biden/Lapid press conference on July 14, 2022 Items in "italics' are SAF Group created transcript. At 5:36am MT, Lapid "… our way of life is what threatens them. It's what makes the Iranian regime develop its nuclear program, Hezbollah aim its missiles at us and terrorist organizations worldwide send suicide bombers. They want to destroy the only Jewish state in the world. That, we will never let happen. Words will not stop them Mr. President. Diplomacy will not stop them. The only thing that will stop Iran is knowing that, if they continue to develop their nuclear program, the free world will use force. The only way to stop them is to put a credible military threat on the table. You have said many times, Mr. President, that big countries do not bluff. I completely agree. It should not be a bluff but the real thing the Iranian regime must know that if they continue to deceive the world, they will pay a heavy price". At 5:45am MT. Biden ".. Today, you and I also discussed America's commitment to ensuring Iran never obtains a nuclear weapon….. I continue to believe that diplomacy is the best way to achieve this outcome." At 5:58am MT. Lapid "… we cannot allow Iran to become nuclear. Israel reserves the right to act freely on the subject." Prepared by SAF Group https://safgroup.ca/news-insights/*

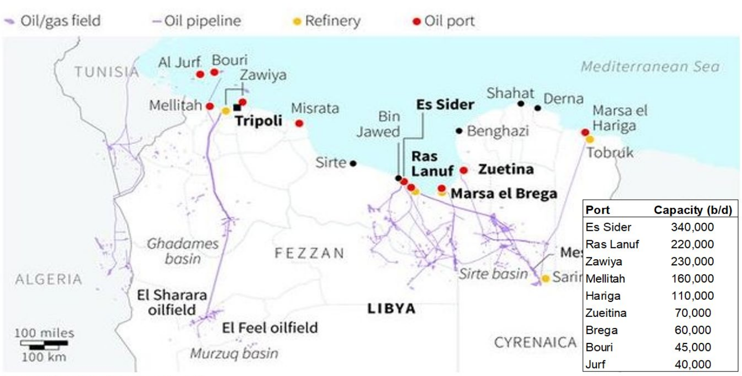
Oil – Libya new NOC chair lifts force majeure

Libya lifts force majeure

No one should have been surprise to see the last Friday announcement by new Libya National Oil Corporation Chair Farhat Bengdara that they were lifting the force majeure. Early that morning, we tweeted [LINK] "*Money Talks! Still a Haftar wildcard, but here's why new @NOC_Libya Chair Bin Qadara has a chance to increase production for now. @S_Elwardany reports Tripoli will give NOC $7.2b budget "needed to upgrade oil facilities, and that salaries of employees will be raised." #OOTT.*" Prior NOC Chair Sanalla had been fighting for a long time to try to get Tripoli to give him the budget so it wasn't surprising to see the allocation of budget to projects and increase salaries. Our concern is that the real test is still to come. The elections are now seven months delayed with no sight to when they might be held. Qadara is clearly Tripoli's guy. The question market still remains what and when will Haftar do something if there isn't an election. And then our pre-election concern remains – will the east and west accept any election results and move together in the future? Regardless, at least for now, the allocation of capital and money to pay people (not just employees but local tribes) should help get a near term return of Libya oil. The question is for how long?

Figure 24: Libya Ports, Major oilfields and Terminals map

SAF Group Compiled Libya Ports & Terminals Status



Port	Capacity (b/d)
Es Sider	340,000
Ras Lanuf	220,000
Zawiya	230,000
Mellitah	160,000
Hariga	110,000
Zueitina	70,000
Brega	60,000
Bouri	45,000
Jurf	40,000

Source: Bloomberg, HFI Research, SAF

Source: SAF Group

Oil – India petroleum products consumption in June was +17.9% YoY and +2.3% MoM

Increasing India products consumption

On Thursday morning, India's Petroleum Planning & Analysis Cell posted its excel of India's petroleum products consumption for June 2022 [LINK]. There was strong YoY increase with overall fuels consumptions +17.9% YoY, but the comparison is back to when India was still being hit by Covid impacts. However, it is positive that June petroleum products consumption was up +2.3% MoM vs May. India has a fiscal year ending March 31. We pasted in the PPAC May and June data from a separate excel into the fiscal year ended March 31, 2022 table to show the by petroleum product line items.

Figure 25: India’s Petroleum Product Consumption June 2021 thru June 2022

CONSUMPTION OF PETROLEUM PRODUCTS as on 09.06.2022												2022	2022	
PRODUCTS	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	TOTAL	MAY	JUN	Jun YoY %
LPG	2251	2370	2324	2363	2481	2347	2479	2567	2398	2475	**28330**	2165	2232	-0.9%
Naphtha	1194	1215	937	1149	1260	1232	1099	1437	1125	1136	**14277**	897	1040	-12.9%
MS	2409	2630	2692	2598	2750	2645	2816	2473	2550	2908	**30849**	3017	2968	23.2%
ATF	257	315	379	409	479	504	552	456	435	543	**5008**	598	591	129.9%
SKO	136	130	129	132	125	123	119	126	117	114	**1494**	68	45	-66.7%
HSD	6195	6135	5609	5516	6618	6513	7303	6374	6511	7704	**76687**	7286	7677	23.9%
LDO	94	77	83	85	90	65	93	92	85	82	**1020**	54	57	-39.5%
Lubricants & Greases	316	329	364	381	461	353	454	316	380	536	**4570**	351	370	17.1%
FO & LSHS	500	469	516	544	559	511	565	543	530	590	**6255**	535	537	7.4%
Bitumen	575	435	312	408	663	554	780	831	884	944	**7874**	703	699	21.5%
Petroleum coke	1064	1317	1020	1030	1326	1086	1740	1849	1570	1717	**15772**	1235	1223	15.0%
Others	849	1175	949	1275	952	1123	967	989	979	1085	**12099**	1348	1231	45.0%
TOTAL	**15842**	**16598**	**15314**	**15889**	**17763**	**17057**	**18968**	**18050**	**17564**	**19834**	**204233**	**18259**	**18671**	**17.9%**

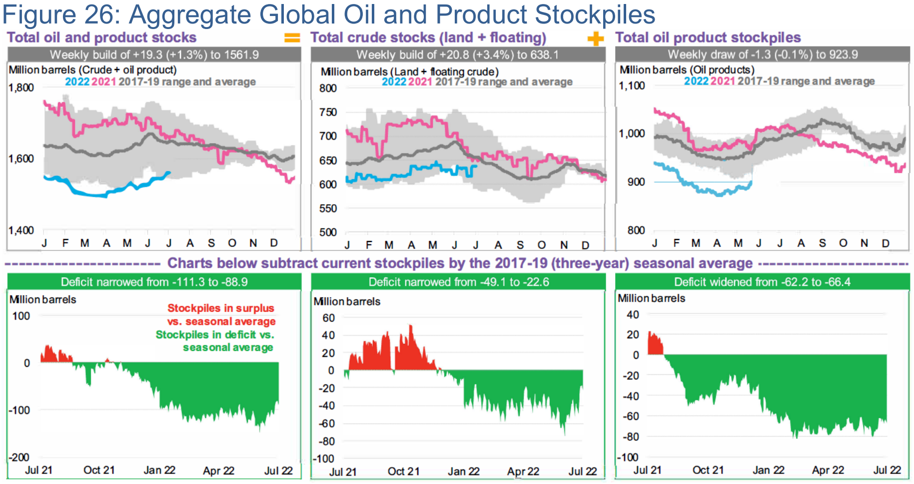
Source: India PPAC

Oil – BNEF: global product stocks deficit narrowed while oil stocks deficit widened

BNEF’s global oil inventories

For those with a Bloomberg terminal we recommend flipping thru BloombergNEF’s “Oil Price Indicators” weekly that comes out on Mondays as it provides good charts depicting near-term global oil demand and supply indicators. The key global oil and products stocks data continues to be positive with a large deficit relative to the 2017-2019 average. The stockpile deficit narrowed for crude and products from 111.3 mmb to 88.9 mmb. The stockpile deficit against the five-year average (2015-19) narrowed from 80.8 mmb to 61.6 mmb. Total crude inventories decreased by 3.4% to 638.1 mmb, including global floating inventories. Product stocks were up 3.4% WoW with the stockpile deficit against the 3-year average narrowing from 10.7mmb to 10.0 mmb. Gas oil and middle distillate stocks have widened against their three-year average deficit (2017-2019) from 26.2 mmb to 34.9 mmb. Jet fuel consumption by international departures increased by 26,300 b/d WoW while consumption by domestic passenger departures increased by 86,600 b/d. The global mobility index dropped over the past week, growing by 0.9% in the week to July 6. Below is a snapshot of aggregate global stockpiles. Our Supplemental Documents package includes excerpts from the BloombergNEF report.

Figure 26: Aggregate Global Oil and Product Stockpiles



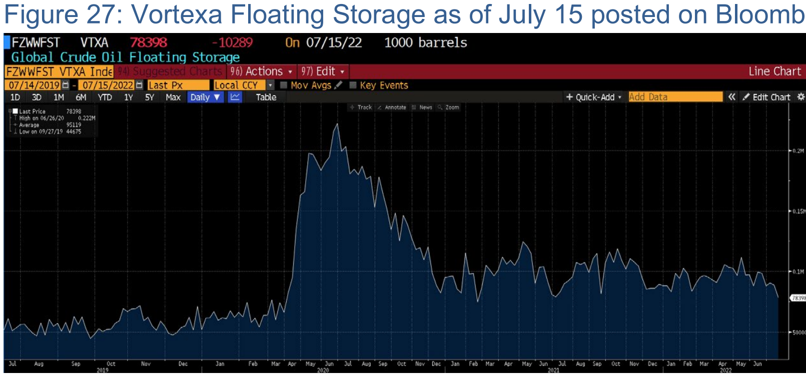
Source: Bloomberg

Oil – Vortexa crude oil floating storage 78.40 mmb as of July 15, -10.29 mmb WoW

Vortexa crude oil floating storage

We are referencing the Vortexa global crude oil floating storage data posted on the Bloomberg terminal as of 2pm 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 today are compared to the prior weeks Vortexa estimates posted on Bloomberg on July 9 at noon MT. (i) As of 2pm MT yesterday, Bloomberg has posted Vortexa crude oil floating storage estimate as of July 15 was 78.40 mmb, which is -10.29 mmb WoW vs revised up July 8 of 88.69 mmb. Note July 8 of 88.69 mmb was revised +10.51 mmb vs the 78.18 mmb posted on Bloomberg as of noon MT on July 9. (ii) Note that other than the big upward revision to July 8 data, the revisions to the past several weeks are not significant. This means that crude oil floating storage is more to the 90 to 95 mmb range instead of the +/- 100 mmb level that was seen a month or two ago. (iii) Also remember Vortexa revises these weekly storage estimates on a regular basis and we do not track the revisions through the week. (iv) July 15 estimate of 78.40 mmb is -143.61 mmb vs June 26, 2020 peak of 222.01 mmb. (v) Note that the below graph goes back 3 years and not just 2 years as floating oil storage was in the big ramp up period in late March/ thru late June 2020 as Covid started to have a huge impact. July 15 estimate of 78.40 mmb is +26.71 mmb vs pre-Covid of 51.69 mmb on July 15, 2019. July 15 estimate of 78.40 mmb is -11.18 mmb YoY vs 89.58 mmb on July 16, 2021. (vi) Below are the last several weeks of estimates made as of yesterday at 2pm MT, July 9 at noon MT, and July 2 at noon MT.

Figure 27: Vortexa Floating Storage as of July 15 posted on Bloomberg 2pm MT yesterday



Source: Bloomberg, Vortexa

Figure 28: Vortexa Estimates Posted July 16 2pm MT, July 9 noon MT, & July 2 noon MT

Posted July 16, 2pm MT

	Date	Last Px
Fr	07/15/2022	78398
Fr	07/08/2022	88687
Fr	07/01/2022	90512
Fr	06/24/2022	87995
Fr	06/17/2022	98441
Fr	06/10/2022	99311
Fr	06/03/2022	88065
Fr	05/27/2022	97476
Fr	05/20/2022	97121
Fr	05/13/2022	111.462k
Fr	05/06/2022	96728

Posted July 9, noon MT

	Date	Last Px
Fr	07/08/2022	78183
Fr	07/01/2022	93395
Fr	06/24/2022	87214
Fr	06/17/2022	98475
Fr	06/10/2022	97636
Fr	06/03/2022	87377
Fr	05/27/2022	96332
Fr	05/20/2022	95807
Fr	05/13/2022	110.171k
Fr	05/06/2022	94790
Fr	04/29/2022	100.197k

Posted July 2, noon MT

	Date	Last Px
Fr	07/01/2022	90746
Fr	06/24/2022	93038
Fr	06/17/2022	106.409k
Fr	06/10/2022	102.973k
Fr	06/03/2022	89527
Fr	05/27/2022	99508
Fr	05/20/2022	97979
Fr	05/13/2022	111.533k
Fr	05/06/2022	98569
Fr	04/29/2022	102.489k
Fr	04/22/2022	104.354k

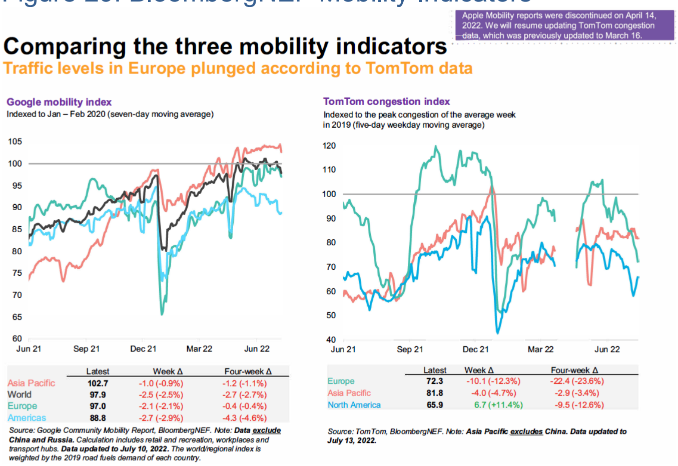
Source: Bloomberg, Vortexa

Oil – BNEF, mobility falls in China and Europe as North America recovers

On Friday, BloomergNEF posted its Global Road Traffic Indicators which, as expected, highlighted that Europe and China mobility fell as North America rallied this week. TomTom congestion index showed Europe down 10.1%, Asia Pacific down 4.0% and North America up 6.7% from last week. Europe is bearish, subject to drivers responding to very high gasoline prices as North America recovers. China data fluctuates depending on covid restrictions, which tightened recently. Our Supplemental Documents package includes excerpts from the BNEF Global Road Traffic Indicators report.

Mobility down in Europe, up in NA

Figure 29: BloombergNEF Mobility Indicators



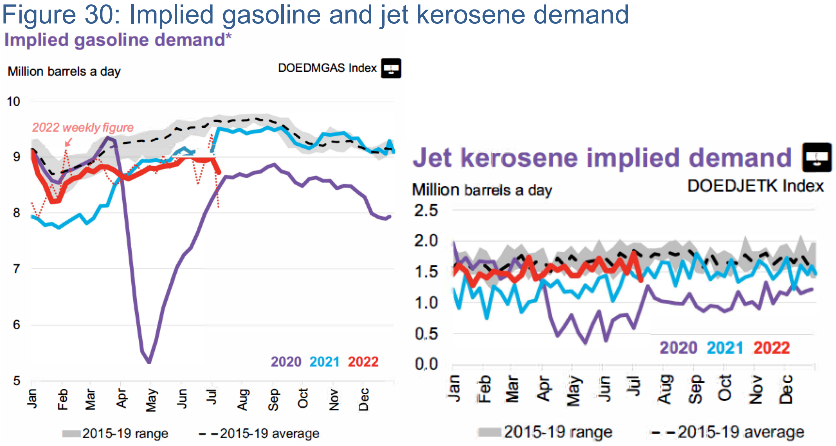
Source: BloombergNEF

Oil – BNEF: US gasoline and jet fuel demand show signs of weakening

US oil indicators weekly

It seems like a conflict to the above comment that North America recovering in mobility. But it seems to be a different message from BloombergNEF's U.S. Oil Price Indicators. The headlines are clear that unleashing the post Covid travel build up is leading to a major travel boom right now and over the summer. But the headlines are also clear that the combined impact of very high food and gasoline prices is forcing many Americans to change what they expect to do post the summer boom. For the majority of Americans, this combination of high food and fuel prices is starting to hit home sooner than expected. So no surprise, BloombergNEF's U.S. Oil Indicators Weekly report showed both gasoline and jet fuel demand edging lower, a reversal of the building off of last week's reports. BNEF had a couple of key messages. "*Gasoline demand fell by 14% last week, despite the Fourth of July holiday bump. This allowed for the largest one-week gain in gasoline inventories since January.*" And "*Jet fuel inventories are now above the 2015-19 average, as the number of air travelers fell 7% week-on-week, despite the holiday weekend*". Our Supplemental Documents package includes excerpts from the BloombergNEF report.

Figure 30: Implied gasoline and jet kerosene demand



Source: BloombergNEF

Oil – Import terminal congestion due to rail issues in LA

LA import congestion

The executive director of the Port of Los Angeles, Gene Seroka commented on the port's results for June [LINK]. The Port of LA handled 876,611 twenty-foot equivalent units of total throughput in last month, making it the highest-performing June ever. The record container send-outs should be positive to both trucking and rail. However, Seroka went on to highlight the major risk to the country's supply chain if rail service is not improved. He stated "*All eyes are focused on improving the rail product. Full stop. The bottom line is that we must take action on this issue immediately to avoid a nationwide logjam.*" Seroka maintained that the congestion at the ports is nowhere near what was seen in Q4 2021 ahead of the holiday season. The total number of containers on the port was 71,013 as of Wednesday, down 25% from peak levels in late October. Seroka remains confident on peak season import volumes despite macroeconomic headwinds from inflation and inventories. He stated, "*Even though some retailers have high inventories and may look to discount goods, I expect imports to remain strong — although a tapered version of last year.*"

Oil & Natural Gas – Updated EIA Canada country brief

EIA's Country Brief on Canada

We continue to recommend adding the EIA's country analysis briefs to reference libraries as good quick references, in this case its new EIA country executive summary [LINK] on Canada. The reality is that the EIA briefs are good overview pieces, but can't go into as much detail and may overlook some local knowledge items. For example, the EIA did not mention the 0.28 bcf/d Woodfibre LNG, the proposed LNG export facility currently in pre-construction located in Squamish, BC. The EIA highlights something that many don't realize – Canada ranked fourth in 2021 among top energy producers of petroleum and total liquids in the world, behind only the United States, Russia, and Saudi Arabia. The reason is that Canada's oil exports are basically all to the US via pipeline so we don't have the global presence. Canada produced 5.5 mmb/d of petroleum and other liquid fuels in 2021, an increase of more than 300,000 b/d from the previous year. It is expected that Canada's production will grow in 2022 and 2023 because of the rescindment of mandatory production curtailments set in 2019 by the Government of Alberta, as well as the addition of export pipeline capacity. The EIA notes Canada imposed a $20/ton carbon tax in Ontario, Saskatchewan, Manitoba, and New Brunswick, effective from January 2019 under the Greenhouse Gas Pollution Pricing Act, and that these tariffs increased to $50/ton on April 1, 2022. As of January 2022, Canada had 168 billion barrels of proved oil reserves, ranking fourth in the world behind Venezuela, Saudi Arabia, and Iran. Canada held 83 tcf of proved natural gas reserves as of January 2022, producing 6.7 tcf of dry natural gas in 2021. Although Canada's production of conventional natural gas has been declining, unconventional natural gas liquids production in the Montney formation has been rising, driven by drilling activities related to LNG export projects. Canada's shale gas production potential has been limited because LNG export facilities along the West Coast face continued delays in obtaining the environmental approvals required to link natural gas supplies to the LNG facilities. In 2021, 99% of all U.S. natural gas imports came from Canada. Currently, Canada does not have any LNG export capacity in operation. As of 2020, 18 LNG export facilities had been proposed, with approximately 29 bcf/d of capacity across British Columbia, Nova Scotia, and Quebec. The EIA did not mention Woodfibre LNG, the proposed LNG export facility currently in pre-construction located in Squamish, BC. They stated that only LNG Canada, located in Kitimat, British Columbia, was approved and is currently under construction. The export facility will initially consist of two LNG processing trains with a combined export capacity of 3.5 Bcf/d. Our Supplemental Documents package includes the EIA country brief.

Energy Transition – Intermittent wind kept Texas on edge all week for electricity

Texas was on edge all week for electricity

The big energy headlines in the US this week were all on Texas and if it would be able to avoid electricity outages in the hot temperatures. They made it thru the week without any major issues. The anxiety was caused by the simple basic of renewable energy – it is intermittent. And unfortunately it was a week of very low wind generation. And during the time when electricity was needed, wind generation was down to 8% of its capacity. The story was much like we tweeted on Monday [LINK] "*Welcome to the future. TX installed #Electricity capacity is 159% vs forecast demand today. But wind at only 8% of capacity at 2-3 pm means @ERCOT_ISO says Texans need to conserve to avoid power outage. Fortunately TX has #NatGas to produce 24/7 power. #OOTT.*" There is no question that wind and solar are excellent electricity generators when the sun is shining and the wind is blowing. But, unfortunately, can't be counted on for most of the day. This is the reality of the future.

Texas has 1.78x installed capacity vs peak demand but worries this summer

Our tweet noted that, on Monday, ERCOT estimated Texas total electricity generation was 159% of the forecast demand, yet there was this big risk of outages. Our May 22, 2022 Energy Tidbits warned on this math. We then wrote "*Think about how crazy it has been to see one of the big energy stories over the past week on the record temperature in Texas and how ERCOT (Electric Reliability Council of Texas) was asking people to cut back usage as there was the risk to the not having enough power during the heat wave. We hadn't thought about until we saw the Monday afternoon ERCOT release of its "Seasonal Assessment of Resource Adequacy for the ERCOT Region (SARA) Summer 2022" [LINK]. On Wednesday, we tweeted [LINK] "Understandable but crazy #ERCOT has had to ask conserve power. Yes, it's been record temp. But TX has 137,067 total installed #Electricity capacity or 1.77x ERCOT est summer peak demand 77,317 MW, but that incl interruptible capacity 35,195 MW wind & 11,342 MW solar #NatGas #OOTT." Yes, we call it pretty crazy, but understandable, that a state with installed electricity capacity that is 1.78x the estimated peak summer day has to warn on the risk for not enough power. This is crazy. But it reinforces how the power systems under energy transition will probably require about 2x the installed capacity, maybe more, maybe less, depending on how much nuclear/hydro is included in the electricity mix. Texas has zero nuclear and immaterial hydro generation. In ERCOT's May 16 seasonal assessment, in paragraphs 2 and 3 of the 5 paragraph Summary, ERCOT estimates summer 2022 peak demand of 77,317 MW, and ERCOT anticipates there will be 91,392 MW of resource capacity available during the summer peak demand hours. That's a reserve margin of 18.2%, which is a pretty good margin. And ERCOT writes ""With continued economic growth across the state, ERCOT anticipates a summer 2022 peak demand of 77,317 MW, which accounts for load reductions based on an incremental rooftop solar capacity forecast. This would be a new system-wide peak demand record for the region. ERCOT anticipates there will be 91,392 MW of resource capacity available during summer peak demandhours, which includes 473 MW of planned gas-fired, utility-scale solar and wind capacity. Additionally, ERCOT expects to have 2,035 MW of operational battery storage resources, which includes 283 MW of planned additions. While some of these battery storage resources may help meet customer demand, they are not currently included in ERCOT's capacity contribution for summer because they are not expected to provide sustained capacity for meeting system peak loads." But then we flipped to the page 2 table that shows there are 137,067 MW of installed capacity. That is 1.78x the summer peak demand. But it also means that only 66.7% of the installed capacity will be available during peak summer demand hours. Of the installed capacity of 137,067 MW, total installed wind is 35,195 MW. ERCOT estimates only 9,363 MW available during peak demand hours. And there is installed solar of 11,342 MW. ERCOT estimates 9,140 MW available during peak demand hours. (iii) Wind + solar is 44,337 installed capacity with 18,503 MW available during peak summer hours. Our Supplemental Documents package includes excerpts from the ERCOT May 16 summer assessment.*

Energy Transition – MBS warns on economic impact of energy transition

There was another good example of messaging with the White House trying to leave the impression that Saudi Arabia was somewhat aligned on the fight against climate change. But that was shot down by the widely reported MBS comment "“*Adopting unrealistic policies to reduce emissions by excluding main sources of energy will lead in coming years to unprecedented inflation and an increase in energy prices, and rising unemployment and a worsening of serious social and security problems*". That's a pretty clear warning to the US and others that the push for the Energy Transition wasn't thought out and will only lead to a lot of economic pain unless there is a change to a realistic approach. Compare that to the Joint Communique that only had some general commentary that the US likely pushed for to leave an impression of unity. The Joint Communique [LINK] wrote "*Both sides decided to consult regularly on global energy markets in the near- and long-term, as well as work together as strategic partners in climate and energy transition initiatives, recognizing Saudi Arabia's leading role in the future of energy. The U.S. side commended the Saudi Green Initiative and Middle East Green Initiative, and welcomed Saudi Arabia's participation at the recent Major Economies Forum on Energy and Climate, joining of the Global Methane Pledge, its status as a founding member of the Net-Zero Producers Forum, and the Kingdom's announcement to meet fifty percent of its electricity generation from renewables by 2030. The two sides welcomed the finalization of a Partnership Framework for Advancing Clean Energy, with substantial investments in clean energy transition and addressing climate change, with particular focus on renewable energy, clean hydrogen, human capacity-building in the nuclear energy field, and cooperation in nuclear-regulatory aspects, carbon capture utilization and sequestration, development of sustainable materials, and other initiatives under the Circular Carbon Economy Framework, where Saudi Arabia aims to be a global leader.*"

MBS warns on energy transition

Energy Transition – Shell CEO warns EU will have to "backtrack" on energy transition

Earlier in the memo, we highlighted Shell CEO Van Beurden's warning that Europe was in for a really tough winter and rationing of energy may be required. Those comments received all the headlines. However, we tweeted on different comments from Van Beurden – EU will have to "*backtrack*" on energy transition. Van Beurden is simply saying the reality that the EU (and others) aren't in any position to keep advancing the energy transition. We tweeted [LINK] "*#Shell @VanBeurdenShell ".. specifically the renewed reliance on coal, meant that #EU would have to "backtrack" on its #EnergyTransition plans, at least initially. "We will take a few steps backwards before we are able to make a few steps forwards". #OOTT"* and [LINK] "*Reality check. Goes without saying #NatGas #LNG will be needed for longer. @VanBeurdenShell is right, #EnergyTransition is going to happen, but it's just going to take way way longer, be a very bumpy road and lead to higher for longer energy prices and volatility. #OOTT."*

Shell warns on energy transition

Demographics – Buttigieg a No to raising mandatory retirement at 65 for pilots

Earlier we noted Heathrow's move to immediately cut the number of daily passenger departures to 100,000 from the current 104,000 and noted the capacity shortage across the air travel vertical chain. Last Sunday, Transportation Secretary Pete Buttigieg was on Fox News Sunday and was asked if he would support raising the retirement age for commercial pilots to 67. Buttigieg replied "*Look, these retirement ages are there for a reason, and the*

Commercial air pilots mandatory retirement at 65

reason is safety. I'm not going to be on board with anything that could compromise safety. Now, what's clearly the case is we need to cultivate, train, and support a new generation of qualified pilots. As a matter of fact, just last week, I was out with some programs that are helping to cultivate that interest in students and support them as they get their hours and get those qualifications. The answer is not to keep the baby boomer generation in the cockpit indefinitely." The mandatory retirement age for commercial pilots flying in the US is 65 and also for any commercial pilots flying on international air flights. It will put more stress on the US air travel system, but will continue to provide experienced pilots for private air travel.

Demographics – 59.1% of consuming harmful amounts of booze are 15-39 yr adults

Surely no one is surprised by the key findings from the study *"Population-level risks of alcohol consumption by amount, geography, age, sex, and year: a systematic analysis for the Global Burden of Disease Study 2020."* [LINK]. Warning this is not the easiest read. But the big conclusion will not surprise anyone – young males are the most likely to consume harmful amounts of alcohol. The study overview was "*The health risks associated with moderate alcohol consumption continue to be debated. Small amounts of alcohol might lower the risk of some health outcomes but increase the risk of others, suggesting that the overall risk depends, in part, on background disease rates, which vary by region, age, sex, and year."* The big no surprise conclusion was "*Among individuals consuming harmful amounts of alcohol in 2020, 59·1% (54·3–65·4) were aged 15–39 years and 76·9% (73·0–81·3) were male."* And then the other headline conclusion was that drinking in moderation can be positive healthwise for older adults The study wrote "*At the same time, small amounts of alcohol consumption are associated with improved health outcomes in populations that predominantly face a high burden of cardiovascular diseases, particularly older adults in many world regions."*

Young males most at risk for booze

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

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

@Energy_Tidbits on Twitter

LinkedIn – Look for quick energy items from me on LinkedIn

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

Look for energy items on LinkedIn

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.

Costco CEO, No inflationary environment could lead to hot dog price increase
We couldn't help tweet [LINK] after seeing Costco CEO Craig Jelinek on CNBC. We tweeted "*best food deal in US and Can is not at risk of price increase or #Shrinkflation.@carlquintanilla asks ".. leads to speculation on the hot dog combo, is there any inflationary environment where you would raise that price? @wcraigjelinek "No".*

The mystery of the famous statutes on Easter Island
Easter Island was a headline on the Bloomberg terminal on Tuesday with a 6.4 earthquake. Easter Island is one of the most famous uninhabited islands in the world. It is ~2,000 miles off the coast of Chile but is most famous for the giant heads. And that always brings up the mystery of how did the ancient Polynesians built the several hundred stone statutes including the famous hats atop many of the statues. History.com [LINK] writes "*Located nearly 2,000 miles off the coast of Chile in the Pacific Ocean, Easter Island is famous for the nearly 1,000 enormous stone statues, known as moai. The massive works were erected there starting around the 13th century A.D. by the Rapa Nui, an ancient Polynesian society that later collapsed mysteriously. Scientists have long puzzled over how, with limited people and resources, the island's inhabitants somehow transported the huge, heavy statues from rock quarries across the entire island. Not only that, but many of the statues wear enormous cylindrical hats known as pukao, measuring up to 2 meters (6.5 feet) in diameter and weighing some 12 metric tons each. Carved from quarries of red scoria, or volcanic rock, the pukao were also transported across long distances, then somehow placed atop the maoi, which are up to 10 meters tall."*

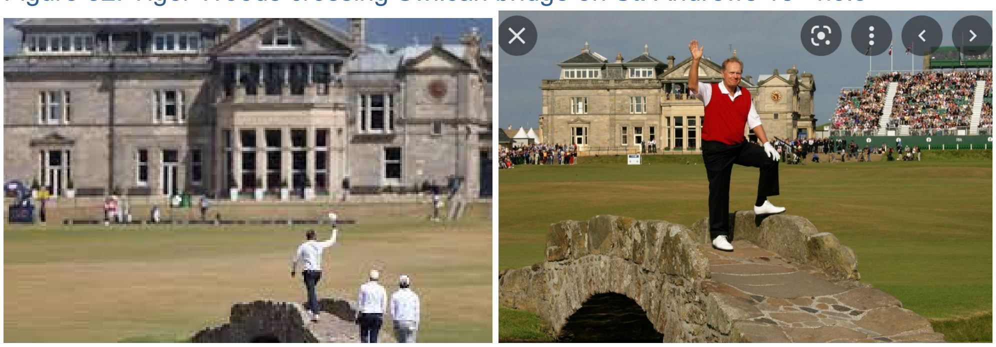
Figure 31: Easter Island statutes with 12 ton hats

Source: NPR

Tiger didn't do the Jack Nicklaus pose on Swilcan bridge at the Old Course
We had an early 5am MT news cut off so none of the leaders have teed off in the final round of The Open at St. Andrews (The Old Course) this weekend and Tiger Woods missed the cut so his last round was on Friday. He was nowhere near the cut line so people were waiting to see him cross the Swilcan bridge over the Swilcan Burn on the 18th fairway at St. Andrews. The Swilcan bridge is one of the most famous picture taking places for golfers, a must have for any golfer. But normally

what happens is that golfers like to pose in the Jack Nicklaus pose waving with their back to the 18th green. But Tiger didn't do that, rather he kept facing the green when he removed his golf hat and waved to the crowd. Our Feb 14, 2021 Energy Tidbits highlighted that week's AT&T Pebble Beach Pro-Am writing "*And anyone who has played it, can't help watch and remember playing the same holes. Below is the signature 18th hole. The only issue with playing Pebble Beach is that the rounds are long because all the golfers want to take pictures, in particular the classic Jack Nicklaus pose on the 18 tee box. That has to be one of the replicated golf pictures, even moreso than Jack's classic picture on the stone arch on 18 at St. Andrews*." Tiger just reinforced that the most replicated pose is Jack at Pebble Beach moreso than Jack at St. Andrews.

Figure 32: Tiger Woods crossing Swilcan bridge on St. Andrews 18th hole



Source: Washington Post, Wikipedia