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# Energy Tidbits

July 10, 2022

Produced by: Dan Tsubouchi

## Is Biden's Op-ed Messaging to MBS That the U.S. Expects a Return to the JCPOA?

**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. Biden's op-ed yesterday makes us wonder if he is messaging to MBS that the US expects a return to the JCPOA? [LINK]
2. Will Saudi at least increase to quota levels post the Biden/MBS meeting? [LINK]
3. Germany is no longer subtle, warning of natural gas supply risk this winter and for years [LINK]
4. Europe is panicking Nord Stream won't come back on as planned post the annual maintenance July 11-21 [LINK]
5. What will Biden do with Cheniere's LNG exports knowing that Cheniere's emissions are over limits? [LINK]
6. Please follow us on Twitter at [LINK] for breaking news that ultimately ends up in the weekly Energy Tidbits memo that doesn't get posted until Sunday noon MT.
7. For new readers to our Energy Tidbits and our blogs, you will need to sign up at our blog sign up to receive future Energy Tidbits memos. The sign up is available at [LINK].


**Dan Tsubouchi**
Principal, Chief Market Strategist
dtsubouchi@safgroup.ca

**Ryan Dunfield**
Principal, CEO
rdunfield@safgroup.ca

**Aaron Bunting**
Principal, COO, CFO
abunting@safgroup.ca

**Ryan Haughn**
Principal, Energy
rhaughn@safgroup.ca

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## Natural Gas – Natural gas injection of +60 bcf, storage now -261 bcf YoY deficit

**YoY storage at -261 bcf YoY deficit**

The YoY storage deficit started the winter at -282 bcf YoY at Oct 31 and is now -296 bcf YoY. The EIA reported a +60 bcf build (+75 bcf expectations) for the July 1 week, which was the same as the 5-yr average build of +60 bcf, and last year's injection of +16 bcf. Storage is 2.311 tcf as of July 1, decreasing the YoY deficit to -261 bcf vs -296 bcf last week and is -322 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 (07/01/21) | | Historical Comparisons: 5-year average (2017-21) | |
|---|---|---|---|---|---|---|---|---|
| Region | 07/01/22 | 06/24/22 | net change | implied flow | Bcf | % change | Bcf | % change |
| East | 482 | 461 | 21 | 21 | 520 | -7.3 | 548 | -12.0 |
| Midwest | 562 | 535 | 27 | 27 | 636 | -11.6 | 627 | -10.4 |
| Mountain | 138 | 134 | 4 | 4 | 176 | -21.6 | 164 | -15.9 |
| Pacific | 240 | 235 | 5 | 5 | 246 | -2.4 | 272 | -11.8 |
| South Central | 890 | 886 | 4 | 4 | 993 | -10.4 | 1,023 | -13.0 |
| Salt | 233 | 242 | -9 | -9 | 287 | -18.8 | 297 | -21.5 |
| Nonsalt | 657 | 644 | 13 | 13 | 706 | -6.9 | 726 | -9.5 |
| **Total** | **2,311** | **2,251** | **60** | **60** | **2,572** | **-10.1** | **2,633** | **-12.2** |

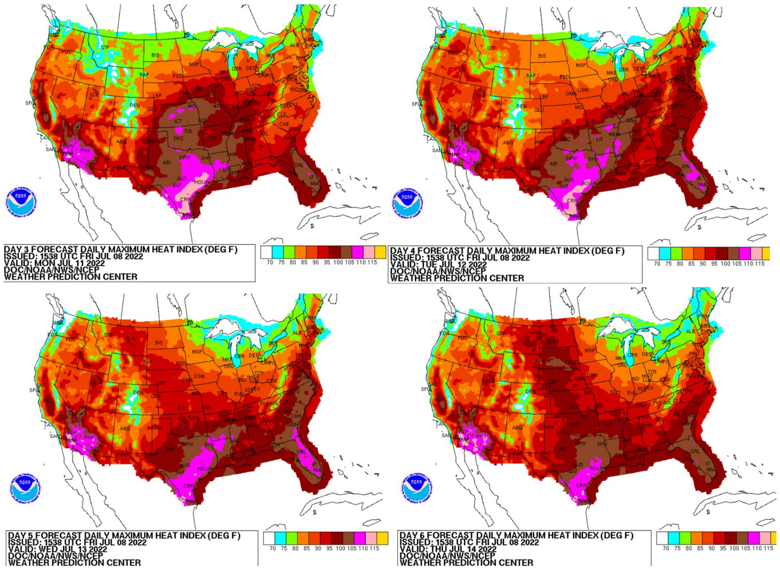
Source: EIA

## Natural Gas – Still mostly hot temperatures in US to start the week

**Hot start to July**

NOAA official tally for June temperatures is released tomorrow, but June saw warmer than normal temperatures in the US. Last week's (July 3, 2022) Energy Tidbits memo noted NOAA's new July forecast is also 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 July. Below are NOAA's maximum heat index maps for Mon thru Thurs. [LINK]

Figure 2: Maximum heat index maps for Monday thru Thursday




Source: NOAA National Weather Service

## Natural Gas – US April gas production 95.9 bcf/d, still below Nov/Dec 97.0 bcf/d

**US April gas production +2.7 bcf/d YoY**

There is no change to the US natural gas story that US natural gas supply from both dry shale gas and association gas from shale/tight oil continues to be up strongly YoY. The EIA released its Natural Gas Monthly on Friday, [LINK], which includes its estimates for "actuals" for April gas production. The key takeaway from the April actuals is that April was +0.9 bcf/d MoM to 95.9 bcf/d, but is still below the recent Nov/Dec 2021 peak of 97.0 bcf/d. April 2022 is +2.7 bcf/d YoY. Our Supplemental Documents package includes excerpts from the EIA Natural Gas Monthly.

Figure 3: US Dry Natural Gas Production

| bcf/d | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan | 56.0 | 60.0 | 66.0 | 65.3 | 66.8 | 73.4 | 73.6 | 70.6 | 78.7 | 89.4 | 95.1 | 92.8 | 94.8 |
| Feb | 57.2 | 58.8 | 67.0 | 65.4 | 68.4 | 73.8 | 77.3 | 71.5 | 80.4 | 90.0 | 98.1 | 86.2 | 94.0 |
| March | 57.3 | 61.5 | 65.0 | 65.3 | 68.9 | 74.1 | 73.8 | 73.2 | 81.3 | 90.6 | 94.6 | 92.3 | 95.0 |
| Apr | 57.6 | 62.3 | 64.8 | 66.1 | 70.5 | 75.2 | 73.7 | 73.3 | 81.2 | 91.0 | 92.9 | 93.2 | 95.9 |
| May | 58.0 | 62.4 | 65.0 | 65.9 | 70.2 | 74.1 | 72.9 | 73.3 | 82.1 | 91.7 | 87.8 | 93.0 | |
| June | 57.2 | 62.1 | 64.6 | 65.8 | 70.5 | 74.0 | 72.2 | 74.0 | 82.5 | 92.0 | 88.4 | 93.2 | |
| July | 58.2 | 62.5 | 66.3 | 67.1 | 72.0 | 74.2 | 72.8 | 74.7 | 84.2 | 92.5 | 89.8 | 93.7 | |
| Aug | 58.9 | 63.2 | 66.0 | 66.9 | 72.4 | 74.3 | 72.2 | 74.7 | 85.9 | 94.8 | 90.2 | 94.3 | |
| Sept | 59.1 | 63.1 | 66.4 | 66.8 | 72.4 | 74.7 | 71.7 | 76.0 | 87.3 | 94.7 | 89.5 | 93.6 | |
| Oct | 60.1 | 65.1 | 66.5 | 67.0 | 73.1 | 74.2 | 71.4 | 77.3 | 88.4 | 96.0 | 88.9 | 95.6 | |
| Nov | 60.1 | 65.9 | 66.6 | 67.7 | 72.6 | 73.9 | 72.0 | 79.8 | 89.9 | 96.7 | 92.0 | 97.0 | |
| Dec | 61.0 | 65.6 | 66.0 | 66.5 | 73.2 | 73.9 | 71.2 | 80.4 | 89.5 | 97.0 | 92.5 | 97.0 | |
| Average | 58.4 | 62.7 | 65.9 | 66.3 | 70.9 | 74.2 | 72.9 | 74.9 | 84.3 | 93.0 | 91.6 | 93.5 | 94.9 |

Source: EIA

## Natural Gas – US LNG exports +0.8 bcf/d YoY in April to 11.0 bcf/d

**US April LNG +0.8 bcf/d YoY**

As a reminder, US LNG exports will be lower starting in June because of the Freeport LNG 2.2 bcf/d shut down on June 8. US LNG exports were up to a new monthly record of 11.7 bcf/d in March, but has fallen -0.7 bcf/d to 11.0 bcf/d in April. The big driver to stronger (and higher downside support) US natural gas prices has been the ramp up in US LNG exports, which are up ~8 bcf/d over the past 3 years. This is over 2.5 tcf a year of added gas demand for US natural gas supply. On Friday, the EIA Natural Gas Monthly reported "actuals" for US LNG exports were 11.0 bcf/d in April, which is up +0.8 bcf/d YoY and up +0.4 bcf/d from March of 11.7 bcf/d. Note our table rounds to one decimal and the actual is 11.015 bcf/d for April. Below is our table of EIA's monthly LNG exports.

Figure 4: US LNG Exports (bcf/d)

| (bcf/d) | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|
| Jan | 0.0 | 1.7 | 2.3 | 4.1 | 8.1 | 9.8 | 11.4 |
| Feb | 0.1 | 1.9 | 2.6 | 3.7 | 8.1 | 7.4 | 11.3 |
| March | 0.3 | 1.4 | 3.0 | 4.2 | 7.9 | 10.4 | 11.7 |
| Apr | 0.3 | 1.7 | 2.9 | 4.2 | 7.0 | 10.2 | 11.0 |
| May | 0.3 | 2.0 | 3.1 | 4.7 | 5.9 | 10.2 | |
| June | 0.5 | 1.7 | 2.5 | 4.7 | 3.6 | 9.0 | |
| July | 0.5 | 1.7 | 3.2 | 5.1 | 3.1 | 9.7 | |
| Aug | 0.9 | 1.5 | 3.0 | 4.5 | 3.6 | 9.6 | |
| Sept | 0.6 | 1.8 | 2.7 | 5.3 | 5.0 | 9.5 | |
| Oct | 0.1 | 2.6 | 2.9 | 5.7 | 7.2 | 9.6 | |
| Nov | 1.1 | 2.7 | 3.6 | 6.4 | 9.4 | 10.2 | |
| Dec | 1.3 | 2.7 | 4.0 | 7.1 | 9.8 | 11.1 | |
| Full Year | 0.5 | 1.9 | 3.0 | 5.0 | 6.6 | 9.7 | 11.4 |
| Full Year bcf | 186.8 | 707.5 | 1,083.1 | 1,819.4 | 2,390.0 | 3,560.8 | 1,365.1 |

Source: EIA

**US pipeline exports to Mexico**

**Natural Gas – US pipeline exports to Mexico up 0.4 bcf/d MoM at 5.9 bcf/d in April**
The EIA Natural Gas Monthly also provides its "actuals" for gas pipeline exports to Mexico, which were 5.9 bcf/d in April, down 0.2 bcf/d YoY and up 0.4 bcf/d from March. Mexico natural gas production remains stuck below 6 bcf/d and the completion of new pipeline infrastructure such as the Wahalajara system [LINK] should increase US penetration further into Mexico. Below is our table of the EIA's monthly gas exports to Mexico.

Figure 5: US Pipeline Gas Exports To Mexico (bcf/d)

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

Source: EIA

**Freeport LNG update**

**Natural Gas – Freeport LNG reportedly says "substantially all" LNG back on in Oct**
Freeport LNG's 2.2 bcf/d export facility has now been off for just over 1 month. As of 7am MT news cut off, we haven't seen any Freeport LNG press release or formal disclosure. Yet, on Friday, the Houston Chronicle reported "*Freeport LNG updates timeline for post-blast repairs after federal order deems plant unsafe. A partial restart of operations at Freeport LNG's Quintana Island facility is not expected until October, when it aims to deliver "substantially all" of its volumes, the company said in a statement.*" That would be a big plus for LNG buyers as the prior comments from Freeport LNG was that it wouldn't be back to full volume until year end. The other good news in the Houston Chronicle report is that it doesn't seem like cyber was the issue. Rather, Houston Chronicle wrote "*Preliminary evidence suggests a pressure safety valve failed, allowing pressure to build along a 300-foot stretch of pipe, which then burst. The ruptured pipe was used to transfer LNG around the facility's storage area and is located along a rack that supports additional piping, power cables and equipment, the order said, noting "much of the other piping in the area was also damaged and will require repairs or replacement before LNG transfer operations can recommence."* Our Supplemental Documents package includes the Houston Chronicle report that was posted on Bloomberg.

**Cheniere is offside emissions limits**

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

**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 – Is TC messaging that Coastal GasLink is taking longer than expected?**

**Is Coastal GasLink message a delay?**

We have to believe analysts will be asking TC Energy on its Q2 call on July 28 if Coastal GasLink is still on track to be completed to supply the natural gas feedstock for LNG Canada's Phase 1 (1.8 bcf/d) that is supposed to "*deliver its first cargo by the middle of this decade"*? If not, how long a delay would there be for first LNG cargos? We compared Coastal GasLink's new construction update to May 31 vs its prior update to Dec 31, which led our tweet yesterday [LINK] "*Is @CoastalGasLink messaging construction is behind schedule? 06/27 "set the pace towards the many exciting construction milestones anticipated this year" vs 01/24 "we look forward to progressing to the final stages of construction by the end of 2022". #LNGCanada #NatGas #LNG*." (i) LNG Canada and Shell have never been specific with a year, but have both been sticking to the same message – deliver first LNG cargo by the middle of this decade. LNG Canada April 13, 2022 new CEO release, said "*Now 60% complete, the LNG Canada project remains on track to deliver its first cargo by the middle of this decade.*" Shell Integrated Business Deep Dive Feb 21, 2022, Wael Sawan said "*In Canada, Canada LNG surpassed recently the 50% completion mark last October, after three years of construction. The project remains dedicated to have the first cargo by the middle of this decade.*" (ii) If we assume that "by the middle of this decade" means by Jan 1, 2025, we have to wonder if the Coastal GasLink construction update as of May 31 is pointing to a delay for that part of the project? Having a cargo by the middle of the decade infers construction is completed at least a couple months before year end 2024. If we assume that that means completion by Oct 31, 2024, that would be 34 months from Jan 2022 thru Oct 31, 2024. Or 1.50% more construction completion every month. We recognize that construction timeline isn't linear, but the construction progress from Dec 31 to May 31 looks reasonable. (iii) However, what makes us wonder if they are behind schedule is the different commentary construction progress to May 31 vs Dec 31 updates. Note the comments from their Dec 31 construction update "*we look forward to progressing to the final stages of construction by the end of 2022*." Whereas the new May 31 construction update only talks about milestones "*the focus is on a strong start this summer to set the pace towards the many exciting construction milestones anticipated this year*." That certainly feels like messaging they are on a later schedule. Our Supplemental Documents package includes the two construction updates.

**Natural Gas – Asian buyers (2 more deals) continue to 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 10.12 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. There were two long term LNG deals involving supply from NextDecade's Rio Grand LNG project. (i) On Tuesday, NextDecade announced [LINK] the execution of a 20-year sale and purchase agreement with China Gas for the supply of LNG from NextDecade's Rio Grande LNG export project. Under the SPA, China Gas will purchase 0.13 bcf/d of LNG, supplied from the second train at Rio Grande LNG, which is expected to start commercial operations as early as 2027. (ii) Furthermore, on Wednesday, NextDecade announced [LINK] the execution of a 20-year sale and purchase agreement with Guangdong Energy Group to supply 0.13 bcf/d of LNG from NextDecade's Rio Grande project. The SPA was completed pursuant to the Binding Heads of Agreement previously announced on March 24, 2022. The LNG will be supplied from Rio Grande LNG Train 1, which is expected to start commercial operations as early as 2026. Guangdong Energy Group has the right to purchase an additional 0.08 bcf/d of LNG from Rio Grande. Our Supplemental Documents package includes the NextDecade releases.

**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 10.12 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 10.12 bcf/d of long term LNG deals since July 1, 2021. 67% of the deals have been by Asian LNG buyers, but we are now seeing rest of world locking up long term supply deals post Russia/Ukraine. 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 6: Long Term LNG Supply Deals since July 1, 2021

| Long-Term LNG Buyer Deals Since July 1, 2021 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Date** | **Buyer** | **Seller** | **Country** | **Volume** | **Duration** | **Start** | **End** |
| | | | **Buyer / Seller** | **(bcf/d)** | **Years** | | |
| **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 |
| ***Total Non-Asian LNG Buyers New Long Term Contracts Since Jul/21*** | | | | **3.32** | | | |
| **Total New Long Term LNG Contracts since Jul/21** | | | | **10.12** | | | |
| *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 – India forgoes some spot LNG buying due to high prices

**LNG spot prices too high for India**

India is always viewed as an extremely price sensitive buyer in terms of LNG imports, which was exemplified in their 2020-2021 imports. That price sensitivity was reiterated this week by Petronet CEO Singh at the Asia Pacific LNG & Gas Summit. On Thursday, we tweeted [LINK] *"#Coal should continue to rule in India. @SStapczynski reporting from @asiapacific_lng, #Petronet CEO says curbing spot #LNG as high prices makes it unprofitable to sell into India mkt, #NatGas fired power plants not operating due to high LNG prices. #OOTT."* Bloomberg reported "*Petronet, one of India's top fuel importers, is curbing spot LNG buying since the surge in prices makes it unprofitable to sell into the domestic market, CEO Akshay Kumar Singh said at a conference in Singapore. * Gas-fired power plants are not operating because of the high LNG prices * Long-term LN1G contract prices are also not looking sustainable for India due to surge in oil and US natural gas rates.*"

**Natural Gas – Japan says need more LNG with increasing intermittent renewable**

**Japan needs more LNG with renewables**

We continue to be amazed that we hear comments that make it seem like people didn't realize the issue/risk of intermittent renewable power generation. It seems like they didn't plan for intermittent power. On Thursday, we tweeted [LINK] *"Bullish #NatGas thru 2030. Intermittent Renewable = more, not less, #LNG in Japan."challenge of balancing energy supply & demand is becoming more difficult for utilities, particularly as more intermittent renewable generation is added to grids" says Jera. Thx @SStapczynski. #OOTT."* Later in the memo, we note how Japan seemed to have not realized they needed more long term LNG but then abruptly changed that view a few months before Russia invaded Ukraine. Bloomberg reported "*Jera, Japan's largest power generator, is studying options to add more LNG volumes to the market, such as making new investments in upstream projects, Hitoshi Nishizawa, an executive officer at the utility, said at a Thursday conference in Singapore. * Co. is also considering potential to increase its stakes in existing facilities * The challenge of balancing energy supply and demand is becoming more difficult for utilities, particularly as more intermittent renewable generation is added to grids and with a higher frequency of unpredictable weather events: Nishizawa."*

**JERA looking at E&P is like the panic for oil post Arab Oil Embargo 1973/74**

JERA saying they will look at upstream E&P reminds us of the panic Japan had post the Arab Oil Embargo 1973/74 and how they started to go out around the world to invest capital in upstream joint ventures to tie up oil supply. This included in Cdn Oil Sands and Beaufort Sea. They were worried about this before Russia invaded Ukraine. In our Jan 23, 2022 Energy Tidbits, we wrote "*Is Japan more worried bout LNG supply/cost? There were interesting reports this week on an immaterial natural gas development in Japan, but there was an overlooked part of the reports suggest that this development points to an increased concern on LNG supply and cost from Japan. It felt like back to the future to see the Platts (and others similarly) report [LINK] "Japan to explore 1.4 Tcf of recoverable gas reserves for 46.7 Bcf/year output. Gas shows indicate more than Japan's total 1 Tcf recoverable gas reserves. Estimated gas production equates to 1.2% of country's consumption. Gas self-sufficiency rate seen rising to 3.4%, from 2.2% currently." The reminder is to what Japan did post the Arab Oil Embargo on how they tried to find oil and natural gas in Japan and even moreso around the world including Canada. This is 0.13 bcf/d potential vs >10 bcf/d consumption. There is no indication of the cost of supply, but we would expect the full cycle cost of exploration, production and transportation would be much higher than LNG costs. We think there was an overlooked part of the report that suggests something has changed in the last 1 to 2 years that has Japan worried about mid/long term LNG supply and cost of LNG. Japan did this evaluation drilling in the 2019-20 (ending March 31, 2020) period. There is no way it would take almost two years to evaluate these "considerable gas shows". But for some reason, they have picked now to proceed. This could have evaluated two years ago. We think the only reason for a changed decision almost two years later is that they are worried about LNG supply and cost. And even though this is a small amount of natural gas, a little is better than nothing. The second thought that comes to mind is that this reminds of what Japan did in the late 70s/early 80s. Post the Arab Oil Embargo in 73/74, Japan realized how vulnerable it was and started to get into oil and gas exploration and development* *around the world. Including in Canada oil sands and Beaufort Sea. Japan tried to drill around Japan and didn't' really find much. But the point is that they were worried about oil and gas supply and so started to try to get their own supply. The vast majority of those dollars spent chasing opportunities didn't work.*"

**Natural Gas – Japan says need to do more mid-long term LNG supply deals**

**Japan needs more long term LNG**

It is important to remember that Japan started to backtrack in late 2021 and recognize it needed to do more to secure long term LNG supply. But that clearly has accelerated post Russia/Ukraine. There were two good illustrations of this need to secure long term LNG supply via contracts or by investing in E&P at the Asia Pacific LNG & Gas Summit on Thursday. On Thursday, we tweeted [LINK] "*Best indicator for bullish #LNG outlook thru 2030. Big LNG buyer Japan knows need to lock up mid and long term LNG supply. And in Catch 22 - long term is difficult with green goal vs short term is very expensive LNG. @SStapczynski reports from @asiapacific_lng. #NatGas #OOTT."* Bloomberg reported *"Going forward, Japan will need to procure more spot LNG, as well as sign mid- and long-term deals, to balance its demand, said Gen Kunihiro, CEO of Diamond Gas International, a unit of Mitsubishi Corp. * It will be difficult for Japanese buyers to sign long-term LNG deals due to the nation's green goals, but shorter contracts will be more expensive, Kunihiro said at a conference in Singapore."*

**Japan's started to worry again on long term supply risk started in Dec**

It is important to remember that Japan didn't seem to have an urgency to lock up up long term LNG supply or wasn't prepared to lock up long term LNG supply in November. But that changed in December when JERA highlighted it was increasingly important to secure a stable supply of competitive LNG. Japan had passed on renewing a long term LNG supply deal with Qatar in November. (i) Our Dec 12, 2021 Energy Tidbits noted JERA's Dec 8, 2021 press release that it would acquire a 12.5% stake in the Barossa/Caldita gas field offshore NW Australia and will then participate in the field development. JERA is the world's largest LNG importer and its release reminded that "*Securing a stable supply of competitive LNG, therefore, is becoming increasingly important".* (ii) We also highlighted that this was an abrupt change from November, when JERA decided to not renew the most stable supply of competitive LNG – Qatar. We then wrote "*JERA's press release noting that "Securing a stable supply of competitive LNG, therefore, is becoming increasingly important" reminds of an item from our Nov 28, 2021 Energy Tidbits, when reports came of JERA not renewing a 0.7 bcf/d long term supply deal with Qatar. At that time we wrote "Is Qatar looking for tougher deals on its new long term LNG supply contracts? That isn't the direct message, but we can't help but wonder if that is the real message when see a report on JERA this week that, on the surface, seems to be a 180 from their stated comments last week. Something is off. On Thursday, Platts reported "Japan's JERA will not renew 5.5 mil mt/year of long-term Qatari LNG supply: president" [LINK]. Platts reports ""Currently we are not considering contracting [with Qatar] because we find it extremely difficult to extend the existing large contracts timing-wise," Onoda told an online press conference. "As for Qatar, [the contracts] are set to expire at the 25-year contract expiry," Onoda said, explaining that the company's issues with renewing were "due to developments in the global LNG markets, the progress of decarbonization, and the changing position of*

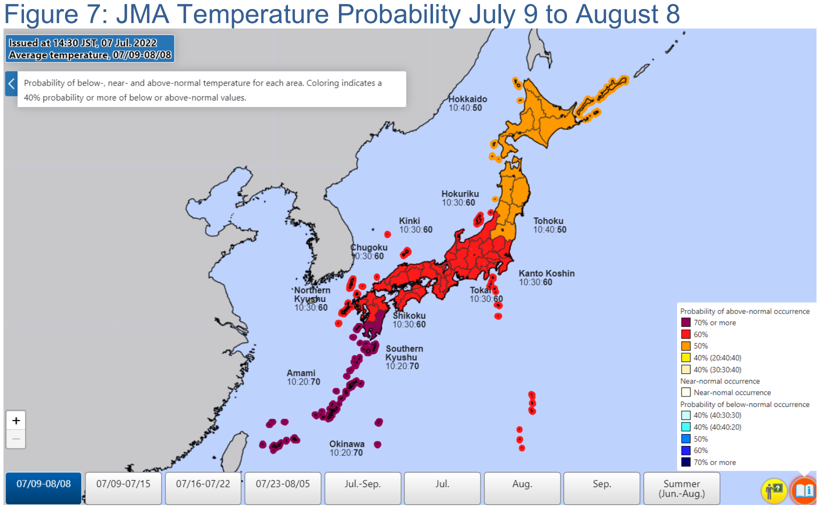
*LNG in Japan because of liberalization of power and gas, among other factors, in the country." JERA, however, does not plan to give up all of its long-term LNG supply contracts, Onoda said, adding that its decisions would be based on an overall assessment of contractual terms and the situation when contracts come up for renewal." The reporting would point to JERA wanting to have less long term LNG contracts."*

**Natural Gas – Continued hot weather expected in July in Japan**

**Still hot in Japan**

The warm July continues with JMA forecasting much warmer than normal temperatures through July to the beginning of 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 9 to August 8 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. For example, AccuWeather is forecasting daily highs of 29c to 32c for Tokyo this week.

Figure 7: JMA Temperature Probability July 9 to August 8



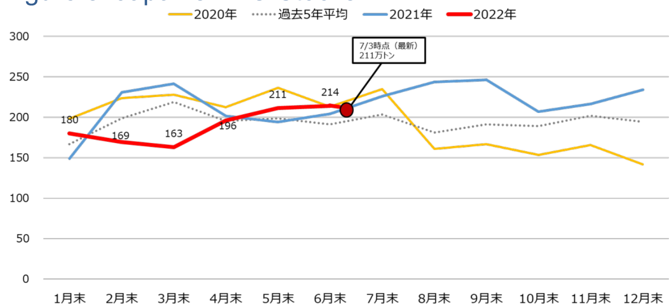

Source: Japan Meteorology Agency

**Natural Gas – Japan's LNG stocks down -1.9% from last week**

**Japan LNG stocks -1.9% WoW**

The risk for Japan in the winter is that they need full storage and continued LNG imports to avoid natural gas outages. That's because Japan's LNG stockpiles are not huge relative to LNG imports that have ranged from 7 to 14 bcf/d since Jan 1, 2021. LNG stockpiles held by Japanese power producers have exceeded both last year's level and the 4-year average. Japan's METI weekly LNG stocks data was released on Wednesday [LINK]. LNG stocks at June 26 were ~101 bcf, -1.9% WoW from 103 bcf and up from the 5-yr average of 97 bcf. Below is the LNG stocks graph from the METI weekly report.

Figure 8: Japan's LNG Stocks




Source: METI

**Natural Gas – Russia's Nord Stream 5.3 bcf/d pipeline planned maintenance July 11-21**

**Nord Stream maintenance**

As expected, it was a week of increased anxiety in Europe, in particular in Germany, on Nord Stream's annual maintenance starting tomorrow and wondering will there be some sort of "technical" reason that somehow extends the downtime. The planned maintenance for the 5.3 bcf/d Nord Stream pipeline is July 11-21. Nord Stream's maintenance announcement [LINK] said "*From 11 to 21 July 2022, Nord Stream AG will temporarily shut down both lines of its gas pipeline system for routine maintenance works inclusive testing of mechanical elements and automation systems for ensuring reliable, safe, and efficient pipeline operations."* The reminder from Nord Stream is that the existing 5.3 bcf/d pipeline is actually two lines. Nord Stream 2 was a separate 5.3 bcf/d project that also has two lines.

**Natural Gas – Canada to return Siemens turbine to Germany for Nord Stream**

**Canada returning Nord Stream turbine**

It looks like Gazprom will not have its key operational reason why it cut volumes ahead of the maintenance – Canada didn't return the Siemen turbine for Nord Stream. Earlier this morning, we tweeted [LINK] *"#NordStream. Canada to release #Siemens turbine to DEU, who can then return to RUS to try to eliminate any operational excuse/reason for Gazprom to restrict #NatGas volumes on 5.3 bcf/d Nord Stream pipeline post its annual maintenance July 11-21. Down to political reasons. #OOTT*." Last night Canada's Natural Resources minister Wilkinson tweeted [LINK] that "*Canada will grant a time-limited and revocable permit for Siemens Canada to allow the return of repaired Nordstream 1 turbines to Germany, supporting Europe's ability to access reliable and affordable energy as they continue to transition away from Russian oil and gas"*. Our Supplemental Documents package includes the Wilkinson statement.

**Oops, Wilkinson reminds Nord Stream is "reliable and affordable energy"**

Earlier this morning, we also tweeted [LINK] "*OOPS! @JonathanWNV statement drafters may get some flak. the return of repaired #NordStream turbines is "supporting Europe's ability to access reliable and affordable energy". Did they forget it's Russian #NatGas that goes into NordStream pipeline? #OOTT* " We recognize it's a reality that Nord Stream provides the cheapest natural gas and, prior to Ukraine, was a reliable natural gas provider, But surely Canada didn't want to highlight this as a reason to return the turbines. We have to believe his drafting people will get some flak for messaging that this will allow Europe to access to

Russian natural gas that supplies Nord Stream's "reliable and affordable energy" so they can transition away from Russian oil and gas to something that he doesn't say will be reliable and affordable.

### Natural Gas – EU warns risk of 'conflict and strife' in Europe over energy crisis

**EU warns on conflict and strife**

On Friday, we also a stark warning from the EU. Frans Timmermans is the second most senior official in the EU and leads the Green Deal efforts. On Friday, The Guardian posted its report "*Risk of 'conflict and strife' in Europe over energy crisis, EU deputy warns*". Timmermans was another to present a stark warning about this winter – it's not just about energy supply, it's about warnings on societal conflict and strife. The Guardian reported "*Europe is in danger of highly damaging "very, very strong conflict and strife" this winter over high energy prices, and should make a short-term return to fossil fuels to head off the threat of civil unrest, the vice-president of the European Commission has warned." "He said: "If our society descends into very, very strong conflict and strife because there is no energy, we're certainly not going to make our [climate] goals. We're certainly not going to get where we need to get if the lack of energy leads to strong disruption in our societies, and we need to make sure people are not in the cold in the coming winter." ""I honestly believe that if we can't give that guarantee then society is on edge, as it is everywhere because of high energy prices, inflation, food prices rising rapidly – because of this uncertainty caused by the war," he said. "Putin is using all the means he has to create strife in our societies, so we have to brace ourselves for a very difficult period." Coal would have to be used, he said. "If we were just to say no more coal right now, we wouldn't be very convincing in some of our member states and we would contribute to tensions within our society getting even higher."* There was more in the report. Our Supplemental Documents package includes The Guardian report.

#### Reminds of Putin warns humans will be back in caves if abandon natural gas

When we saw Timmerman's warnings about civil strife, we couldn't help think of an item from our Nov 24, 2019 Energy Tidbits – Putin's warning on going without natural gas. In that memo, we wrote "*Last week's (Nov 17, 2019) Energy Tidbits memo noted the FT report [LINK] the European Investment Bank was phasing out lending to fossil fuel projects by 2021 including natural gas. We tend to agree with Putin that if the environmental push means puts natural gas at risk along with coal, then there is a real risk to the future reliability of the electricity supply around the world. We just wouldn't describe the way he did. On Wed, we tweeted [LINK] "How could i not note Putin's comments "discarding the purest hydrocarbon like gas seems utterly bizarre", re the complete abandonment of hydrocarbons "it seems to me that the human race may find itself again in caves". Hope not!" Putin had a lengthy Q&A at the Russian Investment Forum on Wed. And he jumped in on the potential abandonment of natural gas. Putin said "In this sense, neglecting a pure hydrocarbon such as natural gas is, in my opinion, uncalled for, because it is the purest hydrocarbon out there. When ideas like this are promoted, it sounds like humanity will once again end up in caves, but this time because it will consume nothing, if all energy is reduced to zero, or if we rely solely on solar energy or wind energy or tidal energy. Today's technology is such that without hydrocarbons, nuclear energy or hydropower, humanity will not be able to survive or preserve its civilisation. This must be taken seriously or, as people say, in an adult-like manner."*

### Natural Gas – Germany likely natural gas shortage this winter, short energy for years

**Germany's blunt warning on shortages**

We didn't look this morning but we have to believe it will be hard to beat the level of German warning on the severity of the crisis facing Germany in cutting off Russia natural gas than seen in the last few days of the week by Germany's Chancellor Scholz and Vice Chancellor Habeck. It was a huge escalation. Last week's (July 3, 2022) Energy Tidbits memo said "*Yesterday, we saw a great example of how politicians and their government agencies like to warn, but not clearly state bad news is coming*." That has changed, it is now straight warning that there is a likely natural gas shortage this winter, a multi year energy supply risk, and the potential for social instability. (i) Scholz warns on high prices for years and now on the risk of energy supply for years.. Yesterday, we tweeted [LINK] "*DEU short energy for years? #Scholz "These days we are concerned with the security of our energy supply. It will be for the next few weeks, months and even years." "and we make sure that #Coal-fired power plants are now used so that we save #NatGas" #OOTT.*" Our tweet included the NTV reporting of the Scholz video "*Chancellor Olaf Scholz predicts a long crisis with high prices. Now he's going one step further: Securing the energy supply isn't a task that takes weeks, but years.*" (ii) Habeck says will keep basic supply of natural gas going as long as possible this winter. On Tuesday, we tweeted [LINK] "*Buckle Up! "We will do everything to keep up the basic supply [#NatGas] in the coming winter and to keep the energy markets running AS LONG AS POSSIBLE, despite rising prices and increasing risks" DEU Habeck. High #EU #NatGas prices look to stay thru winter. Thx @ArneDelfs #OOTT.*" This was the starkest warning so far that Germany should be prepared for a natural gas shortage this winter. (iii) Social stability at risk. Yesterday, Tagesschau reported " *Federal Economics Minister Robert Habeck chose even more drastic words, warning of a "political nightmare scenario" in view of the impending failure of gas supplies from Russia. This would occur if the state had to control the allocation of gas in an acute crisis, the Greens politician told Deutschlandfunk. He had "no illusions" about what would happen then: "This will put Germany to a crucial test that we haven't had for a long time."* Our Supplemental Documents package includes the various media the NTV, Bloomberg and Tagesschau reports.

### Natural Gas – Norway natural gas keeps producing, Govt steps in ASAP to end strike

**Government steps quickly to end strike**

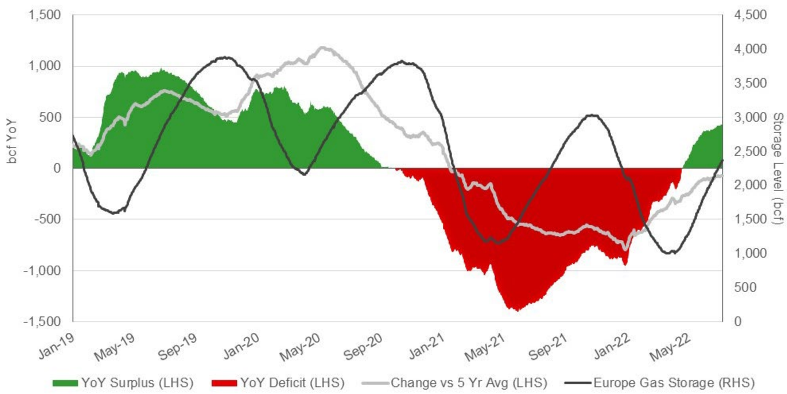
Norway stepped in ASAP to ensure Norway's natural gas supply would not be impacted by a strike. There were developing threats facing EU natural gas security on Tuesday when Equinor announced that their fields on the Norwegian continental shelf would be shut in due to a union strike. On Tuesday, we tweeted [LINK] *"EU #NatGas crisis gets worse. Strike shuts in @Equinor Norway operated 1.749 bcf/d #NatGas + 130,500 b/d liquids so far, with more shut-ins coming July 9. Putin must be loving it. #LNG #OOTT"*. Shortly following this, the Norwegian government reported [LINK] they proposed a compulsory wage board to resolve the labor dispute between the employee organization Lederne and Norwegian Oil and Gas. The Minister of Labor and Social Inclusion stated, "*It has not been possible for the parties to find a solution. I have therefore proposed a compulsory wage board. The announced escalation is critical in the current situation, both with regard to the energy crisis and the geopolitical situation we are in with a war in Europe. It is unjustifiable to let gas production stop to such an extent that this strike in the next few days is estimated to lead to. Production figures fall dramatically, and this is very critical in a situation where the EU and the UK are completely dependent on energy cooperation with Norway*". In response, the parties have stated that they will end the strike and return to work as soon as possible. Our Supplemental Documents package includes the Norway government release.

## Natural Gas – Europe storage is now +10.90% YoY ie. 60.50% full vs 49.60%

**Europe storage now 60.50% full**

The urgency to refill Europe storage post Russia has worked, at least so far, but the real test is now coming with the cut back in Nord Stream volumes in the last two weeks and the full shut down coming with the annual maintenance on July 11-21. But, the YoY Europe storage gap changed to a YoY storage surplus. 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 7 is at 60.50%, which is +10.90% greater than last year levels of 49.60% and are -1.70% below the 5-year average of 62.20%. 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.

Figure 9: Europe Gas Storage Level



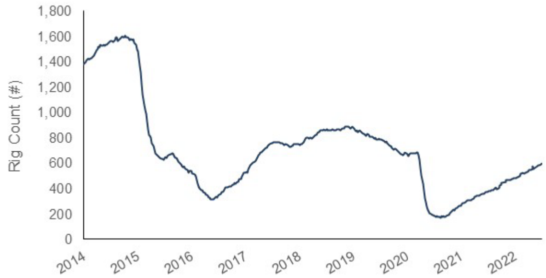

Source: Bloomberg

## Oil – US oil rigs +2 WoW to 597 oil rigs at July 8

**US oil rigs +2 WoW**

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 597 oil rigs. Oil rigs are +425 off the bottom of 172 in Aug14/2020 week. The US was likely impacted by July 4 on Monday making this a slower than normal week. Permian was up +1 at 349 rigs this week, and 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 -86 to 597 oil rigs (-13%). US gas rigs were flat at 153 rigs.

Figure 10: Baker Hughes Total US Oil Rigs




Source: Baker Hughes

**Oil – US frac spreads flat WoW at 285 for the week ending July 8**

Mark Rossano (C6 Capital Holdings) held his weekly US frac spread recap for the week ending July 8 on the Primary Vision network. YouTube video is at [LINK]. For the week ending July 8, US frac spreads at the high point in the week were flat WoW at 285 spreads. He was expecting an increase this week, but with 4th of July fell on a Monday, the increase is pushed back to the coming week. He expects the bounce back to be to about 290, where it was before the holiday. Rossano expects increases in key areas like Bakken, Western Gulf, Anadarko. In the Permian, it's already pretty elevated but sees a couple spreads coming in the near term. He then went thru how spreads move from 290 to 300 in his forecast. The delta from 290 to 300 really comes down to seasonality in the smaller basins that typically move in six week increments where they will pick up 1 or 2 spreads to do the work in a 4 to 6 week period, do the work that is scheduled and then let the spread go. The Permian is fairly tapped out, there are some here or there. The same with the western Gulf. Anadarko has some spare equipment, same with Williston, same with Appalachia. When you look at the Others like Cherokee, Arkoma and Ardmore that have nothing happening right now, typically have 1 or 2 coming back around this time. He then noted some of the others that he says typically get a pop ie. San Juan, San Joaquin, Powder River, Uinta. Rossano said it's basically these other basin, get 1 or 2 in 5 or 6 of these basins and this is how he sees getting to 300. But once you get to 300, getting right to the maximum of what's in the market unless you have some rebuilds, etc.

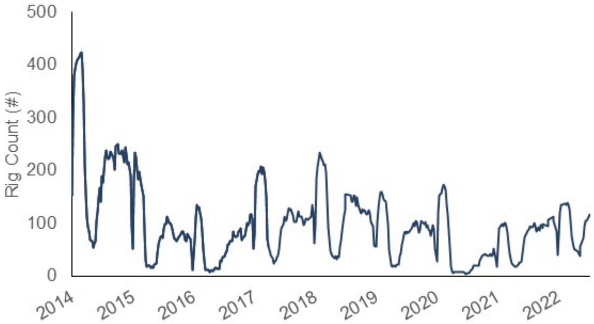
**Frac spreads flat at 285**

**Oil – Total Cdn rigs +9 WoW at 175 total rigs, +38 rigs YoY**

Total Cdn rigs were +9 total rigs this week at 175. Cdn oil rigs were +7 at 116 rigs. Cdn gas rigs were +2 at 59 gas rigs. We expect some of the oil rig additions were for heavy oil and oil sands drilling. Total rigs are now +162 since the June 26, 2020 all-time low. Cdn drilling has recovered YoY, a year ago Cdn oil rigs were 88 and Cdn gas rigs were 48 for a total Cdn rigs of 137, meaning total Cdn oil rigs are +28 YoY and total rigs are +38 vs 2021.

**Cdn rigs +9 WoW**

Figure 11: Baker Hughes Total Canadian Oil Rigs




Source: Baker Hughes

**Oil – US weekly oil production flat at 12.1 mmb/d**

US oil production was flat at 12.1 mmb/d for the week ended June 24, which followed another flat week. There have been no significant changes to note in either the Lower 48 or Alaska. The Lower 48 was flat at 11.7 mmb/d. US oil production is up YoY at +0.8 mmb/d, but is still down significantly at -1.0 mmb/d since the 2020 peak of 13.1 mmb/d on March 13. We beliee the real test for US oil production will come in H2 given there has been a big drawdown in DUCs. There is the need for industry to continue to increase rigs and rebuild DUCs.

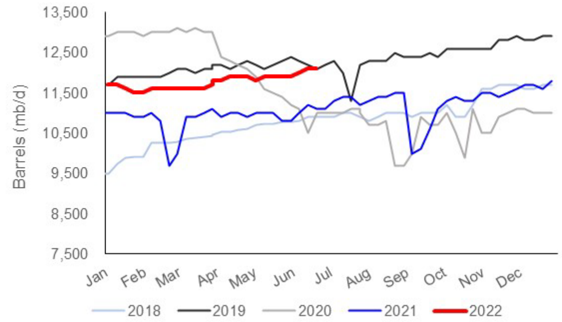
**US oil production flat WoW**

Figure 12: EIA's Estimated Weekly US Oil Production

| | Week 1 | | Week 2 | | Week 3 | | Week 4 | | Week 5 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year-Month | End Date | Value | End Date | Value | End Date | Value | End Date | Value | End Date | Value |
| 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 | | | | | | | | |

Source: EIA

Figure 13: US Weekly Oil Production




Source: EIA, SAF

**Oil – EIA Form 914, April oil production was strong considering North Dakota**

**EIA Form 914 April**

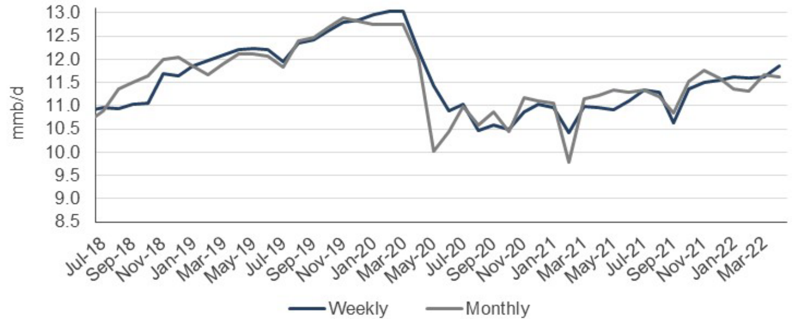
Yesterday, we tweeted [LINK] on the EIA's release of its Form 914 data [LINK] on Friday afternoon, which is the EIA's "actuals" for April US oil and natural gas production. (i) We tweeted "*US #Oil production is stronger than many expect. @EIAgov, Apr was 11.628 mmbd, but would have been highest since Apr 2020 at 11.842 mmbd if blizzards hadn't hammered North Dakota production, which was -214,000 b/d MoM in Apr. Pre-Covid peak 12.966 mmb/d in Nov 2019. #OOTT.*" We reminded that the US April oil production data was hurt by blizzards in North Dakota. Form 914 estimates North Dakota April production was down 214,000 b/d MoM. This is basically the same as the North Dakota Industrial Commission data (see our June 19, 2022 Energy Tidbits) that estimated North Dakota oil production was down 222,000 b/d MoM in April. (ii) If North Dakota had been flat in April, the adjusted Form 914 estimate US oil production would be 11.842 mmb/d, which would be the highest since April 2020. The pre-Covid peak was Nov 2019 at 12.966 mmb/d. (iii) Including the hit to North Dakota, Form 914 estimates total US oil production is down -0.060 mmb/d MoM to 11.628 mmb/d in April, and April production still hovers around Dec 2021 levels of 11.604 mmb/d and still below Nov 2021 of 11.769 mmb/d. April 2022 is still down -1.188 mmb/d from March 2020 (pre-covid) and +0.398 mmb/d YoY. (ii) The actuals for April were below the EIA weekly estimates, as well as the EIA STEO June had for April. (iii) Federal Offshore Gulf of Mexico had the largest MoM change with an increase of +72,000 b/d. North Dakota was down at -214,000 b/d this week. The April actuals were -0.232 mmb/d below the weekly estimates average of 11.628 mmb/d.

Figure 14: EIA Form 914 US Oil Production

| State | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022 | 11,369 | 11,316 | 11,688 | 11,628 | | | | | | | | |
| 2021 | 11,056 | 9,773 | 11,160 | 11,230 | 11,334 | 11,288 | 11,330 | 11,206 | 10,851 | 11,526 | 11,769 | 11,604 |
| 2020 | 12,785 | 12,826 | 12,816 | 11,911 | 9,711 | 10,420 | 10,956 | 10,558 | 10,868 | 10,413 | 11,121 | 11,084 |
| 2019 | 11,848 | 11,653 | 11,899 | 12,125 | 12,141 | 12,179 | 11,896 | 12,475 | 12,572 | 12,771 | 12,966 | 12,910 |
| 2018 | 9,996 | 10,276 | 10,461 | 10,493 | 10,424 | 10,628 | 10,888 | 11,373 | 11,422 | 11,488 | 11,868 | 11,924 |
| 2017 | 8,873 | 9,109 | 9,168 | 9,103 | 9,184 | 9,110 | 9,246 | 9,245 | 9,516 | 9,659 | 10,077 | 9,979 |
| 2016 | 9,201 | 9,063 | 9,088 | 8,871 | 8,832 | 8,672 | 8,660 | 8,688 | 8,542 | 8,802 | 8,901 | 8,814 |

Source: EIA

Figure 15: EIA Form 914 US Oil Production vs Weekly Estimate




Source: EIA

**Oil – Trans Mountain apportioned by 12% for July**

On Wednesday, Trans Mountain released an update [LINK] on its capacity for the month of July. Total system nominations are apportioned by 12% for July (June was 11%), meaning 12% of demand for the pipeline exceeds its capacity. Trans Mountain reminds that it has been running at full capacity and has seen regular monthly apportionment for over a decade ie, the clear sign for a need for expansion. The Trans Mountain apportionment update also includes a bit of an apportionment 101. Trans Mountain wrote "*When a pipeline experiences significant and prolonged apportionment like in the case of the existing Trans Mountain Pipeline, it's one signal that more capacity is needed. Apportionment can bring with it a discounting of prices as producers compete to sell what they can through the pipeline before having to use another pipeline or other modes of transport to another, less profitable market. It can also mean the buyers at the end of the pipeline are forced to source their shortfall of supply from alternate, less desirable sources*." Below is a chart which shows the average apportionment since 2016. Our Supplemental Documents package includes the Trans Mountain release.

**Trans Mountain apportionment**

Figure 16: Trans Mountain Pipeline Apportionment


Source: Trans Mountain Pipeline

**Oil – Synrude maintenance starts on July 15**

There was a good reminder on Wednesday of the impact of oil sands maintenance on differnetials. Bloomberg reported "*Synthetic crude's premium to WTI grows to $13.10/bbl,*

**Syncrude maintenance starts Friday**

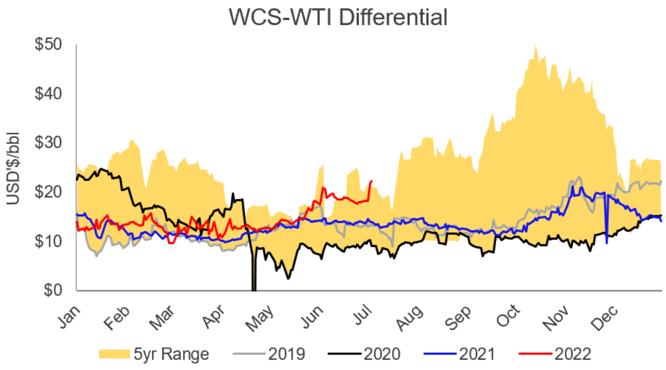
*widest since 2012, data compiled by Bloomberg show. * Maintenance on Syncrude oil sands upgrader that starts July 15 to last longer than expected amid labor shortfalls, according to person familiar ** NOTE: Syncrude turnaround had been scheduled to last from July 15 to Sept. 25, according to local union website".* Bloomberg was referring the UA488 oil sands turnaround schedule [LINK].

**Oil – WCS-WTI differentials widening**

**WCS-WTI differentials**

No surprise that WCS (Western Canadian Select) heavy oil differentials relative to WTI hav widened over the past month. There are often specific industry events that surprise on WCS-WTI differentials. Items like the heavy oil sands turnaround will cause a wider than normal impact.. But, this is also the normal seasonal move, which follows the normal season period when WCS–WTI differentials narrow. The late Feb thur May is the time of year that normally sees Cdn heavy oil differentials narrow. This is the time of year when refineries tend to maximize production of asphalt ahead of the annual paving season in Canada and the US. Below is our WCS-WTI differential graph that shows the differential widening in June and July.

Figure 17: WCS-WTI Differential



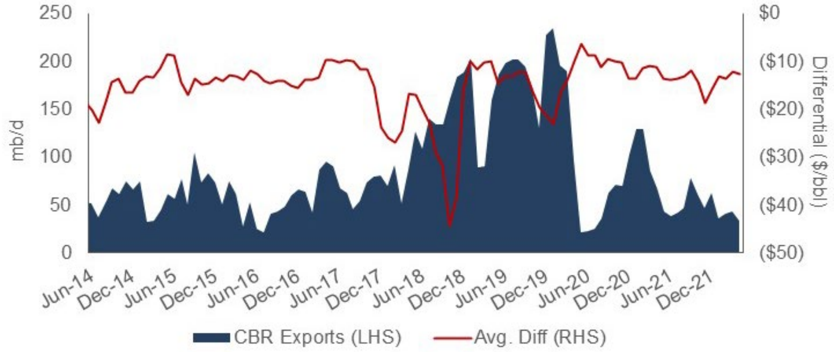

Source: Bloomberg

**Oil – Cdn crude by rail imports to Gulf Coast down 51% YoY in April to 33,000 b/d**

**Cdn CBR imports to Gulf Coast down 34,000 b/d YoY**

The EIA posted its monthly "U.S. Movements of Crude Oil by Rail" [LINK] on Tuesday, which also had good insights on Cdn crude by rail. Canadian CBR volumes to PADD 3 (Gulf Coast) were 33,000 b/d in April, which is down 10,000 b/d MoM from March, and down 34,000 b/d YoY vs April 2021. There were no revisions to last months data. Below is our graph of Cdn CBR exports to the Gulf Coast.

Figure 18: Canada CBR Exports to US Gulf Coast vs WCS Differential



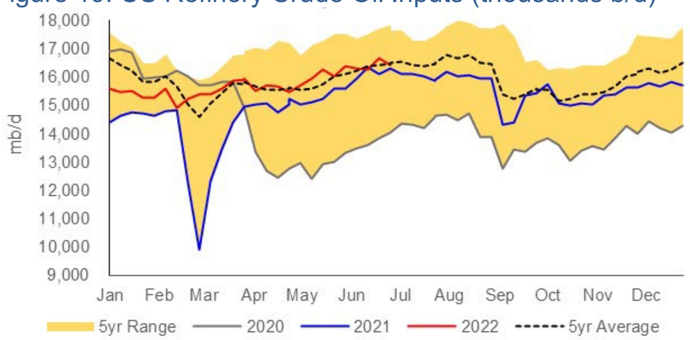

Source: EIA, Bloomberg

**Oil – Refinery inputs -0.228 mmb/d WoW at 16.438 mmb/d**

**Refinery inputs down WoW**

The US refiners are doing pretty well all they can 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 1. This is the season that normally sees increasing processing volumes in Q2 every year, though the EIA reported crude oil inputs to refineries down 0.228 mmb/d to 16.438 mmb/d for the week ended July 1 and are +0.323 mmb/d YoY. Refinery utilization was down to 94.5%, which is +2.3% 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, up 0.467 mmb/d to 20.464 mmb/d, and Motor gasoline was up 0.491 mmb/d at 9.413 mmb/d from 8.922 mmb/d last week. The 4-week average for Motor Gasoline was down -0.521 mmb/d YoY to 8.983 mmb/d. The 4-week average of Total demand was down -0.926 mmb/d YoY to 20.017 mmb/d.

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




Source: EIA

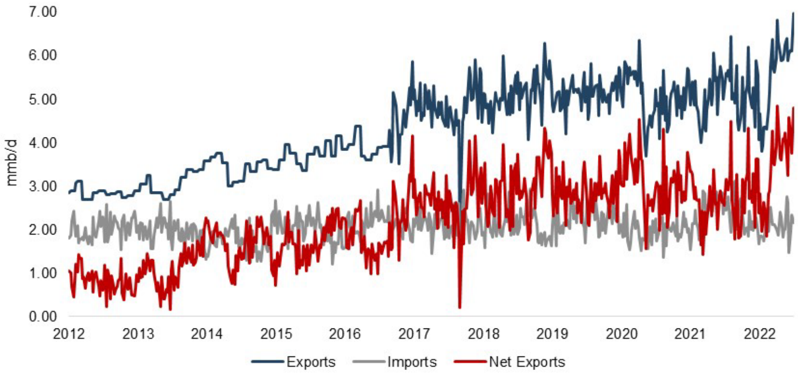
**Oil – Record US petroleum products exports**

**Record US petroleum exports**

On Thursday, the EIA released the Weekly Petroleum Status Report [LINK], which showed that the US had hit record petroleum product export levels. Exports were up 0.850 mmb/d from last week to 6.961 mmb/d, while imports were down -0.179 mmb/d to 2.167 mmb/d. Net exports out of the US were 4.794 mmb/d. We are a little surprised that we didn't hear more

Americans want to have less petroleum products exports to try to reduce domestic prices. Below is the graph we created to show the "net" exports of petroleum products.

Figure 20: US Petroleum Imports and Exports




Source: EIA, SAF

**Oil – US "net" oil imports down -0.036 mmb/d WoW at 2.618 mmb/d**

**US "net" oil imports down WoW**

US "NET" imports were up 1.609 mmb/d to 4.227 mmb/d for the July 10 week. US imports were up 0.841 mmb/d to 6.839 mmb/d. US exports were down -0.768 mmb/d to 2.612 mmb/d. The WoW increase in US oil imports was driven by US's Top 10 imports by country which were up by 0.846 mmb/d from Top 10. Some items to note on the by country data. (i) Canada was up this week by 0.916 mmb/d to 3.803 mmb/d. (ii) Saudi Arabia was down -0.303 mmb/d to 0.398 mmb/d this week. (iii) Colombia was down immaterially to 0.213 mmb/d. (iv) Ecuador was up -0.083 mmb/d at 0.142 mmb/d. (v) Iraq was up 0.286 mmb/d to 0.362 mmb/d. (vi) Mexico was down -0.041 mmb/d to 0.702 mmb/d.

Figure 21: US Weekly Preliminary Oil Imports by Major Countries

| (thousand b/d) | Apr 22/22 | 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 | WoW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada | 3,510 | 3,492 | 3,284 | 3588 | 3498 | 3444 | 3603 | 3394 | 3344 | 2887 | 3803 | 916 |
| Saudi Arabia | 438 | 554 | 306 | 420 | 588 | 345 | 349 | 681 | 760 | 701 | 398 | -303 |
| Venezuela | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mexico | 391 | 553 | 693 | 832 | 872 | 747 | 711 | 608 | 374 | 743 | 702 | -41 |
| Colombia | 364 | 313 | 276 | 365 | 218 | 215 | 143 | 292 | 228 | 215 | 213 | -2 |
| Iraq | 242 | 181 | 326 | 242 | 282 | 326 | 196 | 555 | 100 | 76 | 362 | 286 |
| Ecuador | 108 | 66 | 351 | 43 | 250 | 48 | 259 | 227 | 124 | 59 | 142 | 83 |
| Nigeria | 0 | 43 | 136 | 127 | 39 | 193 | 194 | 181 | 43 | 201 | 108 | -93 |
| 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 | 5,053 | 5,202 | 5,372 | 5,617 | 5,747 | 5,318 | 5,455 | 5,938 | 4,973 | 4,882 | 5,728 | 846 |
| Others | 881 | 1,130 | 897 | 951 | 739 | 900 | 699 | 1,047 | 1,253 | 1,116 | 1,111 | -5 |
| Total US | 5,934 | 6,332 | 6,269 | 6,568 | 6,486 | 6,218 | 6,154 | 6,985 | 6,226 | 5,998 | 6,839 | 841 |

Source: EIA, SAF

**Oil – Russia increases fuel exports to Fujairah, US increase fuel imports from Fujairah**

**Russia fuel exports to UAE**

There was a good reminder this week that Russia isn't yet feeling the impact of much lower exports, which means the world's oil and fuel prices aren't yet reflecting a big cut back in Russia volumes on global markets. On Monday, we tweeted [LINK] "*Hmmm! UAE Fujairah increases fuel imports from Russia and US increases fuel imports from Fujairah.It's a reality check - the world still runs on #Oil and #PetroleumProducts. Thx @eklavyagupte. #OOTT".* It looks like Fujairah (UAE) is playing a critical role in accommodating getting Russia fuel exports into other countries. That just jumped out by Platts noting how Russia fuel exports to Fujairah have increased and Fujairah fuel exports to the US have increased. Platts reported "*Russian fuel oil exports to Fujairah have increased noticeably, even beyond seasonal utility demand. Fuel loadings from Russia to Fujairah were at a record-high of 527,000 mt (116,00 b/d) in June, according to preliminary estimates from data intelligence firm Kpler. This compared with 403,00 mt and 482,000 mt in May and April, respectively. In February, only 86,000 mt of Russian fuel oil flowed to the Fujairah hub, Kpler data showed.*" Then on the US side, Platts wrote "*But since the Russian invasion of Ukraine, US has increased its purchases of fuel oil from Fujairah. Fuel oil exports from Fujairah to the US have averaged between 255,000-400,000 mt since the end of February, according to Kpler data and the US customs data. Since January 2017, there have only been seven instances when Fujairah has sent fuel oil to the US. Four cargoes went to the US Gulf Coast since April 2022, US customs data showed. In recent years, the US became a key importer of Russian fuel oil and various feedstocks such as high sulfur fuel oil, high sulfur vacuum gasoil, low sulfur vacuum gasoil, high sulfur straight run fuel oil and low sulfur straight run fuel oil.*" Our Supplemental Documents package includes the Platts report. [LINK]

**US increased fuel imports from UAE in April, decreased fuel imports from Russia**

Unfortunately, the latest publicly available EIA data on US fuel imports by country is for April. It isn't anywhere as current as the Platts reporting of Kpler data, but the EIA data is in line with the Platts report. The EIA shows US imports of petroleum products from Russia were Feb 502,000 b/d, March 439,000 b/d and April 336,000 b/d. The EIA shows US imports of petroleum products from UAE were Feb 9,000 b/d, March 8,000 b/d and April 75,000 b/d.

## Oil – Is Biden op-ed messaging to MBS that US expects to re-enter JCPOA?

**Biden's op-ed**

There is a must read this morning – Biden's op-ed last night. We have a 7am MT news cut off so we are signing off prior to watching the Sunday cable news shows, which will inevitably have a lot to say about Biden's op-ed last night "*Joe Biden: Why I'm going to Saudi Arabia*" [LINK]. (i) The headlines will be that it's unusual for a President to defend an overseas trip in advance. We suspect some will see this op-ed as a defending to his own party and trying to convince them that the reason for him dealing with Saudi Arabia is to fix the problems he inherited. (ii) Everyone believes that a key reason for Biden's trip is to get Saudi Arabia and others to produce more oil to deal with his #1 problem – gasoline prices. Our concern is that this just doesn't seem like the type of op-ed that is warming up Saudi Arabia in advance for a big ask. He doesn't want to say specifically he is meeting MBS, but right up front says "*I'll pursue diplomacy intensely — including through face-to-face meetings — to achieve our goals*." And "*From the start, my aim was to reorient — but not rupture — relations with a country that's been a strategic partner for 80 years.*" Surely he doesn't think MBS believes that all his comments weren't to rupture the relationship or try to put MBS in his place. Biden goes thru on all the things he did like releasing the Khashoggi report, etc. It just doesn't sound like the setup for a big ask, (iii) And, as usual, what jumped out to us is what he didn't say or what he excluded. Earlier this morning, we tweeted [LINK] "*Hmmm! #Biden still wants #JCPOA, "reunited with allies & partners in Europe & around the world" but no mentions of region allies? but "when i meet with leaders across the region, i will make clear how important it is to make progress in these areas" incl Iran nuclear. #OOTT*". The JCPOA comments stand out for us. He reiterates he is prepared for a return to the JCPOA. His paragraph is interesting as it is an area in the op-ed that doesn't mention on how he is working with the regional partners. Rather he is working with Europe and others around the world. This goes against the premise of the op-ed on how this is trip is about working his regional allies. Yet, his JCPOA comments notes Europe and around the world, but his JCPOA comments don't regional allies being onside. Biden said "*With respect to Iran, we reunited with allies and partners in Europe and around the world to reverse our isolation; now it is Iran that is isolated until it returns to the nuclear deal my predecessor abandoned with no plan for what might replace it. Last month, more than 30 countries joined us to condemn Iran's lack of cooperation with the International Atomic Energy Agency on its past nuclear activities. My administration will continue to increase diplomatic and economic pressure until Iran is ready to return to compliance with the 2015 nuclear deal, as I remain prepared to do*." (iv) We recognize that this is not what people think but we keep going back to Biden being reluctant to walk away from a return to JCPOA. The US basically warned Iran five months ago that the clock was running out, but Biden still can't say he is moving on. He could have easily said, he tried but Iran didn't want it so he is working with the regional partners to protect the region. But when he writes about JCPOA and not speak about working with the region, it makes us wonder if Biden will give in on JCPOA. We have to believe Iran is paying attention to what Biden didn't write. And then Biden writes about the region being full of challenges like Iran's nuclear program and support for proxy groups. And then says "*When I meet with leaders from across the region, I will make clear how important it is to make progress in these areas*." Surely he wouldn't have included Iran's nuclear program in this list of items to make progress if he planned to walk away from JCPOA? (v) So when we read this op-ed, I wonder if this is less a defending himself but warning Israel and Saudi Arabia that he will do JCPOA? If not, then he blew the chance to set the stage with Saudi and Israel.

**Would fit our view Biden would try to get MBS sign off on a return to JCPOA?**
We keep going back to Biden's warning 4-5 months ago that there were only weeks to go to get a JCPOA or else it would be too late and wouldn't be worth it. He just hasn't let go. And the Biden op-ed certainly left the door open for that scenario. Here is what we wrote in last week's (July 3, 2022) Energy Tidbits on this. "*We, like others, have been scratching our heads as to what Biden hopes to accomplish at his meetings with Saudi Arabia. The working assumption from everyone has been that Biden was more or less forced into the meeting to try to get more oil supply on the market. Saudi Arabia's quota for August is just over 11 mmb/d. Perhaps, Biden could get a short term, temporary boost in production or maybe a release from Saudi oil or fuels inventories, but we think it will be difficult to get any sustained significant boost to oil production. So what does he hope to accomplish? The only other thought that comes to mind is wondering if the purpose of the Biden trip is to give MBS enough so that he signs off on a return to the JCPOA. We have said before there is no way Biden could have done a return to the JCPOA before a MBS meeting. Nor could he meet MBS and then return to JCPOA. And we still feel there is no way Biden could return to the JCPOA unless he somehow gets MBS to be okay with a return to the JCPOA. So maybe that is the whole purpose of going to kiss the ring of MBS, try to find a way to get MBS onside a return to JCPOA? If so, what will it cost the US? Do we dare give Biden the chance of a successful Hail Mary with Saudi on being onside with JCPOA? And then there is still Israel dynamic? Especially more complicated now that they are moving to a Nov election*."

**Oil – Biden says Saudi "is now working with my experts" to stabilize oil markets**

**Biden's energy "experts"**

Biden's op-ed was serious, but we couldn't help chuckle at one of his Saudi Arabia statements and had to tweet [LINK] "*What did Saudi energy minister Abdulaziz think by #Biden Saudi Arabia "is now working with MY EXPERTS to help stabilize oil markets with other #OPEC producers." Really? it's like the 53rd roster player thanking @TomBrady for helping win super bowl. #OOTT.*" On one hand, it is amusing, but the reality is that this is probably their self assessment that that the Biden energy team are the experts on energy markets. Oxford defines expert as *"a person who has a comprehensive and authoritative knowledge of or skill in a particular area."*

**Oil – Was MBS holding back Saudi oil in June/July as a give to Biden this week?**

**Will MBS make an oil give to Biden?**

We have to wonder what the Biden op-ed foretells for the upcoming one-on-one with MBS. Is Biden signaling that he plans to leave a clear view that he expects to go back into the JCPOA? And if so, is that what MBS was expecting prior to today? Prior to the op-ed, we had written that it seems like most don't expect Biden to be able to get more oil from Saudi Arabia even if he says he won't directly ask them to produce more. And earlier this week, after looking at the last week's OPEC numbers, we tweeted [LINK] "*Has #MBS been holding back Saudi #Oil production as a give to #Biden next week? See 👇, Saudi June 10.450 mmbd, -213,000 vs quota 10.663. July quota 10.833, Aug quota 11.004 mmbd. If they aren't holding back, it is hugely bullish for oil. Thx @Ole_S_Hansen @gulf_intel. #OOTT.*" Last week's (July 3, 2022) Energy Tidbits noted the Bloomberg survey data that estimated Saudi Arabia produced 10.450 mmb/d in June, which was 213,000 b/d vs its June quota of 10.663 mmb/d. With big oil prices and increased domestic consumption of oil for electricity in the hot June temperatures, there was no reason for Saudi Arabia to underproduce its quota unless they were holding back production for some reason or they weren't able to produce to quota. We have to believe the more likely reason is they held back production and the only reason that comes to mind is for MBS to have a give to Biden at this week's meetings. And Saudi Arabia's quota for July goes up to 10.833 mmb/d and for August to 11.004 mmb/d.

**Oil – It's hugely bullish for oil if Saudi doesn't move to quota as a give to Biden**

**What is Saudi "sustainable" spare capacity?**

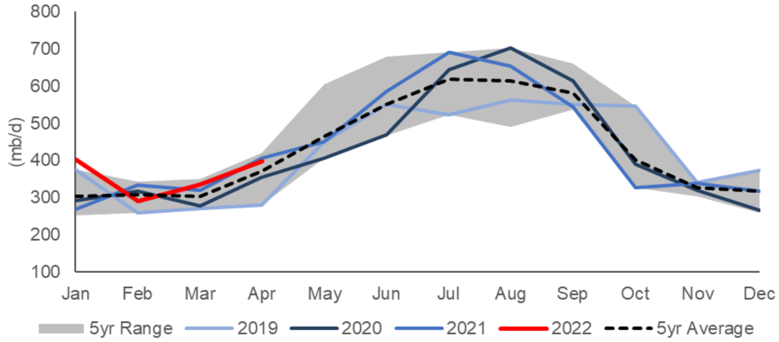
Our above tweet also stated the obvious *"if they aren't hold back, its hugely bullish for oil*". We really have to wonder why they would be holding back production in high oil prices and the increased domestic consumption in the summer months. We don't have any doubt that Saudi Arabia could produce more. But we don't know is what is the level of oil production that Saudi Arabia would be comfortable producing at on a sustained basis? That is the key question. 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 uses 300-400,000 b/d more oil for electricity every summer**

**Saudi summer oil use for electricity**

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

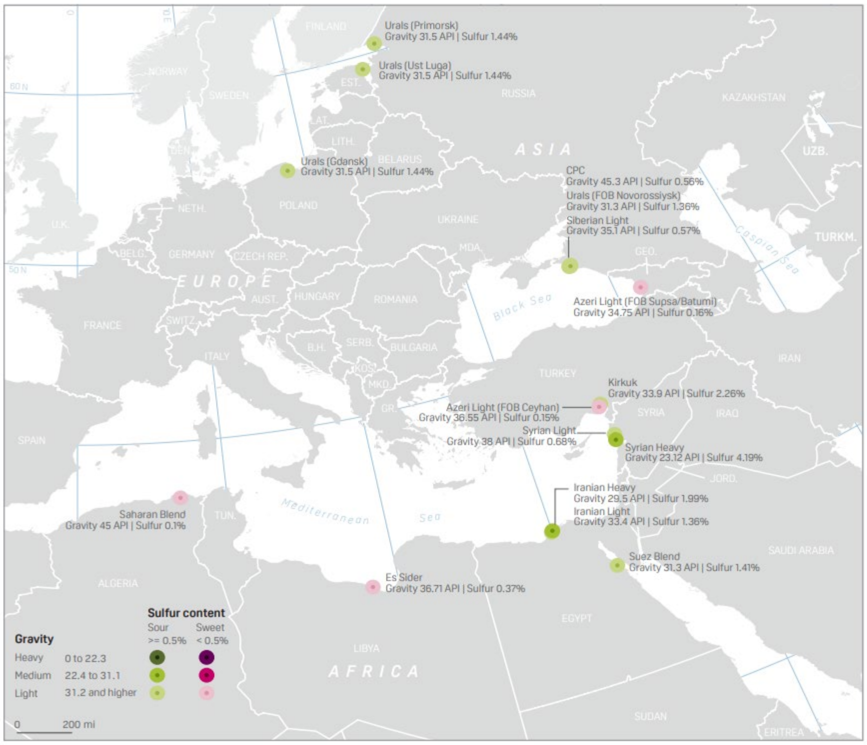
xxxx

**China gets more discounts from Iran**

**Oil – China gets another win in push to restrict Russian oil, Iran lowers its oil prices**
Everyone knows how China has been a big winner in increasing its imports of heavily discounted Russian oil. But they are getting a second win as its forcing Iran to cut its prices to China in the face of the Russian competition. Last Sunday night, we tweeted [LINK] "*China is winner in west push to hurt RUS oil. @iamsharoncho @sarahchen report Iran cuts #Oil prices to ~$10/b below Brent ie. on par with Urals Aug deliveries in China according to traders. Was $4/5 below Brent prior to RUS/UKR. #OOTT.*" Bloomberg's report title said it all "*Iran Slashes the Cost of Its Oil to Compete With Russia in China*". Bloomberg wrote "*Iranian oil has been priced at nearly $10 a barrel below Brent futures to put it on par with Urals cargoes that are scheduled to arrive in China during August, according to traders. That compares with a discount of about $4 to $5 prior to the invasion. Iran's Light and Heavy grades are most comparable to Urals.*" Our Supplemental Documents package includes the Bloomberg report.

**Iran's oil would be a good crude quality replacement for Urals crude to Europe**
The above Platts report noted how Iran crude is comparable to Russian Urals crude. We have been highlighting this post the Russian invasion. It's why Iran is lowering its prices to China as it is a head-to-head competition. Here is what we wrote in our March 9, 2022 Energy Tidbits. "*On Wednesday, we tweeted [LINK] on a good reminder from the Gulf Intelligence daily Podcast [LINK] that Iran's crude oil quality would be a good replacement for Russian Urals crude oil to Europe. We tweeted "#JCPOA. Good reminder from @gulf_intel podcast. Matt Stanley @starfuels reminds Iran light matches API and H2S very well and is a good substitute RUS Urals. See below @SPGlobalPlatts crude specs map. #OOTT". Our tweet included the below Platts map that noted crude qualities for Russia were Urals (Primorsk) 31.5 API 1.44% H2S, Urals (Ust Luga) 31.5 API 1.44% H2S, and Urals Gdansk 31.5 API 1.44% H2S, which compares to Iranian Light 33.4 API 1.36% H2S.*"

Figure 23: Platts Specifications Guide Europe and Africa Crude Oil




Source: S&P Global Platts

Source: Platts

**Oil – China gasoline/diesel consumption still 0.8 mmb/d below pre-Covid**

China is the key oil demand story for the end of 2022 and 2023, that is, assuming they can ever break out of the Covid restrictions circle. China is still below pre-Covid consumption on gasoline and diesel. On Wednesday, we tweeted [LINK] "*China June #Gasoline 3.2 mmbd & #Diesel 3.5 mmbd consumption back to 90% of pre-Covid, but still -0.5 mmbd for #Gasoline and -0.3 mmb/d for #Diesel for pre-Covid. Thx @sarahchen @cangsizhi. #OOTT.*" Bloomberg reported "*China's demand for gasoline and diesel is nearing a return to pre-virus levels as the nation cautiously emerges from strict virus lockdowns. Overall consumption of the major transport fuels last month was at almost 90% of June 2019 levels, according to people with direct knowledge of the nation's energy industry. Gasoline and diesel account for about half of China's total oil demand, and fuel use has steadily recovered after crumbling in April.*" And "*Gasoline demand last month was at about 3.2 million barrels a day, compared with 3.7 million barrels a day in June 2019, said the Chinese oil executives, who asked not to be identified because they aren't authorized to speak publicly. Diesel consumption was at 3.5 million barrels a day, compared with 3.8 million barrels a day three years earlier, they added.*" Our Supplemental Documents package includes the Bloomberg report.

**China gasoline & diesel consumption**

### Vitol reminds China's Covid restrictions have kept oil in low one hundreds

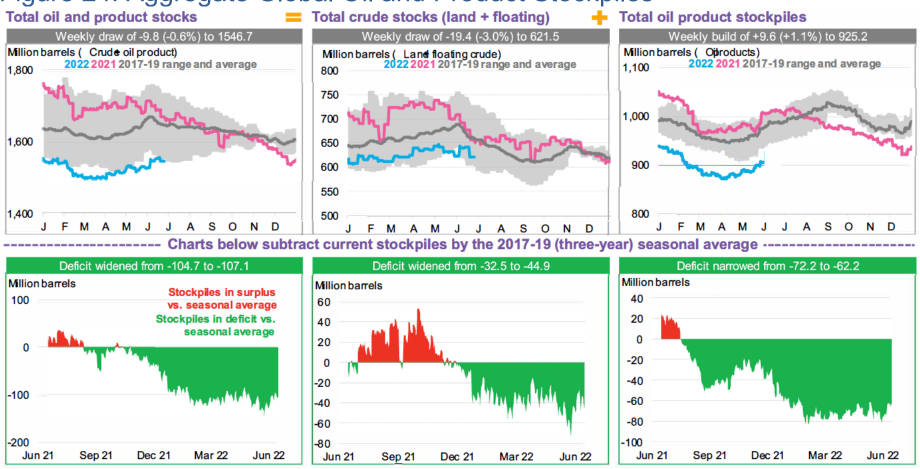
The above data is a good reminder that China will be a big boost to oil should they ever get out of Covid restrictions. Last week's (July 3, 2022) Energy Tidbits highlighted comments from Vitol on this point. We then wrote "*There was a good reminder that China's restrictions have kept oil prices down, but then the flipside is that as it recovers, it will help drive higher oil prices. Earlier in the memo, we noted Vitol Asia head Mike Muller's warning on the risk if the west tries to impose lower prices on Russian oil and natural gas that Russia could just say they don't like the price so no oil exports. Muller also reminded of one of the key reasons why oil prices have stayed in the low one hundreds – China is recovering but still well below pre-Covid levels of travel and oil consumption. Earlier this morning, we tweeted [LINK] "Why China reopening is to be watched. Its Covid lockdown in spring + SPR releases are what held #Oil back "from perhaps having more explosive prices and staying in the very low one hundreds" reminds #Vitol Asia head @michaelwmuller. Thx @gulf_intel. #OOTT". Muller had gone thru the recent improvements in China economy/reopening such as increasing but still far below preCovid rail passenger miles, the new Caixin manufacturing PMI covered later in this memo. But the point was that it was recovering. We created a transcript of him then saying at 23:10 min mark, Muller "… all the while there is vaccination going on to ensure that the vulnerable parts of the population, the elderly, have their boosters in time for the probably inevitable point in time at some point, hopefully later this year when China relaxes some of these travel restrictions yet more and has the confidence to let the virus, well, to test the virus a little bit more by allowing the transportation side of the economy, which is the one that's held back, to run a bit harder. But put it in global context, if it were not for the Chinese restraints on demands imposed by all these measures, the supply system would be more strained. So, it is really quite fortuitous I guess that we've had this set back in demand, which some for the month of April when Covid peaked in Shanghai was running at, most people put it close to 1 million barrels a day. That plus the SPR releases that then occurred in the trading time frame a little bit later are really what held the market back from perhaps having more explosive prices and staying in the very low one hundreds."*

### 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 widened for crude and products from 104.7 mmb to 107.1 mmb. The stockpile deficit against the five-year average (2015-19) widened from 80.1 mmb to 80.8 mmb. Total crude inventories decreased by 3.0% to 621.5 mmb, including global floating inventories. Product stocks were up 1.0% WoW with the stockpile deficit against the 3-year average narrowing from 72.2 mmb to 62.2 mmb. Gas oil and middle distillate stocks have narrowed against their three-year average deficit (2017-2019) from 32.4 mmb to 29.2 mmb. Jet fuel consumption by international departures increased by 52,800 b/d WoW while consumption by domestic passenger departures increased by 43,300 b/d. The global mobility index strengthened over the past week, growing by 0.5% in the week to June 29. Below is a snapshot of aggregate global stockpiles. Our Supplemental Documents package includes excerpts from the BloombergNEF report.

Figure 24: Aggregate Global Oil and Product Stockpiles



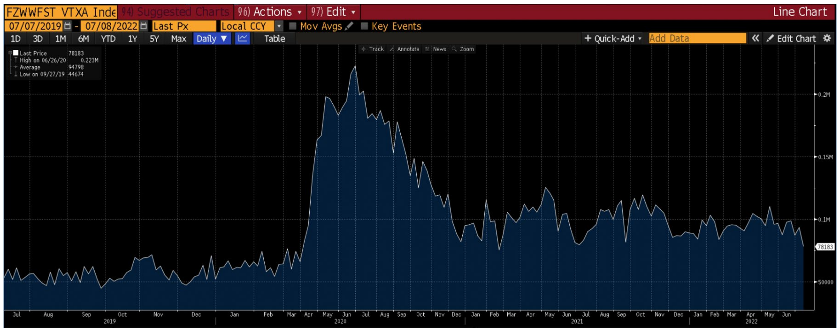

Source: Bloomberg

**Oil – Vortexa crude oil floating storage 78.18 mmb as of July 8, -15.22 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 noon 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 2 at noon MT. (i) As of noon MT yesterday, Bloomberg posted Vortexa crude oil floating storage estimate as of July 8 was 78.18 mmb, which is -15.22 mmb WoW vs revised up July 1 estimate of 93.40 mmb. Note July 1 of 93.40 mmb was revised +2.65 mmb vs the 90.75 mmb posted on Bloomberg as of noon MT on July 2. (ii) If there aren't upward revisions next week or so, the downward revisions this week put crude oil floating storage more to the 90 to 95 mmb range instead of the +/- 100 mmb level. (iii) Also remember Vortexa revises these weekly storage estimates on a regular basis and we do not track the revisions through the week. (iv) Apart from the upward revision to July 1, there were large downward revisions to the prior three weeks. June 24 was revised -5.83 mmb to 87.21 mmb (was 93.04). June 17 was revised -7.93 mmb to 98.48 mmb (was 106.41). June 10 was revised -5.33 mmb to 97.64 mmb (was 102.97). June 3 was revised -2.15 mmb to 87.38 mmb (was 89.43). (v) July 8 estimate of 78.18 mmb is -144.47 mmb vs June 26, 2020 peak of 222.65 mmb. (vi) 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 8 estimate of 78.18 mmb is +25.10 mmb vs pre-Covid of 53.08 mmb on July 8, 2019. Note July 8 estimate of 78.18 mmb is -4.99 mmb vs 83.17 mmb on July 9, 2021. (vii) Below are the last several weeks of estimates made as of yesterday at noon MT, July 2 at noon MT, and June 25 at noon MT.

Figure 25: Vortexa Floating Storage as of July 8 Posted on Bloomberg noon MT yesterday



Source: Bloomberg, Vortexa

Figure 26: Vortexa Estimates Posted July 9 noon MT, July 2 noon MT, & June 25 noon MT

Est as of July 8, noon MT

FZWWFST VTXA Inde — 07/07/2019 - 07/08/2022

| | 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 |

Est as of July 1, noon MT

FZWWFST VTXA Inde — 06/30/2019 - 07/01/2022

| | 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 |

Est as of June 25, noon MT

FZWWFST VTXA Inde — 06/23/2019 - 06/24/2022

| | Date | Last Px |
|---|---|---|
| Fr | 06/24/2022 | 92530 |
| Fr | 06/17/2022 | 108.149k |
| Fr | 06/10/2022 | 104.819k |
| Fr | 06/03/2022 | 90401 |
| Fr | 05/27/2022 | 100.2k |
| Fr | 05/20/2022 | 97852 |
| Fr | 05/13/2022 | 111.555k |
| Fr | 05/06/2022 | 99756 |
| Fr | 04/29/2022 | 103.893k |
| Fr | 04/22/2022 | 104.963k |
| Fr | 04/15/2022 | 108.712k |

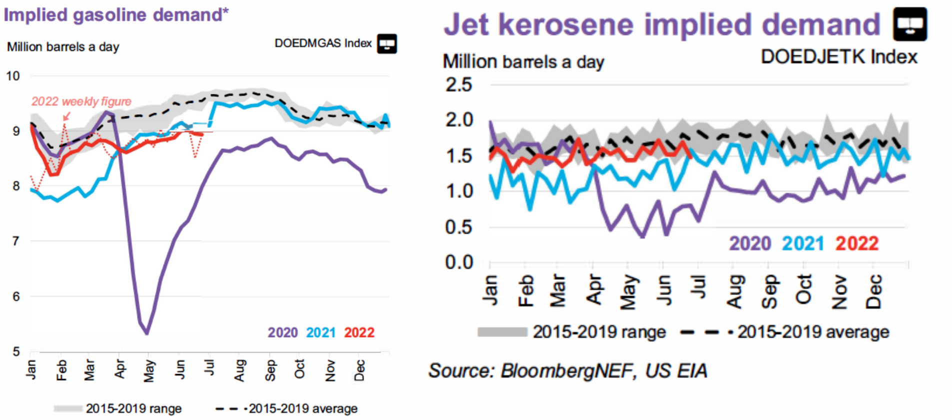
Source: Bloomberg, Vortexa

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

**US oil indicators weekly**

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 previous reports. BNEF had a couple of key messages. "*Gasoline demand appears to be succumbing in a more substantial way to record high prices - the four-week rolling basis fell to 8.9m b/d and is now more than 600,000 barrels below the 2015-2019 seasonal average.*" And "*Jet fuel is showing signs of weakness, despite strong traveler data; implied demand sits at 91 % typical seasonal levels, down from* *a consistent 95%.*" Our Supplemental Documents package includes excerpts from the BloombergNEF report.

Figure 27: Implied gasoline and jet kerosene demand



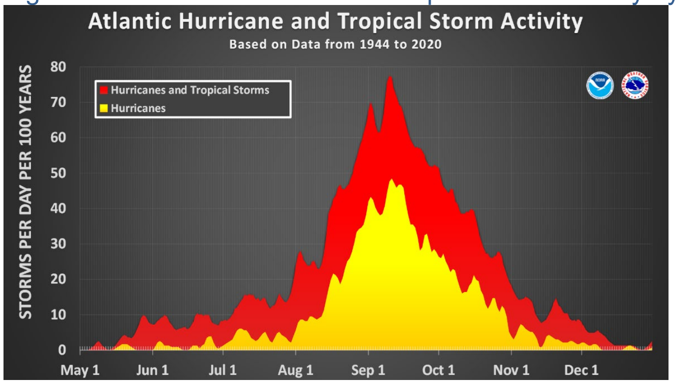

Source: BloombergNEF

## Oil & Natural Gas – Atlantic hurricane activity ramps normally in mid-Aug

**Atlantic hurricane seasonality**

It's been pretty quiet on the Atlantic hurricane season front despite all forecast calling for above normal hurricane activity this year. But the lack of activity to date is to be expected. There can always be hurricane activity at any time of the season. But, as a norm, it's still only July 10 and, normally, hurricane and tropical storm activity starts to ramp up in mid August to a peak in mid September and continuing active thru mid October. Below is NOAA's graph showing the distribution of Atlantic hurricanes and tropical storms based on data from 1944 to 2020. [LINK]

Figure 28: Atlantic hurricane and tropical storm activity by month




Source: NOAA

## Oil & Natural Gas –Bloomberg tries to figure out who advises Biden on energy

**Bloomberg's Ferro and Keene**

On Thursday, there was good try from Bloomberg's Tom Keene and Jonathan Ferro to try get Biden Administration's Heather Boushey to go on the record on some questions that most have been wanting to figure out – who is calling the shots on recommending energy policy to Biden. But Boushey didn't take the bait and stuck to her speaking points. We tweeted [LINK] "*Good try by @FerroTV @tomkeene to ask who is advising #Biden on shockingly naive price theory on #Gasoline, is it capitalism or central planning, etc? @HBoushey stuck to speaking points, but missed opportunity to use Biden's i am a capitalist line. #OOTT."* They may not have got Boushey to say who was the key energy advisor or if the Biden policy was capitalism or central planning, but it was certainly entertaining. The Ferro question on central planning seemed appropriate in light of how the administration will go after meat packers, oil companies, refiners, gas station owners, drug companies, etc for their profits. Ferro asked ""*is this central planning now. is that what this has come to? Are we going to sit here and decide what's fair and not fair and then go on Twitter and say this is unfair, bring your prices down. Is it markets or not markets. Is it capitalism or is it central planning where is this White House going?*" Boushey had a non-answer reply "*one of the things that the President has prioritized is understanding the way the concentration across markets has affected the American people, and is affecting markets. We know when there are very few players, this is Econ 101. You know when there is a monopoly that there is more price setting power. And that's one of the things we know is happening."* Our Supplemental Documents package includes the transcript we made of the exchange.

**Oil & Natural Gas – Demand response from UK citizens to high gas/electricity prices**

**UK citizens cutting back on energy**

It's only a survey but, no surprise, it looks like UK citizens are cutting back on energy consumption in the face of high gasoline/petrol, natural gas, electricity and food prices. On Friday, the UK Office for National Statistics posted its "Public opinions and social trends, Great Britain: 22 June to 3 July 2022" [LINK]. Some examples are "*using less fuel such as gas or electricity at home (53%, compared with 51% in the previous period)", "cutting back on non-essential journeys in a vehicle (46%, compared with 45% in the previous period)", "Around 4 in 10 (43%) adults who pay energy bills reported they found it very or somewhat difficult to afford them in the latest period, an increase compared with 37% in the previous period", and "When asked about other energy saving actions in the past year, around half (51%) of adults said they had closed all the curtains at night to keep the heat in, around half (49%) said they had washed their clothes at a lower heat".*

**Oil & Natural Gas – Updated EIA Norway country brief**

**EIA's country brief on Norway**

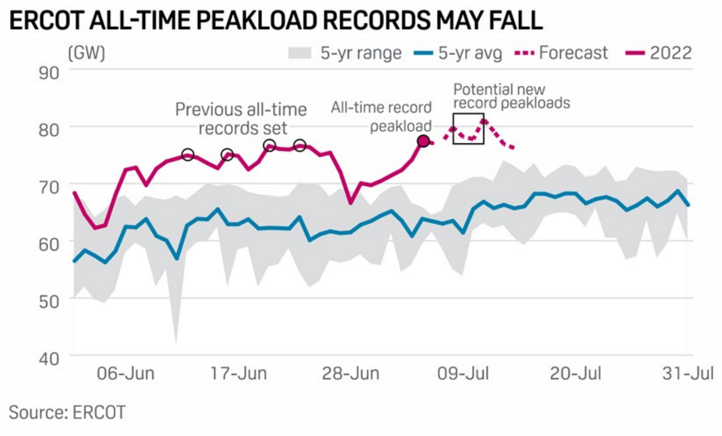
We continue to recommend adding the EIA's country analysis briefs to reference libraries as good quick references, in this case its new EIA country executive summary [LINK] on Norway. Norway accounted for 2% of global crude oil production and 3% of global natural gas production. In 2021, crude oil and natural gas exports accounted for 50% of Norway's export revenues and more than 20% of the country's GDP. In 2021, total investments in crude oil and natural gas extraction and pipeline transportation totaled nearly $18 billion. An extensive network of subsea oil pipelines transports crude oil and condensate to processing terminals on Norway's coast. Several important natural gas pipelines originate in Norway and connect directly with other European countries, including France, the United Kingdom, Belgium, and Germany. In late 2022, a new natural gas pipeline, the Baltic Pipe, will also connect Norway, via Denmark, to Poland. Norway had 7,700 mmb of proved crude oil reserves as of January 1, 2022. In 2021, 83 fields produced 1.8 mmb/d of crude oil, with Equinor Energy-operated fields producing the largest volume. Norway has one refinery, which has a total crude oil distillation capacity of 203,000 b/d. Only 12% of the total petroleum liquids produced in Norway are consumed domestically. According to the IEA, Norway exported an average of 1.6 mmb/d of crude oil, and 79% of those exports went to European countries in 2021. Norway has 51 tcf of proved natural gas reserves and they produced 4.1 Tcf of dry natural gas in 2021. Following Russia's invasion of Ukraine, the Norwegian government authorized an increase of approximately 50 bcf in natural gas production. In addition, the Hammerfest LNG facility could increase natural gas production by up to 247 bcf in 2022. In 2021, Norway was the third-largest exporter of natural gas in the world after Russia and the United States. The strikes at Equinor operated fields that started this week would have had a material impact on Norway's production and export of natural gas. The strike was slated to shut in 1.749 bcf/d of natural gas and 130,500 b/d of liquids, with more shut ins coming July 9, worsening Europe's natural gas crisis. Our Supplemental Documents package includes the EIA country brief.

**Energy Transition – Intermittent wind reminds of need for natural gas in Texas**

**Low wind generation in Texas**

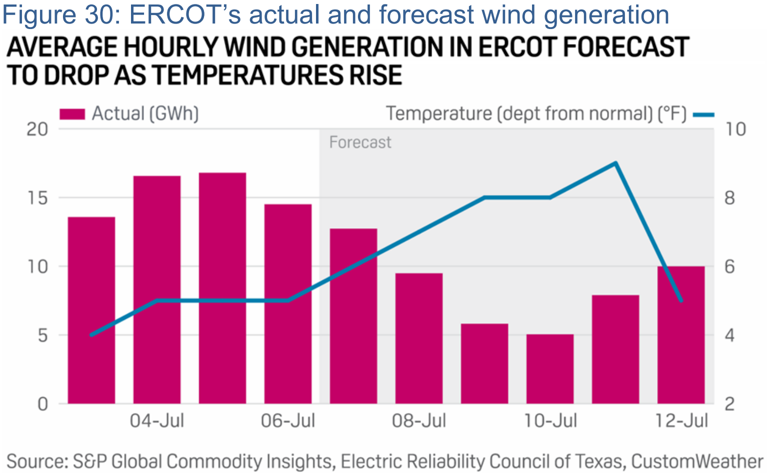
There is a good reminder this weekend that wind power generation can vary hugely on a day-to-day basis and there is the need for some sort of power that can come to the rescue. In Texas case, it will be natural gas. ERCOT forecasts Texas wind generation today will be about 1/3 the wind generation on Tuesday. It looks like Texas made it thru yesterday without any major power shortages, but there is still risk for the next couple days from the combination of hot temperatures and low wind generation. On Thursday, we tweeted [LINK] "*Texas power risk thru July 12. Great @SPGlobalPlatts recap, @ERCOT_ISO sees potential peakload records at same time as wind generation expected lower. #NatGas will be needed to save the day. #OOTT.*" Platts posted a report "*ERCOT peakload records, Texas wind output may fall July 8-12; gas burn may fill in*" [LINK] And "*The Electric Reliability Council of Texas on July 7 forecast record peakloads July 8-12, as a heat wave persists across the Lone Star State, which may coincide with declining wind output, boosting wholesale power prices and fuel demand by the system's natural gas-fired generation fleet.*" Platts included the two key graphs. Our Supplemental Documents package includes the Platts report.

Figure 29: ERCOT forecast peakload power requirements




Source: Platts

Figure 30: ERCOT's actual and forecast wind generation




Source: Platts

**Energy Transition – Strong growth in US EV sales with even bigger growth in 2024/25**

**Strong US EV sales growth**

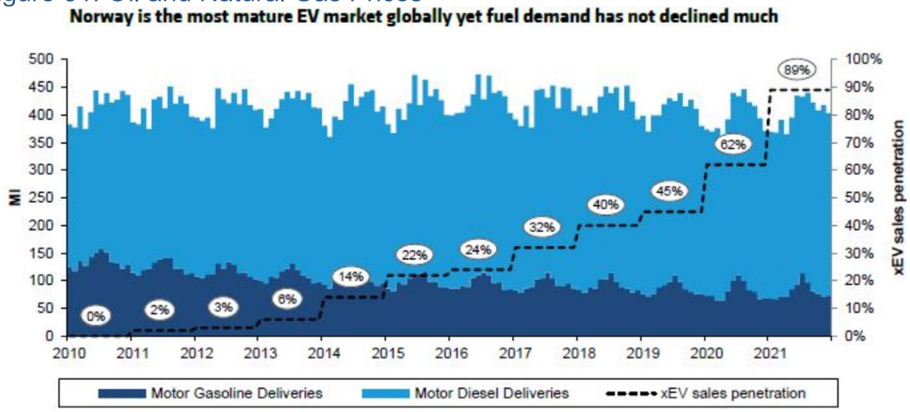
On Wednesday, CNBC's Phil LeBeau reported on J.D. Power preliminary car sales for Q2/22 including with the banner "*car buyers going electric*" including a table that shows the percentage of Q2/22 US car sales split ICE 82.6%, Hybrid 7.9%, EV 5.8% and Diesel 1.5%. LeBeau noted how the EV % had grown very fast and that there would be even greater growth going out to 2024 and 2025 as new EV facilities came on line.  CNBC did not post a story on this report.

**Norway's huge EV penetration has had little impact on gasoline/diesel**

After seeing the CNBC Phil LeBeau report, we tweeted [LINK] *"Huge #EV sales don't mean big #Gasoline #Diesel demand destruction. @Lebeaucarnews - US Q2 car sales: ICE 82.6%, Hybrid 7.9%, EV 5.8%, diesel 1.5% & EV sales on rapid growth curve. But see 👇 06/20 tweet, Norway was 6% in 2013, now 89% but no real impact on #OilDemand. #OOTT."* Our tweet referenced our prior comments.  Here is what we wrote in our July 3,2022 Energy Tidbits. "*We don't believe the EV transition will work to anywhere near the assumed EV transition plans.  However, that doesn't we don't believe that the western governments are going to do all they can to force continued rapid EV growth.  Rapid EV growth is no question a key part of the equation of gasoline/diesel demand destruction.  But what we also don't believe the EV aspirations (and related gasoline/diesel demand loss) have dealt with the reality of the experiences to date.  The best data points are in Norway and they seem to be overlooked by the energy transition assumptions.  Last week's (June 26, 2022) Energy Tidbits memo wrote "There was a good reminder from Sanford Bernstein that it takes time for EV sales penetration to impact gasoline consumption.  They reminded that, even though Norway is the most mature EV market, there has been very little impact on gasoline and diesel consumption.   On Monday, we retweeted [LINK] "Hmmm! Reminds the #EnergyTransition will take longer. #OOTT #Gasoline". There was a good Sanford Bernstein tweet [LINK] "EVs are almost 90% of*

*Norwegian car sales, but gasoline demand has barely budged." Bernstein included the below graph."*

Figure 31: Oil and Natural Gas Prices




Source: SNE, IHS, Statistics Norway, Norwegian Road Federation, Bernstein analysis
Source: Sanford Bernstein

**Energy Transition – Globe and Mail reminds CAN needs way more EV charge stations**

**Canada needs way more EV charge stations**

We still believe that the biggest challenge for EVs to have broader buying beyond higher income people is to get the price down. But there was a good reminder on another big challenge – having a good network of public EV charging in the Globe and Mail report. "*Canada wants an all-electric vehicle fleet by mid-century. A patchwork of charging stations stands in the way*" [LINK]. The Globe and Mail wrote "*Range anxiety consistently ranks among Canadians as one of the top barriers to EV adoption. Drivers are worried that a charge won't be there when they need it, or at least that it won't be convenient. If Canada is going to meet its goals on light-duty EV adoption – ostensibly, an all-electric fleet by mid-century – the country has a long way to go on charging. It's a chicken-and-the-egg type conundrum. If you build it, they will come, but it's hard to make a business case for building such capital-intensive infrastructure if enough people aren't currently, or even imminently, coming."* It's a good report to read as they go thru the challenge to get to some hugely higher number of charging stations. Our Supplemental Documents package includes the Globe and Mail report.

**Will also need better reliability of the charging stations**

The Globe and Mail also raises the issue that many charging stations aren't working and the extent of this problem is unknown. They wrote "*The extent to which public chargers don't work isn't clear. The latest best guess is contained in the Mogile report, which looked at a dataset of nearly two-million charging sessions in 2019, 2020 and 2021. But even then the information is limited, because the report doesn't capture all public ports; nor does it reflect issues with chargers that don't communicate problems remotely to the operator. The report said downtime is "quite frequent if judged by the number of problems reported in the ChargeHub app." Of the Level 2 ports for which status could be determined on Jan. 28, 2022, when a* *snapshot of the database was taken for analysis, 5.9 per cent were offline. For fast-charging ports, the figure was 4.7 per cent."* We had seen some studies on charging station reliability so we replied to her tweet on this as she raises the question on reliability of public EV charging stations. We linked a recent April 2022 Cal study that found ¼ of Bay Area EV chargers were non-functioning. We replied to her story [LINK] "*hopefully, we will be better than Cal study that found 22.7% of Bay area #EV charging stations were non-functioning. 72.5% were functional & 4.9% had too short of a cable to reach the EV inlet. thx @KBlazeBaum for the report."* And we included the link to the Cal study *[LINK]*. Note that we did not lump the 4.9% in with the 22.7% to get a bigger non-functioning percentage as we don't believe it's the charging station's fault if the EV driver's cable isn't long enough to reach the charging inlet. Our Supplemental Documents package includes the Cal study, which is a good read on the practical issues for charging stations.

**UK EV makers are selling EVs that need longer charging cables**

We suspect that one of the challenges for EV makers is to make sure they can promise the fastest charging time, which is likely why there studies in the UK that EV makers are selling the EVs with charging cables too short to reach some inlets. The longer the cable typically leads to a slower charge time. But in forcing EV buyers to pay for an option of a proper length cable is also a way to keep the basic sticker price down. There were many reports of the same study, but we picked up The Sun's report "*CABLE MANNERS Why electric car buyers are being ripped off – with some having to spend £600 to fix the issue."* [LINK]. And "*With on-street charging set to grow rapidly in coming years, a large percentage of standard EV cables are deemed impractical for public charging, says The Car Expert. The study included 22 of the UK's most popular electric cars and revealed how some car manufacturers provide cables as short as 3.8 metres as standard. This is often shorter than the length of the car, rendering them useless in many situations. And the research also found that some manufacturers are effectively forcing motorists to pay upwards of £600 for higher specification charging cables to replace the inadequate standard cables."*

**Capital Markets – Largest Cdn trade surplus since Aug 2008 driven by oil**

**Largest Cdn trade surplus since 2008**

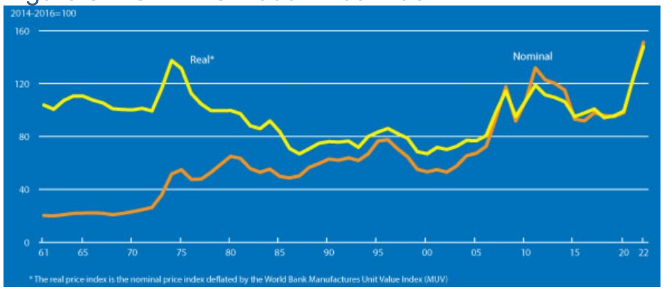
On Monday, Statistics Canada reported [LINK] that Canada's merchandise trade surplus with the world widened from $2.2 billion in April to $5.3 billion in May, the largest trade surplus since August 2008. On Thursday, we tweeted [LINK] *"Good opportunity for @JustinTrudeau @cafreeland to thank CA #Oil #NatGas #Oilsands. Highest trade surplus of $5.3b in May, largest surplus since Aug 2008, "rise in exports led by crude oil and aircraft" & exports of energy products hit $20.4b or 29.8% of total exports. #OOTT"*. Merchandise exports rose 4.1% compared with April, a fifth consecutive monthly increase. Meanwhile, imports decreased 0.7%. The contribution of prices to monthly movements was noteworthy, as variations in real (or volume) terms were significantly different from those in nominal terms. Export volumes increased 1.7%, while import volumes decreased 1.4% compared with April. The rise is exports was led by crude oil. Exports of energy products increased 5.7% to $20.4 billion, representing 29.8% of total exports, an all-time high. Exports of crude oil and bitumen (+9.2%) rose the most in May, the result of higher prices. Our Supplemental Documents package includes excerpts from the Statistics Canada report.

**Capital Markets – UN FAO Food Price Index falls for third consecutive month in June**

**UN food price index +23.1% YoY**

UN global food price index has retreated again in June 2022 from the all-time record highs of +33.6% YoY seen in March, though still +23.1% YoY from last June. As we highlighted previously in our April 10, 2022 Energy Tidbits memo, global food prices had been going up at multiples higher than has been indicated in the US food price index. The small MoM decreases are being viewed more as a pause and there are continuing global concerns that are going to keep getting higher in 2022 in part of how high natural gas prices are leading to a massive escalation in fertilizer prices that have to flow thru to food prices or lesser harvests. On Friday, the UN posted its monthly update of its FAO Food Price Index [LINK] titled "*The FAO Food Price Index drops for the third consecutive month in June".* Note this is on a Real price basis. The FFPI averaged 154.2 points for June 2022, which was -2.3% MoM and +23.1% YoY. The drop in the FFPI in June was led by a significant decrease in the vegetable oil price index, along with a declines in the sugar price index and the cereal price index. Meanwhile, dairy and meat price indices registered increases. The Vegetable oil index was down -7.6% MoM, marking another retreat from April's all time high. The Sugar Price Index was down -2.6% MoM and the Dairy Price Index was up +4.1% MoM and +24.9% YoY. The Meat Price Index was up 1.7% MoM, driven by poultry meat prices amidst tight global supplies. Below is the all time FFPI graph. Our Supplemental Documents package includes the UN FAO Food Price Index update.

Figure 32: UN FAO Food Price Index



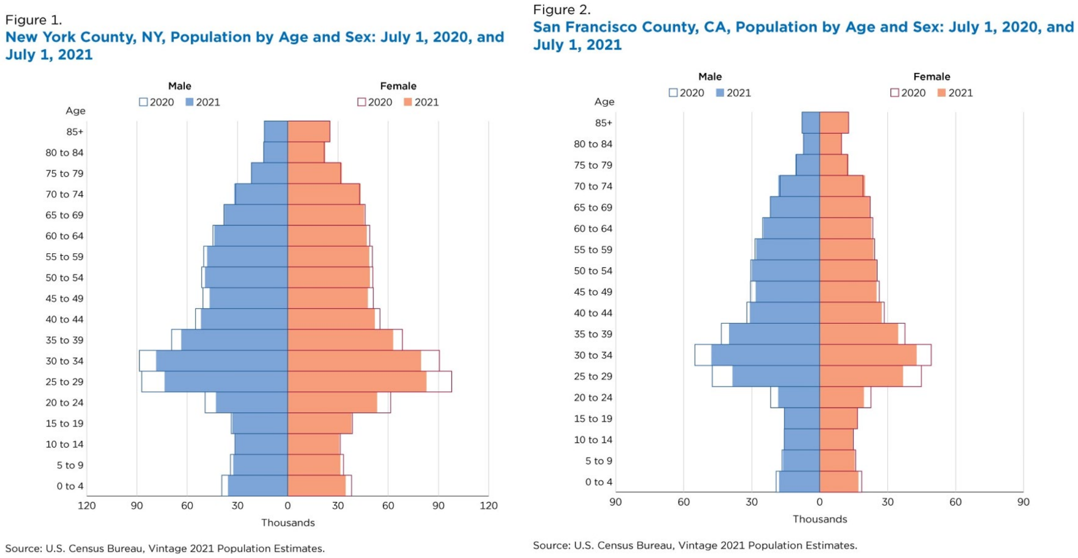

Source: UN

**Demographics – Young people are leaving Manhattan and San Francisco**

**Young leaving Manhattan & San Francisco**

There is a noticeable movement of young people from large metro areas like Manhattan and San Francisco for other counties around the US. For years, we have highlighted how higher income/wealthy people have been leaving high tax states for low or no tax states. These people have the financial flexibility to make the move and that has increased when Covid showed more people can move and work remotely. It's not just older adults that have more accumulated wealth, it's also young successful professionals that have a similar type of flexibility. Last week, the US Census Bureau posted its blog "*Fewer Younger Adults Drives Population Loss in Some U.S. Cities. New Census Estimates Show Why Some Cities Lost Population in 2021".* [LINK] The Census Bureau didn't specifically highlight the lower tax rates, but the first two examples were New York County (Manhattan) and San Francisco to highlight the loss of young people. No question that the high cost of living in these areas is a key factor. But there is also a large tax advantage for higher income young people. Maybe the Census Bureau didn't highlight the tax advantages, but young successful professionals clearly know the math. One of the key reason higher income/leave California and New York for states like Arizona, Florida and Texas is the income tax savings.  Our Supplemental Documents package includes the US Census Bureau blog.

Figure 33: Manhattan and San Francisco population change by age & sex




Source: US Census Bureau

**Manhattanites who moved to Palm Beach had average income $728k**

We might not have noted the Census Bureau report if the first example they hadn't used was Manhattan. But high income Manhattanites moving to Palm Beach was fresh in our mind. Last week's (July 3, 2022) Energy Tidbits highlighted how high income Manhattanites had been moving to Palm Beach.  Here is what we wrote. "*No question that the Sun Belt states have better weather, but we also believe these states have the benefit of low state income taxes. And lower state income taxes is something that is best taken advantage of by the wealthy. The movement of the wealthy was confirmed in New York Times report "The Flight of New York City's Wealthy Was a Once-in-a-Century Shock" that was reposted on dnyuz.com [LINK]. "When roughly 300,000 New York City residents left during the early part of the pandemic, officials described the exodus as a once-in-a-century shock to the city's population. Now, new data from the Internal Revenue Service shows that the residents who moved to other states by the time they filed their 2019 taxes collectively reported $21 billion in total income, substantially more than those who departed in any prior year on record." "The top 1 percent of earners, who make more than $804,000 a year, contributed 41 percent of the city's personal income taxes in 2019." "About one-third of the people who left moved from Manhattan, and had an average income of $214,300. No other large American county had a similar exodus of wealth." Note the move to Palm Beach statistic "The Manhattan residents who moved to Palm Beach County had an average income of $728,351, IRS data showed." Below is the Tax Foundation's map of state  income taxes.  New York state* *income tax is 10.9% and Florida is zero, which is an annual saving, on income taxes alone, of $79,400 on income of $728,351."*

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

@Energy_Tidbits on Twitter

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

**LinkedIn – Look for quick energy items from me on LinkedIn**

Look for energy items on LinkedIn

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

**Misc Facts and Figures.**

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

**Cdn Adam Svensson in the hunt for 1st PGA victory today**

Hoping that there will be some decent coverage of PGA golfer, Cdn Adam Svensson, who is one back of the lead going into the final round today of the Barbasol Championship. It doesn't look like it will be NBC, but Golf Channel coverage so hopefully that means some decent coverage of Svensson.  Sveensson is going after his first PGA win, but won three times on the Korn Ferry tour.

**Post-Covid frenzy, record attendance at first day of Calgary Stampede**

The Calgary Stampede started officially on Friday and was a good example of the post Covid frenzy to get out and about and travel. There was a new record attendance for the first day of Stampede with 130,177 people into the Stampede grounds.  There isn't any official split of tourists vs locals, but, in watching the local TV coverage, it seems clear that there are a lot of tourists in Calgary.  There is no official count but the reports were that there were over 300,000 people watching the parade, which was the first parade since 2019

**July 13 is National French Fry Day**

By now, most people know that French Fries originated in Belgium and not France. But the story that seems accepted is that American soldiers during WWI had pomme frites in Belgium but, since the Americans heard people speaking French, thought they were in France and they were called French Fries and not Belgian Fries. I haven't been to Belgium since early 90s, but this is the way the pomme frites would be served – in a wrap with a little bit of mayo based sauce. It's a way that fries can be eaten with their hands as opposed to our Canadian classic fries and gravy.

Figure 34: Belgian Fries

Source: International Cuisine

**Five Ontario men save a driver trapped in a burning car**

Big shout out to five Ontario men driving along the Queen Elizabeth Way (QEW) in Mississauga (just west of Toronto), who spotted a moving car on fire that eventually crashed by the Cawthra Road off-ramp. The car was locked, the driver was unable to move to get out, and the five men were doing all they could to try to open the driver's door, eventually a dump truck driver tossed a hammer to them and they smashed the window to pull the driver out. And 30 seconds later, the car burst into flames. The rescuer who picked up the hammer and smashed the window, Ben Sykes, said he went into "fight or flight" mode and just wanted to help the person. And Sykes said "*I think there's a lot of people out there that would do the same thing if they got into that situation. And all we can do is try and help other people and the world's a good place despite all the stuff that's going on right now*." The CTV report and video is at [LINK].

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Figure 35: Driver pulled from burning car along QEW outside Toronto


Source: CTV

**Analytics is why MLB starting pitchers only pitch 5.18 innings per start**

It must also be that MLB hitters have improved more than pitchers, but it certainly seems analytics driven why the average start per MLB pitchers is now down to 5.18 innings. The theory is that hitters have a much higher batting average on each successive trip facing a pitcher so don't let the hitters see the same pitcher too many times in a game. So pull the starting pitcher earlier. The only issue is that the average runs per game stats aren't conclusive. On Wednesday, ESPN posted a story "*'It's a dying breed. And it sucks': The decline of the starting pitcher -- and what it means for baseball's future.*" [LINK]. ESPN wrote "*Then came an article Nov. 5, 2013, from Mitchel Lichtman, who expanded on a topic he had explored in his seminal baseball strategy treatise, "The Book." On Baseball Prospectus, Lichtman wrote about what he deemed the "times-through-the-order penalty." The premise was straightforward: The more times a batter sees a pitcher, the better he performs. Over the previous 40 years, hitters gained an average of 27 on-base-plus-slugging points between their first and second plate appearances against a starter and 24 more between the second and third. Baseball people felt it -- the sixth inning and third time through the order regularly coincide -- but Lichtman's analysis spelled it out more clearly than ever before. For some teams, it was the impetus for change. Why concede such an obvious advantage at a time when a new breed of reliever -- the high-velocity, high-strikeout behemoth -- began roaming the land? Soon after Lichtman's piece, innings-per-start numbers tumbled, from 5.97 in 2014 to 5.81 to 5.65 to 5.51 to 5.36 to 5.18 in the last season before the COVID-19 pandemic.*" The MLB runs per game by year were 4.17 in 2013, 4.07 in 2014, 4.25 in 2015, 4.48 in 2016, 4.65 in 2017, 4.45 in 2018, 4.83 in 2019, 4.65 in 2019, and 4.53 in 2021.

**Brian's Song star James Caan passes away at age of 82**

Actor James Caan passed away on Wednesday at the age of 82. Caan is best known for playing Santino "Sonny" Corleone in The Godfather, but also was the star in what many consider the best sports movie of all time – Brian's Song in 1971. A movie about Chicago Bears running back Brian Piccolo. Caan played Piccolo and Billy Dee Williams played Gale Sayers. Our June 19, 2022 Energy Tidbits noted the Chicago Bears tribute at training camp on June 16 where all 90 Chicago Bears wore #41 jerseys in memory of the 52nd anniversary of the passing of former Bears running back, Brian Piccolo. He passed away at the age of 26 on June 16, 1970. It was a great story and much more than about football. Piccolo and Hall of Fame running back Gale Sayers were the first white and black players to be roommates, and became great friends. The month before Piccolo's passing, Sayers won the George S. Hallas award for Most Courageous Player (from recovering from his injuries) and made one of the most emotional sports speeches of all time with his saying "*I love Brian Piccolo, and I'd like all of you to love him, too. Tonight, when you hit your knees to pray, please ask God to love him, too*." If you haven't seen Brian's Song, it is worth a viewing.