Energy Tidbits

July 3, 2022

Produced by: Dan Tsubouchi

Vitol Asia Head Warns Russia Could Squeeze Oil Supply Just Like is Happening in Its Natural Gas Supply

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. Vitol Asia Head reminds world can't live without Russia oil and Russia could squeeze oil supply/exports just like is happening with its natural gas supply [LINK]

2. Increasing Germany fears Gazprom's 5.3 bcf/d Nord Stream maintenance July 11-21 could be longer due to political reasons [LINK]

3. G7 Leaders step recognize the need for unabated coal power for years, more LNG investment is needed, etc. [LINK]

4. Exxon CEO suggests US shale/tight oil potential is less than most assume [LINK]

5. More questions on how much spare sustainable oil production is in Saudi and UAE [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].

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Table of Contents

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Natural Gas – Natural gas injection of +82 bcf, storage now -296 bcf YoY deficit

YoY storage at -296 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 +82 bcf build (+75 bcf expectations) for the June 24 week, which was above 5-yr average build of +73 bcf, and last year's injection of +76 bcf. Storage is 2.251 tcf as of June 24, decreasing the YoY deficit to -296 bcf vs -305 bcf last week and is -322 bcf below the 5-year average vs -331 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 (06/24/21)		Historical Comparisons: 5-year average (2017-21)	
Region	06/24/22	06/17/22	net change	implied flow	Bcf	% change	Bcf	% change
East	461	430	31	31	509	-9.4	526	-12.4
Midwest	535	506	29	29	619	-13.6	603	-11.3
Mountain	134	128	6	6	172	-22.1	158	-15.2
Pacific	235	231	4	4	243	-3.3	266	-11.7
South Central	886	875	11	11	1,003	-11.7	1,020	-13.1
Salt	242	248	-6	-6	296	-18.2	303	-20.1
Nonsalt	644	628	16	16	707	-8.9	716	-10.1
Total	**2,251**	**2,169**	**82**	**82**	**2,547**	**-11.6**	**2,573**	**-12.5**

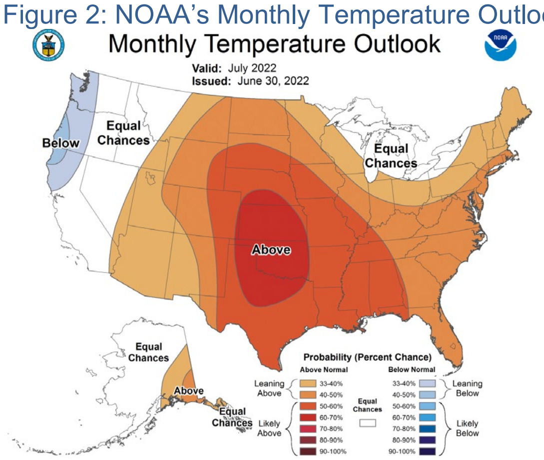
Source: EIA

Natural Gas – NOAA still sees warmer than normal temperatures in July

NOAA's July temperature outlook

On Thursday, NOAA posted its monthly temperature outlook for July [LINK], which calls for another month of warmer than normal temperatures in the US and in line with the expectations for a warmer than normal summer.

Figure 2: NOAA's Monthly Temperature Outlook for July



Source: NOAA

Natural Gas – And hot temperatures to start July

Hot start to July

We haven't seen the official tally for June, but June saw warmer than normal temperatures in the US. As noted above, NOAA's new July forecast is also for warmer than normal temperatures. NOAA's National Weather Service posts daily updates to its Maximum Heat

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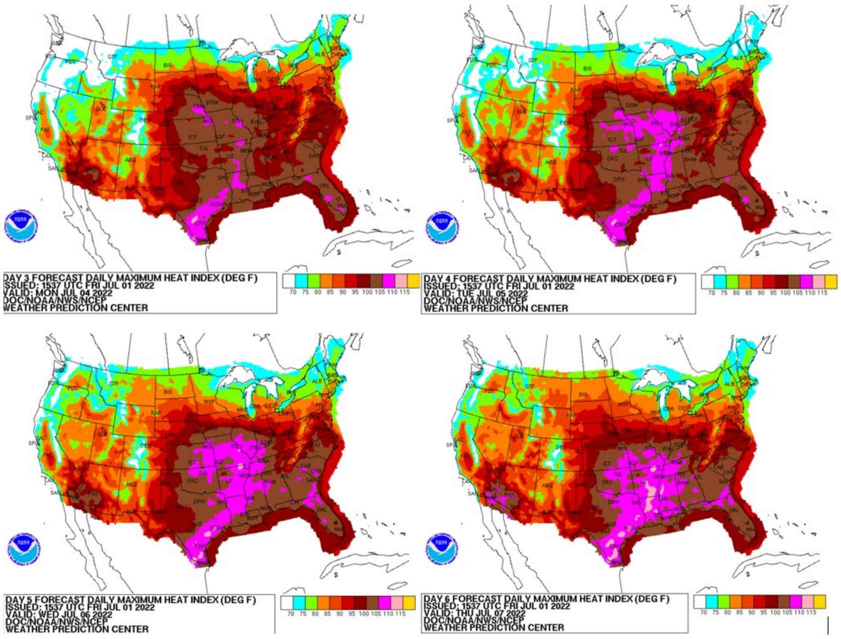
Index Forecasts, which still call for a very hot start to July. Below are NOAA's maximum heat index maps for Monday thru Thursday. [LINK]

Figure 3: Maximum heat index maps for Monday thru Thursday



Source: NOAA National Weather Service

Natural Gas – EIA's Natural Gas Monthly delayed from systems issues

EIA delays

Normally, our first Energy Tidbits memo each month features data from the EIA's Natural Gas Monthly, which normally is released right around the last day of the month. This monthly data includes US natural gas production, US LNG exports and pipeline exports to Mexico. However, the "systems issues" from a couple weeks ago have led to a delay. The EIA website says "*As of July 1, 2022, we are continuing to restore our systems. The monthly data releases, including the Petroleum Supply Monthly, Natural Gas Monthly, and Electric Power Monthly, will be published next week. We will continue to post regular updates regarding the status of other data products*."

Natural Gas – Freeport LNG says partial restart In early Oct of its 2.2 bcf/d LNG

Freeport LNG update

As of 7am MT news cut off, we haven't seen any reports to contradict Freeport LNG's June 30 release on the potential restart of its 2.2 bcf/d LNG export project. (i) The June 30 Freeport LNG statement on notice of proposed safety order issued by the Pipeline Hazardous Materials Safety Administration". Freeport said "*Safety has always been, and will continue to be, the highest priority for Freeport LNG. Since the incident on June 8th, the company has worked collaboratively with all local, state and federal officials regarding the incident response, investigation, and safe resumption of liquefaction operations. We will continue to do so, particularly with PHMSA, the Federal Energy Regulatory Commission (FERC) and the United States Coast Guard (USCG), to obtain the necessary approvals to*

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safely restart operations. A comprehensive review by Freeport LNG is already underway to ensure that all necessary corrective actions are identified and fully implemented prior to resuming operations. Currently, it is estimated that the resumption of partial liquefaction operations will be early October 2022. With commencement of such operations, we expect to be able to deliver substantially all baseload production volumes. At this time, we continue to target year-end for a return to full production." The Freeport update is only marginally later than their prior notice where they expected a partial restart in September. (ii) Earlier on Thursday morning, we tweeted [LINK] *"Breaking: #FreeportLNG restart delayed. @CarMcWilliams on @PHMSA_DOT "indicates a partial restart could not happen before Sept. "Continued operation of Freeport's LNG export facility without corrective measures may pose an integrity risk to public safety," #NatGas #LNG #OOTT."* Reuters reported [LINK] *"A U.S. pipeline safety regulator said it found unsafe conditions at a Texas liquefied natural gas export facility and will not allow owner Freeport LNG to restart the plant until an outside analysis is complete. A June 8 blast and fire knocked out Freeport LNG's Quintana plant, which exports about 15 million tonnes per year of the chilled fuel. The preliminary finding by the U.S. Pipeline and Hazardous Materials Safety Administration (PHMSA) indicates a partial restart could not happen before September."* Our Supplemental Documents package includes the Reuters report and Freeport LNG June 30 update.

Natural Gas – RBN blog: low Western Canada gas storage going into winter

RBN blog on low Canada gas storage

There was a good food for thought blog from RBN on Wednesday titled *"East Bound And Down - Western Canada Gas Storage Faces Very Low Starting Point For Next Winter"* [LINK] which gives a good overview of the Western Canadian gas storage levels. Western Canadian gas storage levels concluded the most recent heating season at a 16-year low at the end of March. Storage in the west is vitally important for balancing the North American gas market during high winter demand. When winter cold snaps hit, such as Winter Storm Uri in February 2021, it is typically Western Canada that has provided the last needed gas. RBN estimated the incremental change in gas available for storage injection. The two basic demand drivers of the Canadian gas market are domestic consumption and exports to the U.S. Canadian gas demand has been increasing over the past couple of years, primarily due to the rising use of natural gas in Alberta's oil sands and the province's ongoing transition away from coal- to gas-fired power generation. It is estimated YoY gain in gas demand to be +0.4 bcf/d this summer. Exports have been running nearly 1 bcf/d higher this summer but could fall in the months ahead as a result of the force majeure at the Freeport LNG export terminal which will free up injection in the US. Taking both the expected increase in domestic demand and exports together yields an incremental rise in demand of 1.2 bcf/d this injection season. The RBN has also calculated the three supply factors (LNG 0.0 + Imports 0.4 bcf/d + Production 1.0 Bcf/d) yielding an incremental year-on-year supply gain of 1.4 bcf/d. Comparing this with expectations for demand growth, the net result is an expected increase in available gas for injection of just 0.22 bcf/d versus last summer. They are also projecting there will be 210 bcf of gas available for injection in Western Canada. With this region having started the current injection season with 186 bcf in storage, the remaining 210 Bcf of gas for injection would send Western Canada storage to 396 Bcf by the end of October, or at about 67% of capacity. This would be critically low and would be the lowest end-October total for Western Canada storage since 2006. Bear in mind that the Freeport export terminal could be back up and fully in-service by the end of this year, taking an incremental 2 Bcf/d of gas out of the U.S. market to be sent overseas. Should U.S. domestic gas supply growth this year be

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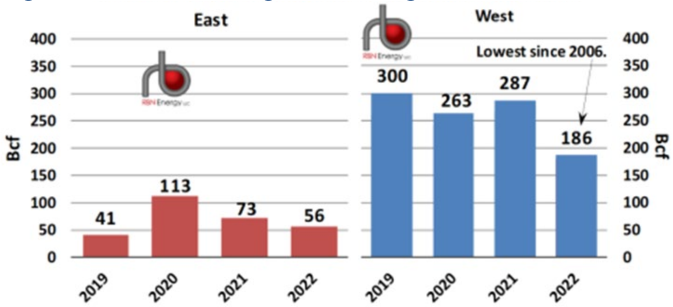
more sluggish than expected, this could be another factor that would generate an even higher call on all gas storage this winter.   As a result, Western Canada could be facing critically low storage levels prior to, and by the end of, the next heating season. Our Supplemental Documents package include the RBN blog.

Figure 4: March Ending Gas Storage in Eastern and Western Canada



Source: RBN

Natural Gas – Shell 0.47 bcf/d Prelude FLNG halts LNG loadings until at least July 14

Shell's Prelude FLNG halted until July 14

No one should be surprised to see Bloomberg's Tuesday report [LINK] that Shell has halted LNG loadings at its 0.47 bcf/d Prelude FLNG facility (offshore NW Australia) until at least July 14. We were surprised that it took so long to see this news. On Friday, Bloomberg reported "*Shell said in a statement that unions had agreed to scale back a strike at its Prelude floating LNG facility in Australia between July 1-7, however union bans for July 8-14 remained in place, according to a co. statement".* As of our 7am MT news cut off, we have not seen any indication of a change that LNG loadings will be delayed at least until July 14. Our June 12, 2022 Energy Tidbits noted the announcement of industrial action (workers would only work on certain tasks) for 12 days, and then our June 19, 2022 Energy Tidbits noted the union had extended the industrial action to a 19 days. Until Tuesday (June 28), we had not seen any indication from Shell on what will happen to operations at its 0.47 bcf/d Prelude FLNG. We have been assuming that that LNG operations and loading must be impacted, but we checked and haven't seen any Shell confirmation. We would assume that Shell will want to err on the safe side considering they just came off a 4-month shut down due to a fire. And we still didn't know how Prelude LNG couldn't be impacted. At least now, we know now that LNG loadings will be stopped at least until July 14. Our Supplemental Documents package includes the Bloomberg report.

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Figure 5: Shell Prelude FLNG and Crux Backfill Natural Gas Supply Project

Source: Shell

Natural Gas – India May natural gas production +6.4% YoY to 3.32 bcf/d

India natural gas production +6.4% YoY

One of the key themes for India in the last year is that it looks like they have turned the corner on a decade of declining domestic natural gas production, which is even more important given the stronger than expected LNG prices in 2021-2022. The key India natural gas theme for the past decade was that India's natural gas production declined, which meant that increases in natural gas consumption had to be met by increased LNG imports. India's domestic natural gas production peaked in 2010 at 4.6 bcf/d but it now looks like we are seeing modest return to growth. On Tuesday, India's Petroleum Planning and Analysis Cell released their monthly report for May natural gas and oil statistics [LINK]. India's domestic natural gas production was up 6.4% YoY from 3.12 bcf/d in May 2021 to 3.32 bcf/d, down slightly from 3.33 bcf/d in April. India has consistently struggled to grow domestic natural gas production with 2018-2019 production averaging 3.18 bcf/d, declining to 3.02 in 2019-2020 and averaged 2.78 bcf/d 2020-2021. Our Supplemental Documents package includes excerpts from the PPAC monthly package.

Natural Gas – India May LNG imports down -3.5% YoY to 2.89 bcf/d, down -0.8% MoM

India LNG imports -3.5% YoY

There is no surprise that the above noted increasing India domestic natural gas production means reduced need for LNG imports. Plus India is always viewed as an extremely price sensitive buyer in terms of its LNG imports, which was exemplified in their 2020-2021 import data. India had ramped up imports from June to October 2020, taking advantage of low LNG prices to fill their stocks. Imports began to decline in November 2020 as LNG prices rose, with the price trajectory ramping up in late Dec and reaching record levels in January. This resulted in India LNG imports declining from a 2020-2021 peak of 3.84 bcf/d in Oct 2020 to just 2.85 bcf/d in Jan 2021. May imports decreased again slightly, down -0.8% MoM to 2.89 bcf/d and down -3.5% YoY due to abnormally high spot prices. India has been trying to avoid high spot LNG prices.

Natural Gas – Tokyo is cutting back natural gas consumption to avoid outages so far

Natural gas conservation in Tokyo

There have been multiple days calling for reduced natural gas consumption in Tokyo to avoid shortages during the hot spell. But no question the calls have been out to reduce natural gas consumption and industry/people are responding. (i) Last Sunday, Japan's METI [LINK]

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warned "*Since the supply and demand of electricity is expected to be severe in the Tokyo area on June 27, we ask for your cooperation in saving electricity"* as they forecast an electricity reserve of only 3.7% from 4:30 to 5pm on June 27. The METI posted English version warned people to not cut back so much on air conditioning that citizens might suffer from heat stroke. METI wrote "*Request for cooperation in saving electricity. Tomorrow, there will be some margin in the supply and demand of electricity until after noon, so please be careful not to suffer from heat stroke by properly using air conditioning, etc. and hydrating during hot hours. On the other hand, during the hours from 15:00 to 18:00 in the evening, please save as much electricity as possible by turning off the unused lights while using the air conditioner".* (ii) On Tuesday, Bloomberg's Stephen Stapcynski tweeted [LINK] *"Government office buildings in Tokyo are shutting the lights off between 4-5pm to help conserve energy* 😯*"* He included a short video including the government offices lights on and lights off.

Figure 6: Government offices between 4-5pm in Tokyo

Source: Bloomberg,NHK

Tokyo called for cutting back natural gas consumption to avoid outages

When we see the people working with the lights off, we can't help but think of the differences in Japan society that people would grind away at the office with the lights off. In North America, they would probably just have closed the office down. But the point is that Tokyo is responding to the government request to cut back on use of natural gas. Our May 15, 2022 Energy Tidbits noted he first big push, when the Tokyo Metropolitan Government announced it "*will strengthen and accelerate its efforts not only from the perspective of the climate crisis, but also from the perspective of ensuring stable energy over the medium to long term. The point is to reduce power consumption, create it, and store it. The keyword is HTT. From these three perspectives, we need to work together with the citizens of Tokyo and businesses in a total war."* We tweeted [LINK] "*Tokyo's energy conservation push* 👎 *will be followed by EU. Also reminds of business trips to Japan post Arab Oil Embargo with office temps set to >80F except it was suits & ties, no suggestion of wearng cool (temp not fashion) short sleeve shirts to work. Thx @shoko_oda #OOTT."* A few of their energy saving guidelines were put air conditioning room temperature to 28℃ during cooling times, don't overload the refrigerator, set refrigerator setting to a warmer temp, and the one that got the most headlines was turn off toilet seat heating off. Tied to the warmer room setting, Tokyo also suggested "Cool Biz fashion" showing a picture of short sleeves shirts. There were

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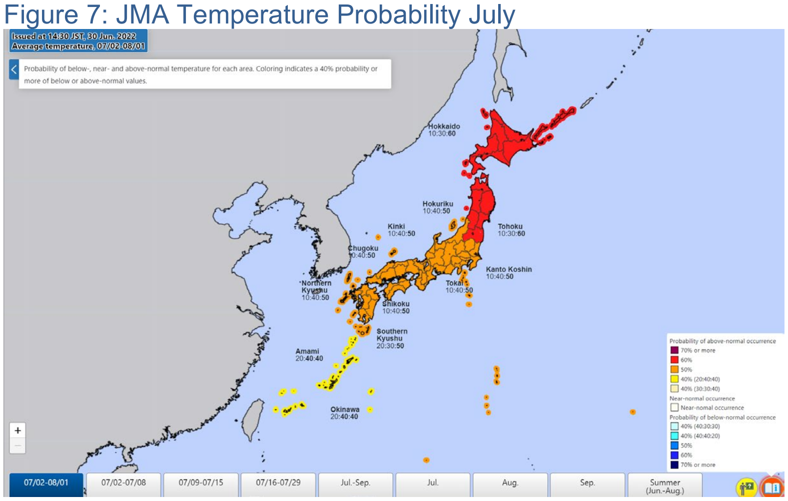
many other energy saving ideas. Our tweet noted that the higher temperature under air conditioning is much what Japan did post the Arab Oil Embargo.

Natural Gas – Continued hot weather expected in July in Japan

Warm July forecast in Japan

We haven't seen the data for June, but it was likely one of the hottest Junes in some time. It looks like the hot weather will be continuing in Japan, with the JMA forecasting much warmer than normal temperatures for July. 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 weather forecast [LINK] calling for warmer than normal near-term 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 34c for Tokyo July 2-9.

Figure 7: JMA Temperature Probability July



Source: Japan Meteorology Agency

Natural Gas – Japan's LNG stocks down -6.8% from last week

Japan LNG stocks -6.8% WoW

As a reminder, 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 ~103 bcf, -6.8% WoW from 110 bcf and up from the 5-yr average of 94 bcf. Below is the LNG stocks graph from the METI weekly report.

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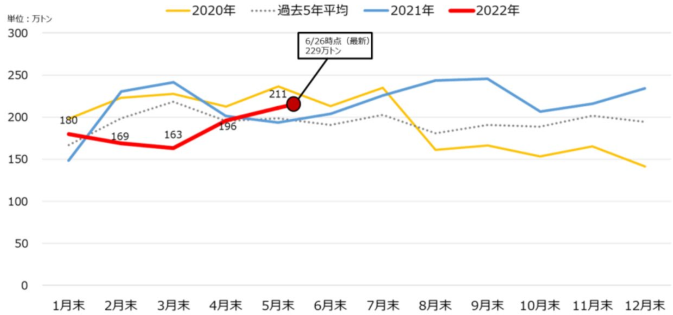
Figure 8: Japan’s LNG Stocks



Source: METI

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

Nord Stream maintenance

We expect to see an increased anxiety in Europe as they watch and wonder if Nord Stream’s upcoming July 11-21 maintenance will be completed on time and then immediately restart volumes. On Friday, we tweeted [LINK] “*Russia #NatGas Squeeze Play. Over/under. Suspect most in EU will take the over that #NordStream 5.3 bcf/d pipeline maintenance planned July 11-21 will run longer. #LNG #OOTT*.” Earlier, Nord Stream posted its notice [LINK] “*Annual Maintenance Works of Nord Stream Pipeline will be performed in July 2022. Annual scheduled maintenance activities are planned well in advance as part of the long-term pipeline integrity management strategy. Maintenance schedule closely coordinated and agreed with upstream and downstream partners. 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.”*

Natural Gas – Germany says a “tight calculation” to get thru winter natural gas

Russia natural gas squeeze is real

Russia’s natural gas squeeze play is working on Europe and causing governments and companies to panic on what is likely, in our view, to be a major natural gas crisis, in the winter. Our June 19, 2022 Energy Tidbits highlighted an item “*Russia starts natural gas squeeze play on EU, winter 22/23 looks ugly”* that built on our June 19 tweet [LINK] “*Russia starts #NatGas squeeze play on EU. Never let a good crisis go to waste. #FreeportLNG 2.2 bcfd goes down, then 2.4 bcfd cut in #NordStream available capacity. EU needs to urgently cut #NatGas consumption to try to avoid winter 22/23 shortages. Bullish for #LNG #Coal. #OOTT.”* Our memos have been highlighting the various government actions. And we don’t plan to write on all of these updates every week. But this week, we wanted to highlight Germany Vice Chancellor/Economy Minister Habeck’s Thursday comments that, at least to us, should be interpreted as a warning to German citizens and industries that natural gas cutbacks or rationing are to be expected this winter. He clearly does not say that, but how else can you interpret comments that highlighted the “tight calculation” for natural gas this winter that seem to assume there are no other negative surprises. When we hear “tight calculation”, it infers to us that everything better go right for there not to be a problem. Absent a Russian immediate regime change, we don’t know how anyone can assume supply suddenly becomes available to save the day for Germany. The reality is that the vast majority of oil, natural gas and LNG supply surprises are negative, not positive surprises. At

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a minimum, we would expect Germans to be high with continued very high natural gas prices. But our fear is that its not just very high prices, it's also shortages. Bloomberg reported "*German Economy Minister Robert Habeck said assuring the country's gas supply for the winter months will be a "tight calculation," adding that gas is flowing into storage sites at the moment because the government is willing to pay high prices for the fuel. "The good news is we are getting gas," Habeck said at a conference organized by Sueddeutsche Zeitung in Munich. "The bad news is we are paying top prices for it."*

Natural Gas – Germany warns "many consumers will be shocked" by gas prices

Germany consumers about to be shocked

Yesterday, we saw a great example of how politicians and their government agencies like to warn, but not clearly state bad news is coming. We can't help believe that was the purpose of the interview with Germany's Federal Network Agency head, Klaus Mueller. The FNA is the German authority responsible for gas, electricity, telecommunications, post and railways. (i) Massive natural gas price adjustment expected to hit consumers. Yesterday, we tweeted [LINK] "*DEU #NatGas crisis about to get ugly? Seems inevitable DEU activates its #NatGas price adjustment clause & #NordStream maintenance the timing? If so, @Klaus_Mueller "many consumers will be shocked" by #NatGas price. Much more in @jgaugele report #LNG #OOTT [LINK]".* Mueller was asked *"When will you allow energy suppliers to pass on the increased prices to consumers? You can already activate the so-called price adjustment clause."* And he replied "*Today is not the time. The prerequisite would be that we formally determine a significant reduction in the total gas import volumes. The maintenance of Nord Stream 1 will play an important role in this question."* That sounds like the price adjustment clause is about to be kicked in. Mueller than warned "*So the price of gas on the exchange has increased about sixfold since last summer. These price increases only reach consumers with a time lag. And they won't arrive one-to-one either. But we already have consumer prices doubling today. By the, what Putin is giving us with Nord Stream 1 can be tripled. And we can only guess what will happen next. Many consumers will be shocked when they receive mail from their energy supplier*." (ii) Worries about Nord Stream maintenance. Mueller was asked about the Nord Stream maintenance and replied "*This is exactly what worries us at the Federal Network Agency and is causing thousands of industrial companies to become very nervous. We wonder if this tech maintenance will turn into a longer-running political maintenance*." (iii) Note he reaffirms that up until the post Ukraine crisis, Russia was, as they have claimed, a reliable natural gas supplier. Mueller said "*The situation is tense, if not very tense. For decades, no matter how bad relations were, Russia has stuck to existing treaties. That has been different for a few days. Russia has cut supply through the most important gas vein – Nord Stream 1 – to Germany and Europe by 60 percent. The technical reasons given for this do not convince us*." Our Supplemental Documents package includes the Mueller interview.

Natural Gas – Spain natural gas consumption being hit by high prices

Spain natural gas consumption

The big panic on will there be enough natural gas this winter in Europe really didn't take off until June. But there really have been daily reports of how high Europe natural gas prices are hammering consumers for the past few months post the Russia invasion. On Friday, we saw data from Spain reinforcing declining natural gas consumption. We tweeted [LINK] "*No surprise high #NatGas #LNG prices hurt Spain consumption more than high #Oil prices. May 2022 consumption, #Diesel/#Gasoline +2.2% MoM & +6.4% YoY, whereas #NatGas -2.7%*

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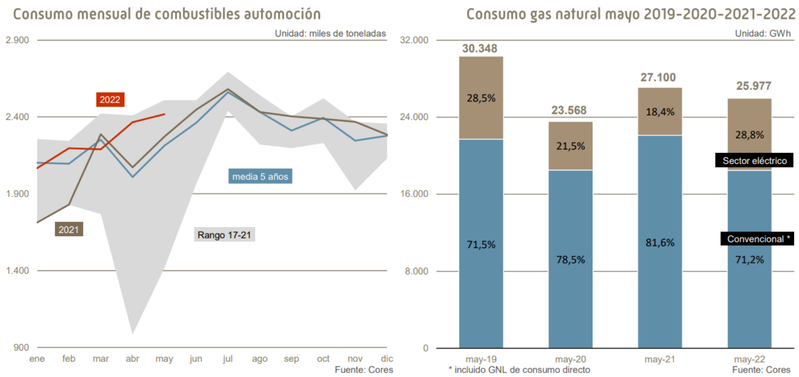
MoM & -4.1% YoY. Just moving into normal peak summer #NatGas consumption. #OOTT".
It was interesting to review the CORES data for May [LINK]. On one hand it was positive to keep showing MoM and YoY increase in gasoline/diesel consumption in Spain, it was negative to show the lower MoM and YoY natural gas consumption. And this is before the big panic for winter natural gas that jumped post the Freeport LNG outage and Nord Stream reducing its flows. CORES is Corporación de Reservas Estratégicas de Productos Petrolíferos and "*is responsible together with the Ministry for the Ecological Transitionand the Demographic Challenge for several energy statistics contained in the National Statistical Plan*". Our Supplemental Documents package includes the CORES May data.

Figure 9: Spain May 2022 consumption of gasoline/diesel and natural gas



Source: CORES

Natural Gas – Europe storage is now +10.63% YoY ie. 57.91% full vs 47.28%

Europe storage now 57.91% 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 has changed to a YoY storage surplus. Europe gas storage started down 18.52% YoY and is now a YoY surplus of 10.63%. 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 June 29 is at 57.91%, which is +10.63% greater than last year levels of 47.28% and are -1.86% below the 5-year average of 59.77%. 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.

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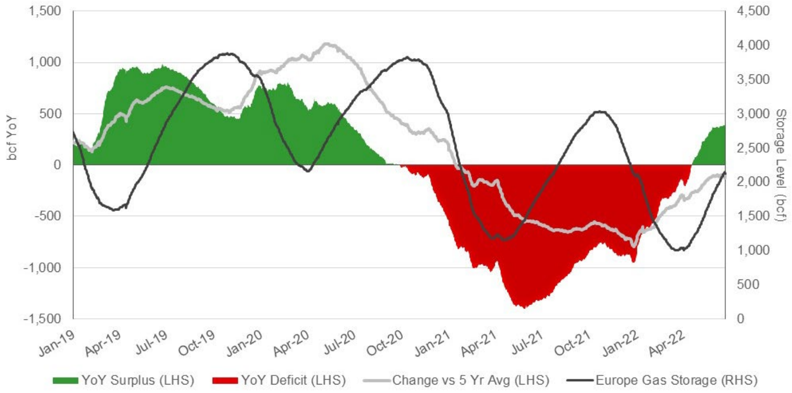
Figure 10: Europe Gas Storage Level



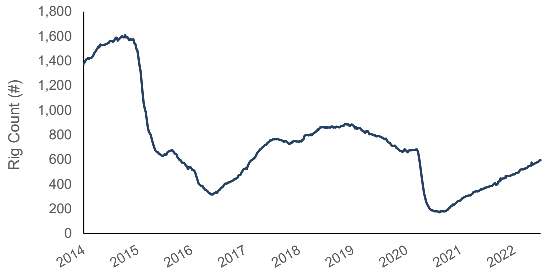
Source: Bloomberg

Oil – US oil rigs +1 WoW to 595 oil rigs at July 1

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 fresh (and many modestly increasing) 2022 capex budgets and the reality is that industry needs to crank up drilling to increase the depleted inventory of DUCs. This week US oil rigs were +1 WoW at 595 oil rigs. Oil rigs are +423 off the bottom of 172 in Aug 14/2020 week. Permian was flat at 348 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 -88 to 595 oil rigs (-13%). US gas rigs were -4 to 153 rigs.

US oil rigs +1 WoW

Figure 11: Baker Hughes Total US Oil Rigs



Source: Baker Hughes

Oil – US frac spreads -4 to 285 for the week ending July 1

Mark Rossano (C6 Capital Holdings) held his weekly US frac spread recap for the week ending July 1 on the Primary Vision network. YouTube video is at [LINK]. For the week ending July 1, US frac spreads at the high point in the week were -4 to 285. Typically have a drop with the 4th of July holiday coming ie. use the holidays as time to move spreads to a different location. Drop was really driven by the Appalachia, little bit of drop in western Gulf, Williston. Nothing unusual in the drops, rather just the typical 1 or 2 that have fallen. Rossano noted there was an increase in Anadarko, which was expected as continue to see a lot of

Frac spreads +5 to 289

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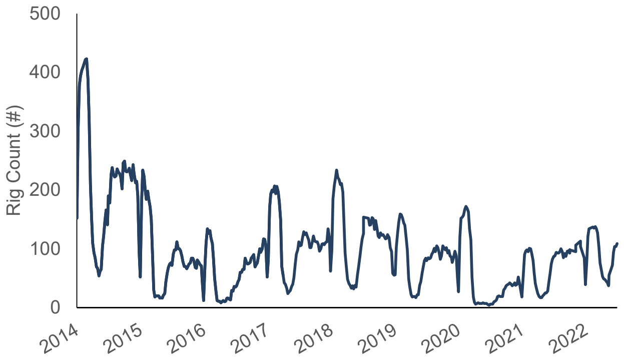
growth in the Midwest as well as western Gulf. He also highlighted "*you typically get an increase in completion spreads just because you need more activity to maintain your current production profile*". He still sees getting to some 300 spreads as we get to the end of July.

Oil – Total Cdn rigs +12 WoW at 166 total rigs, +32 rigs YoY

Total Cdn rigs were +12 total rigs this week at 166. Cdn oil rigs were +5 at 109 rigs. Cdn gas rigs were +7 at 57 gas rigs. Canada is in the post spring break up period, which means there will be strong increases in rig counts through the summer. Total rigs are now +153 since the June 26, 2020 all-time low. Cdn drilling has recovered YoY, a year ago Cdn oil rigs were 87 and Cdn gas rigs were 47 for a total Cdn rigs of 134, meaning Cdn oil rigs are +22 YoY and total rigs are +32 vs 2021.

Cdn rigs +12 WoW

Figure 12: Baker Hughes Total Canadian Oil Rigs



Source: Baker Hughes

Oil – US weekly oil production +0.1 mmb/d to 12.1 mmb/d

US oil production was +0.1 mmb/d to 12.1 mmb/d for the week ended June 24 after staying flat last week. Lower 48 production drove total production and was up +0.1 mmb/d from last weeks level at 11.7 mmb/d this week, with Alaska having immaterial change. US oil production is up YoY at +1.0 mmb/d, and is still down significantly at -1.0 mmb/d since the 2020 peak of 13.1 mmb/d on March 13. With WTI >$100 and HH over $8, we expect producers to maximize near term production adds, albeit under the continued capital discipline capex plans. Plus there has been a big drawdown in DUCs, which should be supporting some near term growth in production.

US oil production +0.1 mmb/d WoW

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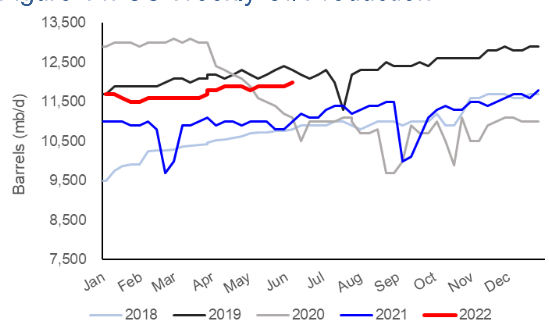
Figure 13: EIA's Estimated Weekly US Oil Production

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
2020-Apr	04/03	12,400	04/10	12,300	04/17	12,200	04/24	12,100		
2020-May	05/01	11,900	05/08	11,600	05/15	11,500	05/22	11,400	05/29	11,200
2020-Jun	06/05	11,100	06/12	10,500	06/19	11,000	06/26	11,000		
2020-Jul	07/03	11,000	07/10	11,000	07/17	11,100	07/24	11,100	07/31	11,000
2020-Aug	08/07	10,700	08/14	10,700	08/21	10,800	08/28	9,700		
2020-Sep	09/04	10,000	09/11	10,900	09/18	10,700	09/25	10,700		
2020-Oct	10/02	11,000	10/09	10,500	10/16	9,900	10/23	11,100	10/30	10,500
2020-Nov	11/06	10,500	11/13	10,900	11/20	11,000	11/27	11,100		
2020-Dec	12/04	11,100	12/11	11,000	12/18	11,000	12/25	11,000		
2021-Jan	01/01	11,000	01/08	11,000	01/15	11,000	01/22	10,900	01/29	10,900
2021-Feb	02/05	11,000	02/12	10,800	02/19	9,700	02/26	10,000		
2021-Mar	03/05	10,900	03/12	10,900	03/19	11,000	03/26	11,100		
2021-Apr	04/02	10,900	04/09	11,000	04/16	11,000	04/23	10,900	04/30	10,900
2021-May	05/07	11,000	05/14	11,000	05/21	11,000	05/28	10,800		
2021-Jun	06/04	11,000	06/11	11,200	06/18	11,100	06/25	11,100		
2021-Jul	07/02	11,300	07/09	11,400	07/16	11,400	07/23	11,200	07/30	11,200
2021-Aug	08/06	11,300	08/13	11,400	08/20	11,400	08/27	11,500		
2021-Sep	09/03	10,000	09/10	10,100	09/17	10,600	09/24	11,100		
2021-Oct	10/01	11,300	10/08	11,400	10/15	11,300	10/22	11,300	10/29	11,500
2021-Nov	11/05	11,500	11/12	11,400	11/19	11,500	11/26	11,600		
2021-Dec	12/03	11,700	12/10	11,700	12/17	11,600	12/24	11,800	12/31	11,800
2022-Jan	01/07	11,700	01/14	11,700	01/21	11,600	01/28	11,500		
2022-Feb	02/04	11,600	02/11	11,600	02/18	11,600	02/25	11,600		
2022-Mar	03/04	11,600	03/11	11,600	03/18	11,600	03/25	11,700		
2022-Apr	04/01	11,800	04/08	11,800	04/15	11,900	04/22	11,900	04/29	11,900
2022-May	05/06	11,800	05/13	11,900	05/20	11,900	05/27	11,900		
2022-Jun	06/03	11,900	06/10	12,000	06/17	12,000	06/24	12,100		

Source: EIA

Figure 14: US Weekly Oil Production



Source: EIA, SAF

US is at record oil production under the Biden Admin, but not record levels
The above item notes on how US oil production is still well below all time high US oil production. Regardless, it is going up with $100+ oil and a big draining of DUCs, but it is going up. And markets should expect to hear the continued messaging from the Biden Administration on how US oil production is at record levels "under the Biden Administration. Last Friday, on CNBC Squawk Box, Brian Sullivan highlighted how things aren't what they are inferred to be. He noted the Dept of Energy release on the Energy Secretary Granholm meeting with the oil company executives on Thursday and their standard defense suggesting US oil production has never been better/higher than under Biden. He noted their careful wording. The DOE noted *"The Secretary made clear that the Administration believes it is imperative that companies bring supply online to get more gas to the pump at lower prices. She reiterated that the President is prepared to act quickly and decisively, using the tools available to him as appropriate, on sensible recommendations. At a time when the U.S. is achieving record oil production under the Biden administration.."* Sullivan said he

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confirmed with the EIA their published actual data for US oil production. He noted they may be inferring US oil production has never been higher, but what they are saying is that it has never been higher in the time frame since Biden took over ie. it's the highest ever during his Presidency and not during all time. When we saw the CNBC clip, we tweeted [LINK] "*Crafty drafting, or @SullyCNBC just called it political #Wordle. "At a time when the U.S. is achieving record oil production UNDER the Biden Administration" from @ENERGY readout of @SecGranholm oil co meet. It's true, but record #Oil production was Nov 2019. @SquawkCNBC #OOTT.*"

Oil – EIA Form 914 April actuals held up by the return from "systems issues"

EIA Form 914 delayed

Our first Energy Tidbits of each month normally includes the EIA's Form 914 data, which would, in this case, be the actuals for oil and natural gas production for the month of April. However, this data is being delayed as the EIA still recovers from its "systems issues".

Oil – Did Exxon CEO suggest US shale oil potential is less than everyone assumes

Exxon CEO on shale potential

The headlines on Exxon CEO Darren Woods comments on Monday were all on his bullish oil outlook views and his saying "*They always say that the cure to high prices is high prices. And that's exactly what I think we'll see. So it's a question of how high prices eventually rise.*" But there was a Woods comment that was potentially huge to the future oil call. Exxon is one of the leading US shale oil players and US shale is considered is universally accepted as the major potential oil growth region for the world. And Woods seemed to raise doubt about the potential growth for US shale. On Monday, we tweeted [LINK] "*Buckle Up. What if US #Oil production growth is less than assumed by most? #Exxon CEO Woods "And so you've got a dynamic happening where more emphasis is being put on unconventional & that's not as productive as it has been in the past". Thx @gmfus @thomas_m_wilson #OOTT.*" Woods saying the unconventional plays areas productive as in the past make sense. The reality is that, to the most part, the best acreage has been the focus of drilling so it stands to reason that the average well has to be in a lesser reservoir quality. No question technology has got better, but the rock quality has to be less on average. Which, if true, brings the big picture question on how much can the US shale grow? For oil, and for natural gas. And, as opposed to an analyst, shouldn't Exxon, being a US shale leader, know more than others? It's why we thought Woods US shale comments were potentially huge to the oil call. We made a transcript of Woods comment "*A lot of emphasis has been placed on the unconventional in the US, which has a much shorter time horizon an cycle. So if you look at the investment in upstream. And in oil, there has been a skewing into the unconventional sector of the business. And that's got its own challenge today with the resource limits that they're having. And with what I'd say is greater emphasis on returning more cash to investors. And so you've got a dynamic happening where more emphasis is being put on unconventional and that's not as productive as it has been in the past. And so I think that's the challenge that you see. And getting out of that will require greater development across the spectrum, not only in unconventionals but some of these longer lead*".

Oil – Refinery inputs +0.403 mmb/d WoW at 16.666 mmb/d

Refinery inputs up 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 June 24. This is the season that normally sees increasing processing volumes in Q2 every year, and the EIA reported crude oil inputs to refineries up 0.403 mmb/d to

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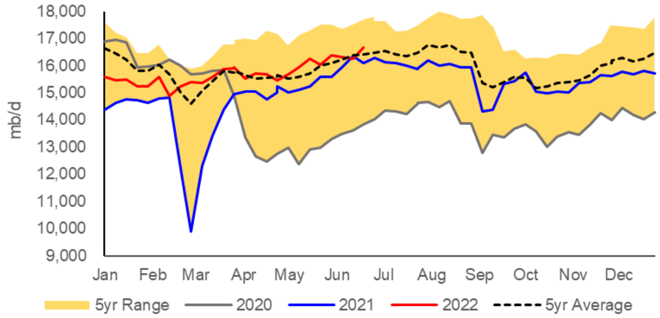
16.666 mmb/d for the week ended June 24 and are +0.366 mmb/d YoY. Refinery utilization was up to 95.0%, which is +2.1% YoY; refineries have exited the maintenance season with ramped up summer demand. Note that hurricane season in the US is here, with the official start of the season on June 1. Total products supplied (i.e., demand) increased WoW, up 0.093 mmb/d to 19.997 mmb/d, and Motor gasoline was up 0.417 mmb/d at 8.922 mmb/d from 8.505 mmb/d last week. The 4-week average for Motor Gasoline was down -0.183 mmb/d YoY to 8.930 mmb/d. The 4-week average of Total demand was down -0.027 mmb/d YoY to 19.957 mmb/d.

Figure 15: US Refinery Crude Oil Inputs (thousands b/d)



Source: EIA

Oil – U.S. refinery capacity decreased during 2021 for second consecutive year

On Wednesday, the EIA reported [LINK] crude oil distillation capacity, the primary measure of refinery capacity in the United States, totaled 17.9 million barrels as of January 1, 2022, down 1% from the beginning of 2021. This was the second consecutive year of decreasing refinery capacity. Despite this, the number of operable refineries in the United States increased from 129 refineries to 130 refineries. Two new facilities came online in 2021, but a much larger refinery shut down. The new facilities are the 45,000 bcf/d Texas International Terminals facility in Texas, and the 1,700 bcf/d Talley Asphalt Products facility in California. The 255,600 bcf/d Phillips 66 refinery in Louisiana, stopped refining operations following substantial flooding related to Hurricane Ida in late 2021. This report does not incorporate a few reductions in U.S. refining capacity announced later in 2022. In April 2022, LyondellBasell announced that its 263,800 b/cd refinery in Houston will close by the end of 2023. In May 2022, Phillips 66 announced plans to stop refining petroleum at its 120,200 b/cd Rodeo refinery in California while the facility transitions to refining biofuels. Our Supplemental Documents package includes the EIA blog as well as excerpts from the EIA refinery capacity report that provided the source data for the blog..

U.S. refinery decreased during 2021

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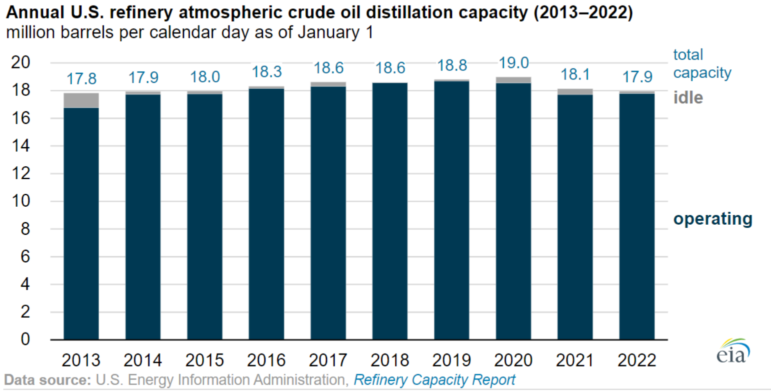
Figure 16: US Refinery Capacity



Source: EIA

Oil – Exxon Q2 profits should be double Q1/ profits

We have a 7am MT news cut off so we haven't seen the Sunday cable news , but we have to believe any in the Biden Administration will inevitably mention the Exxon 8K filed on Thursday night. [LINK] Because as much as Biden slammed Exxon for its Q1 profits, Q2 profits should be twice as high. Exxon noted its Q1/22 earnings was $8.8b, and provided a range of the Q2 impact for market and other factors impacting Q2/22 results. The range was $6.7 to $10.1b, which would lead to a range of $15.5b to $18.9b. Our Supplemental Documents package includes the Exxon 8K.

Exxon Q2 profits approx. 2 times Q1

No one should be surprised by the refining boost

The Exxon 8K indicates that the book to industry refining margins should add $4.4 to $4.6 billion in Q2 vs Q1. No one should be surprised as crack spreads are up over 75% QoQ. Our Energy Tidbits memos have been including the 321 crack spread graph and explaining the 321 crack spread. This is the spread or margin that refiners make from buying crude at a certain price and then selling the finished petroleum products at their respective prices. The 321 crack spread is meant to represent what a typical US refinery produces. It assumes that for every three barrels of crude oil, the refinery will produce two barrels of gasoline and one barrel of distillates. So the crack spread is based on that formula and worked back to a crack spread per barrel. Below is the current 321 crack spread, which was $49.69 as of the Friday close.

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Figure 17: Nymex WTI Cushing Crude Oil 321 Crack Spread

Source: Bloomberg

Biden on Exxon's Q1 profits "Exxon made more than God this year"
Biden was already highlighting Exxon based on their Q1 profits, so Q2 profits at twice that level have to put them even more on his target list. Recall the White House transcript of his June 10 comments [LINK] "*Q Are you going to go after Exxon's profits, sir? Exxon's profits — are you going to — are you going to go after them? THE PRESIDENT: We're going to make sure that everybody knows Exxon's profits. Why don't you tell them what Exxon's profits were this year — this quarter? Exxon made more money than God this year. And, by the way, nothing has changed. And they're not — by the way, one thing I want to say about the oil companies: They talk about how we have — they have 9,000 permits to drill. They're not drilling. Why aren't they drilling? Because they make more money not producing more oil. The price goes up, number one. And, number two, the reason they're not drilling is they're buying back their own stock — which should be taxed, quite frankly — buying back their own stock and making no new investments. So I — I always thought Republicans are for investment. Exxon, start investing, start paying your taxes."*

Oil – Biden finally realizes gas stations are mostly not owned/run by big oil companies

Biden goes after gas station owners

Up until yesterday, Biden and his Administration have been going after the big oil companies like Exxon to bring down the price at the pump. It looks like yesterday, someone in the Administration finally explained that the vast majority of gas stations are now owned/run by the big oil companies/refiners supplying the gasoline, but owned/run by independent operators. Yesterday, Biden tweeted [LINK] *"My message to the companies running gas stations and setting prices at the pump is simple: this is a time of war and global peril. Bring down the price you are charging at the pump to reflect the cost you're paying for the product. And do it now."*

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 down -0.036 mmb/d to 2.618 mmb/d for the June 24 week. US imports were down -0.228 mmb/d to 6.998 mmb/d. US exports were down -0.192 mmb/d to 3.380 mmb/d. The WoW increase in US oil imports was driven by US's Top 10 imports by country which were down by -0.137 mmb/d from Top 10. Some items to note on the by country data. (i) Canada was down this week by -0.457 mmb/d to 2.887 mmb/d. (ii) Saudi

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Arabia was down -0.059 mmb/d to 0.701 mmb/d this week. (iii) Colombia was down 0.13 mmb/d to 0.215 mmb/d. (iv) Ecuador was down -0.065 mmb/d at 0.059 mmb/d. (v) Iraq was down 0.0.24 mmb/d to 0.076 mmb/d. (vi) Mexico was up 0.369 mmb/d to 0.743 mmb/d.

Figure 18: US Weekly Preliminary Oil Imports by Major Countries

(thousand b/d)	Apr 15/22	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	WoW
Canada	3,465	3,510	3,492	3,284	3588	3498	3444	3603	3394	3344	2887	-457
Saudi Arabia	255	438	554	306	420	588	345	349	681	760	701	-59
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	488	391	553	693	832	872	747	711	608	374	743	369
Colombia	332	364	313	276	365	218	215	143	292	228	215	-13
Iraq	266	242	181	326	242	282	326	196	555	100	76	-24
Ecuador	211	108	66	351	43	250	48	259	227	124	59	-65
Nigeria	191	0	43	136	127	39	193	194	181	43	201	158
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	5,208	5,053	5,202	5,372	5,617	5,747	5,318	5,455	5,938	4,973	4,882	-91
Others	629	881	1,130	897	951	739	900	699	1,047	1,253	1,116	-137
Total US	5,837	5,934	6,332	6,269	6,568	6,486	6,218	6,154	6,985	6,226	5,998	-228

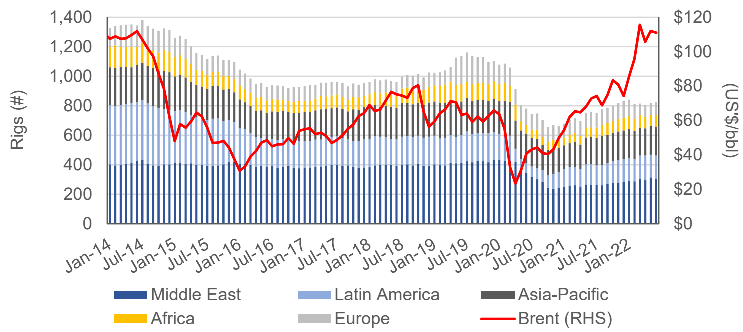
Source: EIA, SAF

Oil – Baker Hughes International rigs +7 MoM to 824 rigs in June

International rigs +7 MoM

Baker Hughes posted its monthly update to international rigs on Friday. There was another increase in international rig counts after an increase over May. June is up 9% YoY from 758, but still down 22% vs March 2020 at 1,058. Total international rigs increased by 7 MoM to 824 in June. The YoY rig count is as followed: Asia-Pacific +3, Africa +2, Europe +8, Latin America +5, and the Middle East -11. Libya's rig activity has been hit by internal conflict and uncertainty, with rigs down from 15 in March, to 7 in April, and to 2 in May and June. Russia has been hit in the major project area, Sakhalin, with rigs dropping to zero in May and June after maintaining a steady 5 rigs for 17 months. Ukraine continues to have almost no activity with rigs down from 39 in Jan, to 31 in Feb, to 8 in March, and to 5 in both May and June. Saudi Arabia decreased by 14 rigs MoM while Iraq and Egypt were up +7 and -2 rigs YoY respectively. Indonesia was -1 MoM and up +3 YoY from June 2021. Below is our graph of international rigs by region and avg monthly Brent price.

Figure 19: Baker Hughes International Rig Count and Brent Price



Source: Baker Hughes, Bloomberg

Oil – Pemex 340,000 b/d Dos Bocas inaugurated but not operational until at least 2023

Pemex Dos Bocas 340,000 b/d refinery

On Friday, AMLO inaugurated the new Pemex Dos Bocas 340,000 b/d refinery. It wasn't the typical inauguration as an inauguration is normally a ceremony to mark the beginning of

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something. Whereas, Dos Bocas is not expected to be operational until sometime in 2023 at the earliest. On Wednesday, we tweeted [LINK] *"#AMLO to inaugurate #Pemex 340,000 bd refinery on Fri despite it not being operational until at least 2023. It's why he announced 👇"plan emergente" in Apr saying #Oil exports not going down in 2022. Thx @AnaIsa_Martinez. #OOTT [LINK].* On Tuesday, Reuters reported "*Mexico's president will inaugurate on Friday a new oil refinery at the heart of his plan to make the country energy self-sufficient even though it is unfinished and two people familiar with the matter said it will only be running near capacity in 2025."* And "*Two of the sources said the energy ministry does not expect the refinery in the president's home state of Tabasco to reach 80% capacity until late 2025 or even 2026. Neither Pemex nor the ministry replied to requests for comment. A third source familiar with planning said the refinery would not be completely ready before spring 2024, underlining the risk that it could be producing well short of capacity by the time Lopez Obrador leaves office on Sept. 30, 2024."* (iii) The reporting on the inauguration, such as El Economista noted there was no specifics from AMLO or energy minister Nahle on any forecast for the ramp up of refinery volumes. Our Supplemental Documents package includes the Reuters and El Economista reports.

Dos Bocas has had massive cost overruns

The Reuters report noted "*In 2019, President Andres Manuel Lopez Obrador and Energy Minister Rocio Nahle said the refinery in the southern port of Dos Bocas would be ready in 2022 for $8 billion, in defiance of oil industry predictions that that goal was not feasible. Lopez Obrador, a left-leaning energy nationalist, last week conceded the refinery would cost more, putting the price tag at some $12 billion."* Last week's (June 26, 2022) Energy Tidbits highlighted Bloomberg's July 22 report "*A week before the grand opening of Mexican President Andres Manuel Lopez Obrador's flagship oil refinery project, costs have spiraled out of control to reach as much as $18 billion -- more than double its original price tag. The value of contracts for construction work through to 2024 signed by Mexico's energy ministry rose to more than $14 billion in May, and the final amount is likely to be between $16 billion and $18 billion, according to people with knowledge of the matter, who asked not to be identified because they aren't authorized to speak publicly about the Petroleos Mexicanos project."*

AMLO's "plan emergente" means Mexico oil exports not going down in 2022

Our tweet noted AMLO's "plan emergente" announced on March 31. Here is what we wrote in our April 3, 2022 Energy Tidbits. "*There is a big change in Mexico's 2022 oil plans that will impact Cdn heavy/medium crude oil. One of the big 2022 oil themes for Cdn medium/heavy oil was supposed to be the ramp up in Pemex refinery capacity and Mexico's move to drastically cut oil exports in 2022 and then eliminate oil exports in 2023. This would have been a win for Cdn medium/heavy oil as it would create more demand in PADD 3 Gulf Coast refineries This would be a big win for Cdn medium/heavy oil as it would create more demand in PADD 3 Gulf Coast refineries We have been highlighting how Pemex was behind on its refinery construction at the new Dos Bocas refinery and that they weren't seeing the big ramp up in existing oil refineries so there were behind and not likely to hit their reduced oil export targets. However, there has been no indication that Mexico would not be*

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trying to dramatically reduce exports in 2022. But AMLO indicated a big shift in strategy on Thursday. Cutting out oil exports was one of AMLO's key election themes and he has been insistent that this was going to happen. That is, until Thursday, when he announced his "plan emergente" that would see Mexico oil exports would be relatively flat YoY in 2022, and not down huge as has been the plan. Bloomberg reported ""We launched a new plan because the price of crude oil is high and we are in the process of modernizing the refineries, so we are taking advantage now that the price is high to dedicate more resources and time to the rehabilitation of the plants," President Andres Manuel Lopez Obrador said during his daily press conference on Thursday. Mexico will reduce its crude processing to 850,000 barrels a day from a goal of about one million barrels a day, he said. The country processed 846,329 barrels a day of crude in February, and it averaged 711,612 barrels a day last year, according to data from Pemex." For the moment, if you believe the rationale here, he is saying that it is better economically for them to export more crude/import more fuels versus exporting less crude/importing less fuels. At $100+ oil, it could make sense that the margin for the production is likely better than the margin to produce fuels given Pemex refineries have consistently produced at much lower than expected rates. So if refineries have poor margins, there could well be a net margin pickup. However, the real question is that is this the strategy or the result of slower than expected construction at the new Dos Bocas refinery that was supposed to be ready on July 1 and also not making progress on improving efficiency at existing refineries. We suspect its more a question that they are behind on their refineries. Regardless, continued oil exports means that Mexico should continue to get more oil to PADD 3 Gulf Coast."

In Jan, Pemex CEO said Mexico oil exports down big in 2022, to zero in 2023

Here is what we wrote in our Jan 2, 2022 Energy Tidbits. "*For the last year, one of the mostly ignored oil stories has been that Pemex (Mexico) expects to have its domestic refineries process all Mexican oil production such that that will no longer be oil exports and also imports of petroleum products ie. they will be self sufficient on petroleum products. On Tuesday, we tweeted [LINK] "Pemex/MEX will stop exporting crude in 2023 after reducing exports to 435k b/d in 2022 says @Pemex CEO. vs ~1 mmb/d in 2021. PADD 3 Gulf Coast gets >50% of MEX #Oil exports. Cdn heavy/med wins when MEX oil exports go down. Thx @amystillman #OOTT." Pemex CEO Oropeza spoke at the National Palace before Mexican President Obrador. Pemex posted [LINK] "He specified that it is proposed to maintain the value of proven reserves, the requirement of the National Refining System will be covered to serve the domestic market, so oil exports will stop starting in 2023." Bloomberg reported on the presentation adding more details "Pemex will stop exporting crude in 2023 after reducing exports to 435k b/d in 2022, Pemex Chief Executive Officer Octavio Romero Oropeza said during a press conference in Mexico City on Tuesday. * Crude processing to reach 1.509m b/d in 2022 and 2m b/d in 2023 with the addition of the Deer Park, Texas refinery and the Dos Bocas refinery in Tabasco. * NOTE: Mexico's six refineries have capacity to process 1.627m b/d: Pemex."*

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Pemex inauguration made us think of 1977 Capricorn One movie

Its worth reading the El Economista report of the unusual inauguration [LINK]. The big inauguration didn't sound like any other because the inauguration happened before the refinery was completed. El Economista wrote *"In a tour that was not accessed by the press -neither of the locality, nor national and foreign- but simply the video transmission equipment of the Federal Executive"*, "*With more than two hours of delay and in an event attended by fifty media outlets who were kept in a cordoned off site*" and "*Only the director of Pemex, Octavio Romero Oropeza , the president and the head of Energy, Rocío Nahle, toured the facilities of the 576-hectare property and the rest of the attendees waited in front of a blanket where there was not even the possibility of capturing images of infrastructure behind López Obrador, since there are still cranes next to the processing plants."* There isn't any doubt there is a refinery under construction, it's just way behind schedule. But after reading the El Economista report, we couldn't help tweeting [LINK] "*Recognize #Pemex Dos Bocas 340,000 b/d refinery is real & just very delayed, but couldn't help think about classic 👇1977 movie Capricorn One reading @Karol_Garcia_Z reporting of inauguration of refinery that won't be producing #Oil for year(s)? #OOTT [LINK].*" Our tweet included the poster for the 1977 Capricorn One movie, which really gave away the premise of the movie as the poster said "*would you be shocked to find out that the greatest moment of our recent history may not have happened at all?".* The movie was about a faked landing on Mars.

Figure 20: Capricorn One 1977 Movie poster

Source: Unremembered History

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Oil – Ecuador cuts deal with protestors, should be able to lift oil export force majeure

As of 7am MT news cut off, the latest on the Ecuador oil export force majeure are the late Friday night reports that the government has cut a deal with protestors that should allow a resumption in oil exports. (i) Bloomberg reported "*Petroecuador probably will lift its oil-export force majeure on July 4 if output recovers to 90% of normal output within a week, CEO Italo Cedeno said during an online press conference. * Three lost export windows the first week of July will be rescheduled and the state-owned company will work to supply US refiner Marathon Petroleum to retain it as a customer * With protesters illegally occupying facilities, output dipped as low as 185k b/d, compared with 400k before protests erupted June 13 * Damage from vandalism estimated at $513m and 2m lost bbl of output.*" (ii) Separately, Bloomberg reported the reason why Petroecuador expects to lift the force majeure – the government reached a deal with the protestors. Bloomberg reported "*Ecuador's oil industry may be in a position to resume operations soon now that the government has struck a deal with CONAIE, one of the leading organisations representing the country's indigenous communities, on bringing an end to nationwide protests over fuel prices and other issues. The government announced the agreement on June 30, saying it was ready to cut gasoline and diesel prices by the equivalent of $0.05 per gallon each on top of a previous pledge to reduce rates by $0.10 per gallon each. The price cuts are expected to cost the government about $340mn per year, according to Ecuador's Finance Ministry.*"

Ecuador force majeure expected to be lifted

Oil – Norway's big Mongstad refinery has reduced refined products due to fire

We have to believe Norway will be reducing its exports of petrol/gasoline and diesel. We just don't know by how much and for how long. We suspect the Equinor Mongstad refinery fire in Norway may be overlooked as the fire was quickly put out and Equinor said "*the main plant is still in operation*". But the release then said "*but parts of the plant involved in production of some refined products are affected*." We went to Equinor's corporate *description of Mongstad. It has capacity to process 240,000 b/d of crude oil. And Equinor says "The refinery is the only one in Norway, and medium-sized in a European perspective. Most of the refinery's production consists of petrol, diesel and aviation fuel. Enough petrol is produced at Mongstad to cover around four times Norway's annual consumption. Approximately 80% of the total production is exported. Petroleum coke, which is used to make anodes for the aluminium industry, is also produced here*." This is a big producer of petrol/gasoline and 80% is exported, which we assume is mostly to Europe. We don't know how the fire will impact the production levels of petrol/gasoline and diesel and for how long. Our Supplemental Documents package include the Equinor fire out release and its Mongstad website description.

Norway Mongstad refinery fire

Oil –Vitol reminds Russia may say how about no oil if imposed price is too low

The US is trying to get the G7 and others to a way to cap the price of oil Russia gets from exporting its oil. It didn't get their price cap on Russia oil approved by the G7, but did get the G7 leaders to agree wo explore the feasibility of introducing temporary price caps on Russian hydrocarbon imports. Earlier this morning Vitol's Asia Head Mike Muller didn't speak specifically on the G7 communique but warned of what could happen with strategies such as tariffs ie. similar to the US concept. Muller warned that if Russia doesn't like the price they get for oil, they may just cut off oil. And that is the oil price spike risk and also for natural gas. Earlier this morning, we tweeted [LINK] "*1/2. "the world is facing a political desire to implement measures to restrict supply of Russian oil, but the total supply of Russian oil is too*

Vitol warns Russia may just hold back oil

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large for the world to do without. And the same goes for gas" @Vitol Asia head @michaelwmuller. Thx @gulf_intel. #OOTT" and [LINK] "*2/2 #Oil price spike risk re imposition of tariffs "there comes a point, of course, where Russia will probably say well at that [#Oil] price, how about having none. Which is the sort of messaging you have seen on #NatGas" @Vitol Asia head @michaelwmuller. Thx @gulf_intel. #OOTT".* Our Supplemental Documents package includes the transcript we made of Muller's comments.

Oil – OPEC+ reconfirms July production +648,000 b/d

OPEC+ sticks to plan

OPEC+ had it's 30th ministerial meeting on Thursday [LINK] which was another quick meeting with no surprises and reaffirmed the August production increase to +648,000 b/d. Recall that last month, OPEC+ decided to take the previously planned July/Aug/Sept increases and do them all of July and August. (i) OPEC stated, "*Reaffirm the decision of the 10th OPEC and non-OPEC Ministerial Meeting on 12th April 2020 and further endorsed in subsequent meetings including the 19th OPEC and non-OPEC Ministerial Meeting on the 18th July 2021.*" (ii) In addition, OPEC+ reiterated, "*Reconfirm the production adjustment plan and the monthly production adjustment mechanism approved at the 19th and 29th OPEC and non-OPEC Ministerial Meetings and the decision to adjust upward the monthly overall production for the month of August 2022 by 0.648 mb/d*". (iii) They also stated "*Reiterate the critical importance of adhering to full conformity and to the compensation mechanism. Compensation plans should be submitted in accordance with the statement of the 15th OPEC and non-OPEC Ministerial Meeting*". Our Supplemental Documents package includes the OPEC+ release.

Figure 21: OPEC+ Cut Schedule

OPEC (mmb/d)	Reference Level Production	Nov 2021	Dec 2021	Jan 2022	Feb 2022	Mar 2022	Apr 2022	May 2022	Jun 2022	Jul 2022	Aug 2022	Jun/22 per July/21 Agreement -	Change in Ref. Level Post May/22	EIA STEO 2022E Production Avg
Algeria	1,057	952	962	972	982	992	1,002	1,013	1,023	1,039	1,055	1,057	-	n.a.
Angola	1,528	1,377	1,392	1,406	1,421	1,435	1,450	1,465	1,480	1,502	1,525	1,528	-	n.a.
Congo	325	293	296	300	303	306	309	312	315	320	325	325	-	n.a.
Equatorial G.	127	115	116	117	118	120	121	122	123	125	127	127	-	n.a.
Gabon	187	168	170	172	173	175	177	179	181	183	186	187	-	n.a.
Iran	n.a.	n.a.	n.a.	n.a.	n.a.	4,370	n.a.	n.a.	n.a.	n.a.		n.a.	n.a.	n.a.
Iraq	4,653	4,193	4,237	4,281	4,325	2,639	4,414	4,461	4,509	4,580	4,651	4,803	150	n.a.
Kuwait	2,809	2,532	2,558	2,585	2,612	1,718	2,665	2,694	2,724	2,768	2,811	2,959	150	n.a.
Libya	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Nigeria	1,829	1,649	1,666	1,683	1,701	1,718	1,735	1,713	1,772	1,799	1,826	1,829	-	n.a.
Saudi Arabia*	11,000	9,913	10,018	10,122	10,227	10,331	10,436	10,549	10,663	10,833	11,004	11,500	-	n.a.
UAE	3,168	2,855	2,885	2,916	2,946	2,976	3,006	3,040	3,075	3,127	3,179	3,500	332	n.a.
Venezuela	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total OPEC	26,683	24,047	24,300	24,554	24,808	26,780	25,315	25,548	25,865	26,276	26,689	27,815	1,132	24,390
OPEC vs. ref.	**0**	**-2,636**	**-2,383**	**-2,129**	**-1,875**	**97**	**-1,368**	**-1,135**	**-818**	**-407**	**6**	**0**	**0**	**-2,293**

*Saudi Arabia quota for Feb-Apr 2021 includes voluntary 1mmb/d cut; May-July includes wind down of voluntary cut

Non-OPEC	Reference Level Production	Nov 2021	Dec 2021	January 2022	February 2022	March 2022						May/22 per July/21 Agreement -	Change in Ref. Level Post May/22	EIA STEO 2022E Production Avg
Russia	11,000	9,913	10,018	10,122	10,227	10,331	10,436	10,549	10,663	10,833	11,004	11,500	500	n.a.
Kazakhstan	1,709	1,540	1,556	1,572	1,589	1,605	1,621	1,638	1,655	1,680	1,706	1,709	-	n.a.
Oman	883	796	804	812	821	829	838	846	855	868	881	883	-	n.a.
Azerbaijan	718	647	654	661	668	675	681	688	696	706	717	718	-	n.a.
Malaysia	595	537	542	548	554	559	565	571	577	585	594	595	-	n.a.
Bahrain	205	185	187	189	191	193	195	197	199	202	205	205	-	n.a.
Sudan	75	68	69	69	70	71	71	72	73	74	75	75	-	n.a.
South Sudan	130	117	118	119	121	122	123	124	126	128	130	130	-	n.a.
Brunei	102	92	93	94	95	96	97	98	99	100	102	102	-	n.a.
Total Non-OPEC	15,417	13,895	14,041	14,186	14,336	14,481	14,627	14,783	14,943	15,176	17,165	15,917	500	n.a.
Non-OPEC vs. ref.	**0**	**-1,522**	**-1,376**	**-1,231**	**-1,081**	**-936**	**-790**	**-634**	**-474**	**-241**	**1,748**	**0**	**0**	**n.a.**
Total OPEC+	42,100	37,942	38,341	38,740	39,144	41,261	39,942	40,331	40,808	41,452	43,854	43,732	1,632	n.a.
OPEC+ vs ref.	**0**	**-4,158**	**-3,759**	**-3,360**	**-2,956**	**-839**	**-2,158**	**-1,769**	**-1,292**	**-648**	**1,754**	**0**	**0**	**n.a.**

Source: OPEC

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Figure 22: OPEC+ August 2022 Required Production

August 2022 Required Production	
Algeria	1055
Angola	1525
Congo	325
Eq.Guinea	127
Gabon	186
Iraq	4651
Kuwait	2811
Nigeria	1826
Saudi Arabia	11004
UAE	3179
Azerbaijan	717
Bahrain	205
Brunei	102
Kazakhstan	1706
Malaysia	594
Mexico	1753
Oman	881
Russia	11004
Sudan	75
South Sudan	130
OPEC 10	26689
Non-OPEC	17165
OPEC+	43854

Source: OPEC

Oil – Next OPEC and non-OPEC ministerial meeting (ONOMM) is August 3

OPEC+ meeting August 3

The short press release on the 30th OPEC and non-OPEC Ministerial Meeting (ONOMM) noted that the next ONOMM meeting will be held on Wednesday August 3, 2022. We assume it will be via videoconference again. It wasn't in the press release, but there were press reports after the meeting indicating OPEC+ was planning for their Dec meeting to be an in-person meeting in Vienna.

Oil – OPEC quota countries underdelivered by 1.195 mmb/d in June vs quota

OPEC under delivered in June

The big issue for OPEC is that OPEC continues to well underproduce relative to their quota. Bloomberg posted their survey data for OPEC June production, which was -120,000 b/d MoM in June to 28.60 mmb/d. But, Bloomberg survey data for the OPEC countries subject to quota was 24.670 mmb/d, which was 1.195 mmb/d below their quota of 25.865 mmb/d. The big underperformers in June relative to their quota were Nigeria (-572,000 b/d), Angola (-280,000 b/d), Saudi Arabia (-213,000 b/d), Iraq (-89,000 b/d), and Kuwait (-84,000 b/d). UAE was +115,000 b/d over quota. Below is our table comparing the Bloomberg survey data for June vs the June quotas.

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Figure 23: OPEC Bloomberg June Survey vs Quota

OPEC (mmb/d)	Jun 2022 Quota	Bloomberg Survey June	Survey Less Quota
Algeria	1,023	1,020	-3
Angola	1,480	1,200	-280
Congo	315	270	-45
Equatorial G.	123	90	-33
Gabon	181	190	9
Iran	n.a.	2550	n/a
Iraq	4,509	4,420	-89
Kuwait	2,724	2,640	-84
Libya	n.a.	670	n/a
Nigeria	1,772	1,200	-572
Saudi Arabia*	10,663	10,450	-213
UAE	3,075	3,190	115
Venezuela	n.a.	710	n/a
Quota Countries	25,865	24,670	-1,195
Total OPEC		28,600	

Source: OPEC, Bloomberg

Oil – Do Saudi and UAE have any significant sustainable spare capacity?

Saudi & UAE spare capacity levels?

One of the big oil supply questions is how much sustainable spare production capacity are in Saudi Arabia and UAE. (i) Macron's big secret was only 150,000 b/d in total. One of the big energy stories out of the G7 was the Macron being caught (accidentally or on purpose?) on a hot mic with some looking to be important oil news. Reuters reported on Macron's comments as he rushes up to tell Biden a secret. Reuters wrote "*French President Emmanuel Macron said on Monday the president of the United Arab Emirates, Sheikh Mohammed bin Zayed al-Nahyan (MbZ), had told him two top OPEC oil producers, Saudi Arabia and the United Arab Emirates, can barely increase oil production. "I had a call with MbZ," Macron was heard telling U.S. President Joe Biden on the sidelines of the G7 summit. "He told me two things. I'm at a maximum, maximum (production capacity). This is what he claims." "And then he said (the) Saudis can increase by 150 (thousands barrels per day). Maybe a little bit more, but they don't have huge capacities before six months' time," Macron said*." (ii) Putting aside the question of an accident or not, Macron's comments were immediately taken as a bullish sign for oil that the UAE was tapped out and Saudi only had 150,000 b/d ready to go. (iii) No surprise, the UAE moved to correct the messaging maybe not successfully in English but better in Arabic. On Monday, we tweeted [LINK] *"Note 👇very different Arabic vs English tweets from UAE Energy Minister @HESuhail. English, UAE producing near UAE maximum production capacity. Arabic, producing close to the reference production ceiling. He must have spoke to Macron in english and not thru translators. #OOTT'.* Most just looked at Suhail's English tweet that looked to support Macron's hot mic comment. His English tweet was [LINK] "*In light of recent media reports, I would like to clarify that the UAE is producing near to our maximum production capacity based on its current OPEC+ production baseline (3,168 mbopd) which UAE is committed by until the end of the agreement*." His Arabic tweet was better and said that UAE is producing to their OPEC+ quota, not their maximum production capacity. It was [LINK] "*Commenting on what has been circulated recently about the level of UAE production, we would like to clarify that the current production of the UAE is close to the reference production ceiling for the state in the OPEC + agreement, which is (3.168 million barrels per day), and our commitment to this ceiling remains until the end of the agreement*." It's a good reminder to always try to find original language postings. Our Supplemental Documents includes the Reuters Macron report and the UAE energy minister tweets.

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Shell CEO thinks OPEC spare capacity is less than people hope
On Wednesday, Shell CEO Ben van Beurden spoke ahead of the OPEC+ Thursday meeting. And he is another who believes OPEC spare capacity is less than people hope or expect. CNBC reported [LINK] "*Analysts and energy executives questioned whether OPEC+ members had as much spare capacity as some market participants hoped. "We are seeing an ever tighter oil and gas market appearing — and we are feeling that right now. I think it is probably fair to say there is a little bit of a fear factor in the oil price at the moment but by and large, it is also true that there is limited spare capacity," Shell CEO Ben van Beurden said Wednesday at a media roundtable ahead of the OPEC+ meeting. "And, of course, I cannot know how much spare capacity OPEC would have but it is not as much as what a lot of people hope or think is my estimation."*

Vitol, smart money is Saudi sustainable capacity is 11 point something
The question of Saudi and UAE spare capacity has come to the forefront of most oil watchers' minds. We remind of some great perspective on this by Vital Asia head Mike Muller on June 5. In our June 5, 2022 Energy Tidbits, 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."*

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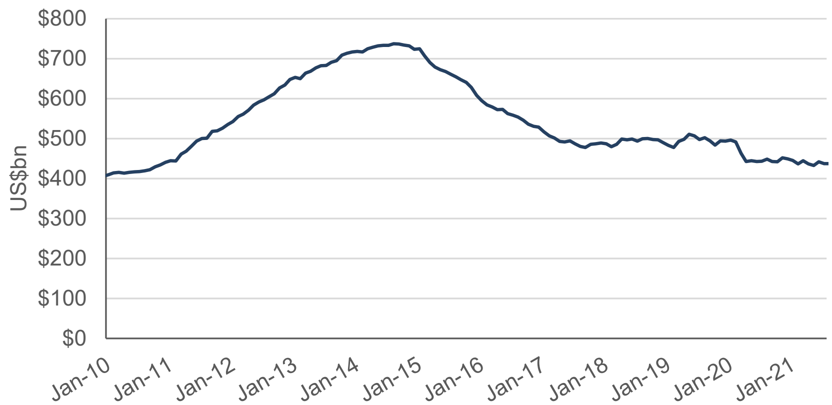
Oil – Saudi nest egg, its net foreign assets flat MoM, but down $16.6b since Nov 2020

Saudi net foreign assets down $16.6b since Nov 2020

We continue to see key financial reasons why Saudi Arabia is going to do all it can to maintain high oil prices (ie. say >$80) for the foreseeable future. And we continue to believe the #1 financial theme for Saudi Arabia in the 2020s will be their continued, and likely increasing, use of Other People's Money as they try to transition their country to MBS's Vision 2030. We are surprised that markets and oil watchers don't seem to pay much attention to the Saudi net foreign assets data ie. what we call their nest egg to help them thru the Energy Transition. As a reminder, Brent oil averaged >$100 in May, yet Saudi Arabia's net foreign assets at May 31 were basically flat and only up $0.2b MoM to $435.5b vs $435.3b in April, but down $16.6b from $452.1b in Nov 2020. Oil prices have been $100 since Russia/Ukraine, but they were still basically still over $70 in Dec and over $80 in Dec. With the decline in net foreign assets, it reinforces that there is a lot more on the cost side to Saudi Arabia. Saudi Arabia is far from going broke but there has been a huge decline in the last 7 years, but it is still a very big nest egg. This net foreign asset depletion is why we have been highlighting that the primary financial theme for Saudi Arabia in the 2020s is getting Other People's Money (OPM) to fund as much of their Vision 2030 as possible. And no question, accessing OPM has helped to slow down and temporarily pause the decline in net foreign assets, at least up until the past few months. Saudi Arabia's central bank (SAMA) doesn't provide explanations for the monthly swings. But it looks like it is trending back towards November levels as oil prices remain elevated. Saudi net foreign assets on May 31 of $435.5b are down $8.8b YoY from $444.3b at May 31, 2021. The peak in Saudi net foreign assets was $737.0b on Aug 31, 2014, which means there has been a decline of >$300.0b, or approx. $3.5b per month for that period. We believe this is why there has been such a big push in the last few use to get OPM so Saudi doesn't keep depleting its nest egg. And why we call this the #1 financial theme for Saudi Arabia in the 2020s – the increasing use of Other People's Money. And not just in Saudi Aramco, although we do expect to see more equity and bond sales from Aramco. Below is our graph of Saudi Arabia net foreign assets updated for the May 31 data.

Figure 24: Saudi Arabia Net Foreign Assets



Source: Bloomberg

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Oil – Is there any chance Biden is trying to get MBS to sign off on a return to JCPOA?

Could Biden get MBS onside with a JCPOA?

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 – France wants Iran oil back on the market

France wants Iran oil back on market

One of the oil stories coming out of the G7 were the reports that France wants Iran oil back on the market. This shouldn't have surprised, it was just said more directly even if the France officials wanted anonymity. On Monday, Reuters reported [LINK] "*There are resources elsewhere that need to be explored," a French official said on the sidelines of a G7 summit in Germany, when asked about how to alleviate high oil prices. The outstanding issue between Iran and the United States was no longer linked to the nuclear dossier but to U.S. terrorism sanctions, he said. "So there is a knot that needs to be untied if applicable... to get Iranian oil back on the market," the official told reporters, speaking on condition of anonymity. "We have Venezuelan oil that also needs to come back to the market." A second official said all options need to be explored given the stakes, including those involving Iran and Venezuela. The first official called for a temporary increase in production from oil-producing nations, and said there would be an effort to try and convince them to do so."* Our Supplemental Documents package includes the Reuters report.

Iran's oil would be a good crude quality replacement for Urals crude to Europe

We have been reminding that Iran is a good substitute for Russia Urals oil for European refineries. 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."*

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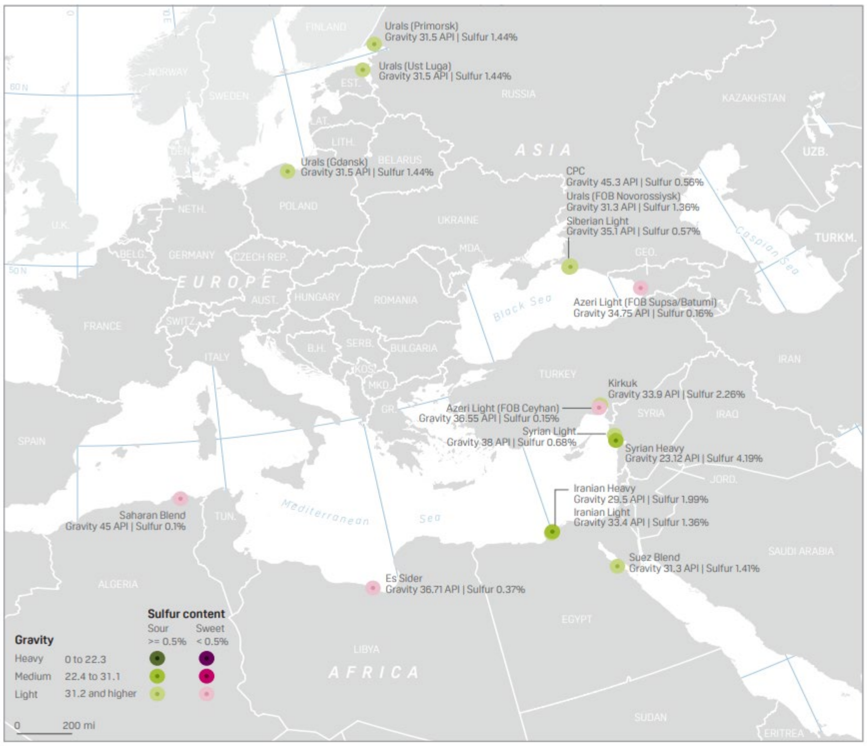
Figure 25: Platts Specifications Guide Europe and Africa Crude Oil



Source: Platts

Reminder Iran was the largest Middle East oil supplier to Europe

Europe's ability to take Iran oil isn't just a theoretical fit because its crude quality is similar to Russia, Iran was the biggest Middle East Supplier to Europe until the sanctions. Here is what we wrote in our June 12, 2022 Energy Tidbits. "*A picture is worth a thousand words or every picture tells a story (Rod Stewart) and that was clear from a great MEES graph. The graph clearly shows how Iran oil would seamlessly fit in to fill in and replace any banned Russia oil in Europe. On Friday, we retweeted a MEES tweet [LINK] "Amid a historic market dislocation, MEES examines the potential for an influx of Middle Eastern crude into Europe in the second half of 2022. Read it here: [LINK]." It's too bad the linked MEES report "Middle East Crude Trade: Preparing For A Pivot To Europe?" [LINK] is under paywall, but the MEES tweet included the below graph. The MEES graph splits Middle East crude oil exports from Jan 2017 to Europe split by producing country. MEES reminds that, until Iran sanctions, Iran was the largest Middle East crude oil supplier to Europe. MEES doesn't provide the actuals, but it looks like Iran was shipping 600,000 to 800,000 b/d in 2017. Interestingly, no one has really stepped in to fill the void, rather Middle East oil exports to Europe are basically the same other than no Iran. The graph is why we tweeted [LINK] "Hmmm! Thx @MeesEnergy for good graph, Iran used to be a big*

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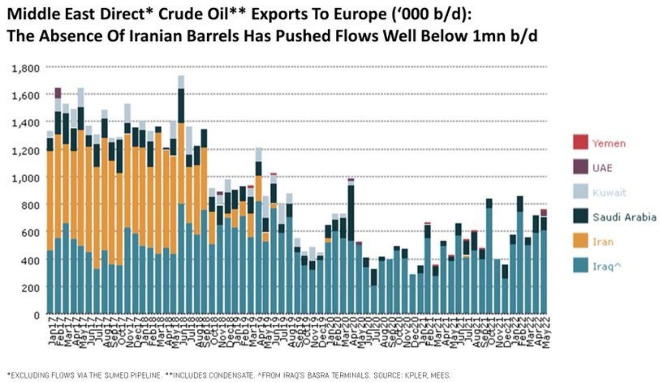
#Oil supplier to Europe. Reminds that Iran would be a good substitute for banned Russia oil in Europe. #OOTT."

Figure 26: Middle East Direct Crude Oil Exports to Europe ('000 b/d)



Source: MEES

Oil – Libya NOC declare force majeure, production down 865,000 b/d vs normal

Libya production down 865,000 b/d vs normal

On Thursday, we tweeted [LINK] on the breaking news that Libya National Oil Corporation declared force majeure on a number of ports and fields and wrote "*production has decreased and declined sharply, as daily exports have ranged from 365 to 409 thousand barrels per day, a decrease of 865,000 barrels per day from normal production rates under normal circumstances"* and "*we are forced to declare a state of force majeure on the terminals of Asidra and Ras Lanuf, in addition to the Al-Feel field, with the continuation of the state of force majeure on the terminals of Brega and Zueitina."* Our tweet included that quote and concluded hard to see back to normal soon. We have been highlighting the clash between Oil minister Aoun and the Libya NOC especially its Chair Sanella. It's worth reading the Libya NOC force majeure that goes into a bit of this battle. It's why we had to make sure people saw the normal reference. One example is the NOC writing "*In response to some suspicious statements, Mr. Mustafa Sanalla said: "We expected Minister Aoun to be appointed to the government, to carry its weight and help it with his opinion. Unfortunately, he lives in a state of denial of reality, sometimes he goes out to the media to mislead public opinion and says that stopping oil production is not a loss, and sometimes he tries to use the government, and we don't know why he manipulates facts, distorts events, denies principles, and lives in the tightness of his obsessions.*" Below is the SAF Group Libya oil map including t Our Supplemental Documents package includes the Libya NOC force majeure. [LINK]

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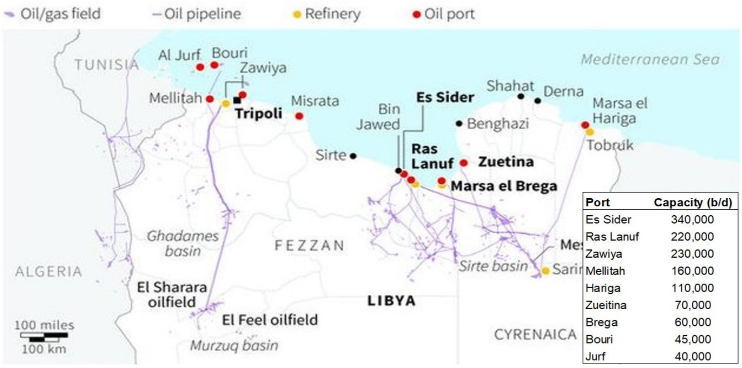
Figure 27: Libya Ports, Major oilfields and Terminals map

SAF Group Compiled Libya Ports & Terminals Status



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

Source: Bloomberg, HFI Research, SAF

Source: SAF Group

Oil –Exxon CEO's bullish oil outlook

Exxon CEO's bullish view on oil

Earlier we noted that the headlines on Exxon CEO Darren Woods comments on Monday were all on his bullish oil outlook views. The FT [LINK] wrote "*ExxonMobil's chief executive predicted a resurgence of investment in fossil fuel production as he blamed soaring oil and gas prices on an "optimistic view" about how quickly the energy transition can happen. Darren Woods, the head of the biggest western oil and gas supermajor, said pressure to reduce emissions by cutting production before addressing demand had left the world struggling to meet energy needs. Governments had not only failed to deal "with the demand side of the equation" but also did not recognise "that you need a fairly robust set of alternative solutions if you're going to reliably and affordably meet the needs of people", Woods told the Financial Times. Global crude prices have surged this year to well more than $100 a barrel as Russia's invasion of Ukraine has tightened oil markets, fuelling decades-high inflation around the world. Brent crude was trading at about $116 a barrel on Monday. Speaking to the FT on stage at a conference in Brussels organised by the German Marshall Fund, Woods said he expected the oil price to continue to climb until it spurs renewed investment in output. "They always say that the cure to high prices is high prices. And that's exactly what I think we'll see. So it's a question of how high prices eventually rise."* Our Supplemental Documents package includes the FT report.

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

Vitol on China covid restrictions

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

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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 – Vortexa crude oil floating storage 90.75 mmb as of July 1, -2.29 mmb WoW

Vortexa crude oil floating storage

We are referencing the Vortexa global crude oil floating storage data posted on the Bloomberg terminal as of 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 June 25 at noon MT. (i) As of noon MT yesterday, Bloomberg has posted Vortexa crude oil floating storage estimate as of July 3 was 90.75 mmb, which is -2.29 mmb WoW vs immaterially revised June 24 estimate of 93.04 mmb. Note June 24 of 93.04 mmb was immaterially revised +0.51 mmb vs the 92.53 mmb posted on Bloomberg as of noon MT on June 25. (ii) All of the last several weeks were revised. That is normal but the revisions were in both ways and not huge (ie. less than 2 mmb). The last two weeks were closer to 90 mmb, but generally crude oil in floating storage has been around 100 mmb. (iii) Also remember Vortexa revises these weekly storage estimates on a regular basis and we do not track the revisions through the week. (iv) July 1 estimate of 90.75 mmb is -131.37 mmb vs June 26, 2020 peak of 222.12 mmb. (v) Note that the below graph goes back 3 years and not just 2 years as floating oil storage was in the big ramp up period in late March/ thru late June 2020 as Covid started to have a huge impact. July 1 estimate of 90.75 mmb is +38.69 mmb vs pre-Covid of 52.06 mmb on July 1, 2019. Note July 1 estimate of 90.75 mmb is +10.84 mmb YoY vs 79.91 mmb on July 2, 2021. (vi) Below are the last several weeks of estimates made as of yesterday at noon MT, June 25 at noon MT, and June 18 at noon MT.

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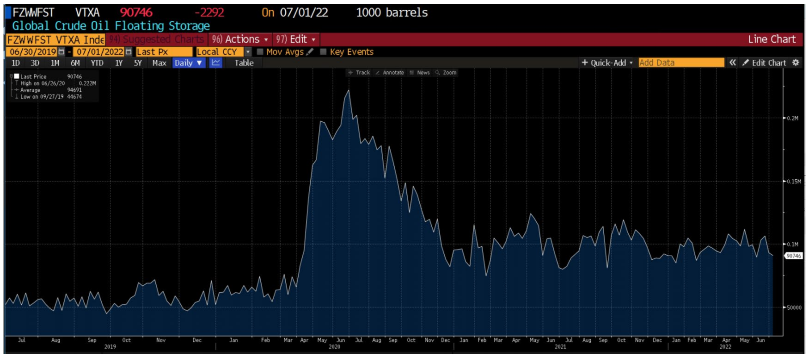
Figure 28: Vortexa Floating Storage as of July 1 Posted on Bloomberg noon MT yesterday



Source: Bloomberg, Vortexa

Figure 29: Vortexa Estimates Posted July 2 noon MT, June 25 noon MT, June 18 noon MT

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

Est as of June 18, noon MT

FZWWFST VTXA Inde — 06/16/2019 - 06/17/2022

Date	Last Px
Fr 06/17/2022	100.413k
Fr 06/10/2022	102.742k
Fr 06/03/2022	87852
Fr 05/27/2022	95454
Fr 05/20/2022	95365
Fr 05/13/2022	108.5k
Fr 05/06/2022	94502
Fr 04/29/2022	100.133k
Fr 04/22/2022	100.452k
Fr 04/15/2022	103.696k
Fr 04/08/2022	96650

Source: Bloomberg, Vortexa

Oil – Caixin PMI for June of 51.7 is highest PMI since May 2021

Caixin PMI June highest since May 2021

Earlier, we noted Vitol Asia head Mike Muller's reminder that it was fortuitous for oil consumers that China covid hit otherwise oil prices might have been explosive and not in the low one hundreds. One of the overlooked items for oil markets is China recovering out of Covid. It isn't get much oil market attention given the negative economy/market views around the world, but on Thursday night (North America time) there was a positive outlook from the Caixin China Manufacturing PMI data for June [LINK]. The China PMI data for June was 51.7, vs estimates of 50.2, vs May 2022 of 48.1 and vs June 2021 of 51. June 2022 was the highest PMI since May 2021. IHS wrote "*The reduction in COVID-19 case numbers and subsequent easing of containment measures across China led to a renewed improvement in manufacturing business conditions in June. Output expanded sharply as disruption to operations receded, with the rate of growth the quickest seen for just over a year-and-a-half. New orders and new export sales also returned to growth, though rates of expansion were*

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modest overall. Supply chains were meanwhile broadly stable, which ended a two-year streak of worsening lead times." Our Supplemental Documents package includes the Caixin China PMI for June.

Oil – Less future air travel growth out of Amsterdam's busy Schiphol airport

Less future air travel out of Schiphol

It may not impact 2022, but it looks like there will be less future air travel growth out of the busy Amsterdam Schiphol airport as Netherlands will cut the number of allowed flights reportedly to reduce noise and deliver reductions in NOx emissions. Last week, the IATA (International Air Transport Association) "*The International Air Transport Association (IATA) expressed shock at the announcement by the government of the Netherlands will cut the number of annual flights at Schiphol Airport to 440,000 – a 20% cut to Schiphol's potential cap. "This sudden decision is a shocking blow to aviation, jobs, and the economy of the Netherlands. It comes on top of a tripling of the passenger tax, and a 37% rise in airport charges. We are seeing a throttling of air connectivity which has been steadily built up for 100 years, and supported large parts of the Dutch economy and the aspirations of millions of Dutch travelers," said Willie Walsh, IATA's Director General. The justification put forward for the cut is not supported by facts. The government claims that the cuts will reduce noise and deliver a significant reduction in NOx emissions. But aviation's NOx contribution is around 1% of total NOx deposition in the Netherlands, and the redistributed noise paths that are also a part of this initiative will actually increase the number of people exposed to aircraft noise."* Our Supplemental Documents package includes the IATA release. [LINK]

Schiphol is the 3rd busiest international airport in the world in June

Amsterdam's Schiphol airport is always one of the busiest international airports in the world. OAG posted its busiest airports in the world for June 2022 (so current data) [LINK], and Amsterdam's Schiphol was the 3rd busiest international airport in the world. The OAG's five busiest airports with # of seats in June were London Heathrow (3,243,498), Dubai International (3,209,837), Amsterdam Schiphol (3,169,524), Paris Charles de Gaulle (2,934,523) and Frankfurt (2,789,501)

Oil – TotalEnergies does its bit to help get more drivers on the road this summer0

TotalEnergies cuts gasoline prices

No one can deny TotalEnergies is doing its bit to help lessen the blow to people of high gasoline and diesel prices to drivers in France. But it is also doing its part to keep demand high. On Thursday morning, we tweeted [LINK] *"#OilDemand. Helping people hit the French highways & support for the normal big jump up every summer in oil consumption. @TotalEnergies giving summer discount of €0.12/litre in all motorway service stations. #OOTT."* Just like no one can deny TotalEnergies is helping lessen the pain, no one can deny they are doing their bit to get more drivers on the road this summer. TotalEnergies release [LINK] said "*to help all those hitting the road for a holiday in France this summer, TotalEnergies has just announced a summer discount of €0.12/litre in all of the motorway service stations under the TotalEnergies banner in mainland France. From 1 July to 31 August 2022, TotalEnergies is offering a €0.12/litre discount on fuel. This discount comes on top of the State discount of €0.18/litre including VAT and the overall discount at TotalEnergies service stations will therefore be €0.30/litre."* The discount is for both petrol (gasoline) and diesel. Our Supplemental Documents package includes the TotalEnergies release.

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And TotalEnergies reminds don't forget to shop when you stop to fill up
TotalEnergies also wanted to take advantage of the drivers feeling good about stopping to fill up. TotalEnergies release said "*During this summer period, customers will also find the usual "beach towels" and "Family Kit" offerings for parents and their children at our motorway service stations. A solidarity contribution for purchasing power.'*

Remember service stations sell higher margin coffee and sandwiches
It makes sense that TotalEnergies hopes customers shop at the service station stores – the items are normally higher profit margin items than the profit margin on selling gasoline/diesel. Our Nov 7, 2021 Energy Tidbits highlighted BP's comments from their Q3 call Q&A on the advantage of EV charging at its gas stations – they hope customers buy more higher margin coffee and sandwiches. At that time, we wrote "*BP held its Q3 call on Tuesday morning and we tweeted [LINK] "Reminder why gas stations don't want EV charging too fast. @BP CFO notes fast EV charging can be double the ICE fill up time, "hopefully, they come in, & they get a nice cup of Wild Bean coffee & a sandwich, & then that will certainly enhance those returns". Thx @business #OOTT." In the Q&A, mgmt was asked "…. And I was wondering if there are some key metrics you're looking at in terms of percentage of EV penetration or utilization of your charging points that really are key to achieve profitability in this rising and growing business. Thank you". CFO Auchincloss reply was "And if you wanted to measure returns, the general stat we hold is if you get 10% utilization on a fast charger, you'll make a 10% return. That's just the pure electrons themselves. Of course, this is not just about the electrons. It's about the convenience as well. And when somebody goes to charge their car, they spend probably eight minutes as opposed to four minutes. And hopefully, they come in, and they get a nice cup of Wild Bean coffee and a sandwich, and then that will certainly enhance those returns".*

Oil – Spain May 2022 gasoline/diesel consumption up MoM and YoY

Spain gasoline and diesel consumption

No question Europe has been hit by high oil, gasoline and diesel prices, but we keep seeing data to support the resilience of fuels consumption. As noted earlier, on Friday we tweeted [LINK] "*No surprise high #NatGas #LNG prices hurt Spain consumption more than high #Oil prices. May 2022 consumption, #Diesel/#Gasoline +2.2% MoM & +6.4% YoY, whereas #NatGas -2.7% MoM & -4.1% YoY. Just moving into normal peak summer #NatGas consumption. #OOTT*". We were referencing the CORES data for May [LINK] that showed MoM and YoY increase in the combined automotive fuels (gasoline plus diesel) consumption in Spain. Our Supplemental Documents package includes the CORES data.

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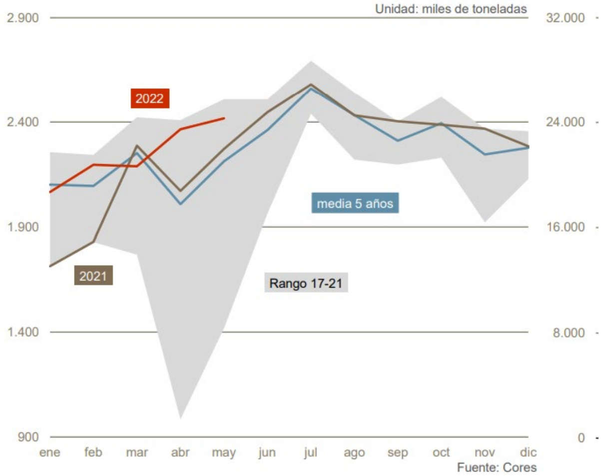
Figure 30: Spain monthly consumption of automotive fuels



Source: CORES

Energy Transition – G7 leaders admit RUS natural gas, more LNG & coal is neeeded

G7 Leaders communique

There is no question that the 28-pg G7 Leaders Communique was a great example of crafty drafting, but there is also no question that a careful read thru show the G7 leaders are finally recognizing the energy transition plan wasn't working according to aspirations and there has to be changes. But, also no question that the blame is being put on Russia without a clear admission that the energy transition wasn't working pre Russia. (i) Energy security. The G7 leaders finally put energy security up front. We tweeted [LINK] "*Finally, #G7 leaders prioritize "keeping energy security & affordability at the core of our action". Exclude stopping import of RUS #NatGas, commit to timely steps to phase out unabated coal, and much more. Positive for #Oil #NatGas #Coal. #OOTT".* (ii) Finally they acknowledge the challenge of net zero and three is massive investment required thereon. We tweeted [LINK] "*Did #G7 leaders warn on #NetZero challenge before selling the aspiration? "We remain committed to jointly addressing challenges to long-term growth, including facilitating the net-zero and digital transitions, and the massive investments required." #OOTT.* (iii) Can't do without Russia natural gas and zero mention of any banning of Russian natural gas. We tweeted [LINK] "*Reality check, EU can't do without RUS #NatGas. #G7 leaders exclude #NatGas "nor on our commitments to phase out our dependency on Russian energy, including by phasing out or banning the import of Russian coal and oil." #OOTT #LNG."* (iv) LNG investment is necessary. We tweeted [LINK] "*Need for/fight for #LNG supply to continue thru 2030. #G7 leaders "we stress the important role increased deliveries of LNG can play, and acknowledge that investment in this sector is necessary in response to the current crisis". Bullish #NatGas #OOTT."* (v) Unabated coal power is needed for years. We tweeted [LINK] *"#Coal power is needed for years. #G7 leaders reality check "we commit to prioritising concrete and timely steps towards the goal of accelerating phase-out of domestic unabated coal power generation". How many years is timely? #NatGas #OOTT."* (vi) There are many other energy tidbits in the G7 Leaders communique. Our Supplemental Documents package includes excerpts from the G7 Leaders communique.

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SAF GROUP

G7 leaders blame Russia, but they were already admitting issues in Q4/21

The G7 leaders were all signing from the same song sheet blaming Russia for why they are being forced to take energy moves that are opposite their previously stated Net Zero goals. But we remind that the G7 leaders had already started to acknowledge there were issues long before Russia invaded Ukraine. (i) A Macron Moment is what we call Macron's comments just before COP26, basically acknowledging the Energy Transition wasn't working according to plan. Our Oct 31, 2021 Energy Tidbits was titled "*Macron "Ironic, Because We are Building a System Where in the Medium & Long Term Fossil Energy Will Cost More & More"*. At that time we wrote "*Our first tweet yesterday morning [LINK] was on the FT's report "Macron warns of threat to global economy from energy crisis" [LINK]. Macron's concern on current energy prices got all the attention. However, the part that is getting less attention is what Macron said on fossil fuel prices. Our tweet was "Oops, #Macron on #EnergyTransition "ironic, because we are building a system where in the medium & long term fossil energy will cost more & more, that's what we want to [to fight climate change]". 2020s will be very good for #Oil #NatGas prices. Great report @labboudles #OOTT." Note Macron is saying medum and long term, he is not just talking about the energy crisis this winter. This is an acknowledgement that is acknowledging what our thesis has been, even before Covid, that the 2020s will be a period of stronger for longer oil and natural gas prices*." (ii) Japan's reality check. Our Nov 14, 2021 Energy Tidbits wrote "*Energy Transition – Japan wants a pragmatic time frame for decarbonization Japan isn't as direct as Macron, but has the same message on having a realistic plan and time frame for the energy transition. On Tuesday, we tweeted [LINK] on the Japan Ministry of Foreign Affairs press release [LINK] following the video meeting with IEA Executive Director Faith Birol. There were two significant points from Japan on the Energy Transition – there should be a pragmatic timeframe and one based on individual country circumstances. Japan wrote "The two sides also exchanged views on acceleration of decarbonization efforts following COP26, and shared the importance on measures with pragmatic time frame based on individual circumstances that each countries face including its renewable energy potentials, while it is important to expand investment on renewable energy to achieve carbon neutral."* (iii) Our Dec 12, 2021 Energy Tidbits memo was titled "*Time for 2022 Predictions: Our #1 is More Leaders Have a #MacronMoment & Admit Energy "Transition" Needs Changes*." And we then wrote "*Its December and so analysts will soon be coming out with 2022 predictions, so we thought we would beat them with one of our main 2022 predictions. On Thursday, we tweeted [LINK] "Time for #2022Predictions. My #1 is more #EnergyTransition #NetZero leaders come out of closet, have a #MacronMoment ie. have "transition" not self inflicted shortage so 2021 energy crisis isn't every year. A return to #EnergySecurity = #Oil #NatGas #LNG strong thru 2030. #OOTT." This should not surprise readers as we have been noting the start of energy transition leaders starting to admit, in a politician's manner, that the energy transition isn't working as per aspirations and energy costs will be a lot higher than aspired. We have said for years that the energy transition will happen, but it will take longer, be bumpy road and cost more than the aspirations".*

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Energy Transition – Coal, not renewables, are saving Germany's power problem

Coal saving Germany's power situation

Earlier we noted Germany's warning on natural gas prices from the interview with Germany's Federal Network Agency head, Klaus Mueller. The FNA is the German authority responsible for gas, electricity, telecommunications, post and railways. Mueller also made sure to highlight that Germany's power situation is different thanks to coal. Yesterday, we tweeted [LINK] "*DEU wonders if #NordStream maintenance turns "into a longer-running political maintenance" "not facing a power shortage" with conversion #NatGas to coal-fired power even if not good for climate policy. Great @jgaugele interview with @Klaus_Mueller. #OOTT [LINK]*". Muller said "*Saving energy is generally not wrong. But we have to differentiate. The crisis situation relates to gas - and not to electricity. The federal government is in the process of converting electricity generation from gas to coal-fired power plants, even if that is not good for climate policy. According to our forecasts, we are therefore not facing a power shortage. We also have no shortage of petrol and oil. It's all available. I promote focusing the gaze on gas.*"

Energy Transition – Netherlands NOx push isn't just against flying, it's also farming

Dutch farmers also getting hit

Earlier we noted how future air travel out of Amsterdam Schiphol airport will be restricted to less future levels by the government requirements to lessen NOx emissions. The Dutch government push on NOx isn't just against flying, it's also against farming. One of the big Dutch stories over the past two weeks has been the increasing protests by farmers over the Dutch government plan to reduce NOx emissions and its impact on farming. France24 wrote [LINK] "*Prime Minister Mark Rutte said earlier this month the government's plan to cut nitrogen emissions "will have an enormous impact on farmers". "This sector will change, but unfortunately there's no choice, we have to bring down nitrogen emissions," he said. The Dutch government plans to cut greenhouse gas nitrogen by as much as 70 percent in 131 key areas -- many of them close to nature reserves -- to reach climate goals by 2030. For farmers this means a 40-percent drop in emissions is expected, which would require around 30 percent less cattle, according to reports.*"

Energy Transition – Tesla's ranks near bottom in J.D. Power initial quality car study

J.D. Power initial quality car study

There were some surprises in the J.D. Power 2022 U.S. Initial Quality Study ranking on new auto purchases and leases. The ranking is based on "Problems per 100 Vehicles (PP100)". (i) One item that shouldn't surprise was the overall comment "*The disruptions caused by the pandemic—supply chain issues, record-high vehicle prices and personnel dislocations—contributed to vehicle problems reaching a record high in the 36-year history of this benchmark study.*" (ii) One positive surprise was that GM "*bucks the trend with an improvement in initial quality that lands it in the highest rank position among automotive corporations. Among models, Buick's quality improves 17 PP100 year over year, vaulting it to ranking highest overall in 2022 from 12th place in 2021, while Genesis ranks highest among premium brands. Just nine of 33 ranked brands improved in vehicle quality year over year.*" (iii) The top brands were Buick 139, Dodge 143, Chevrolet 147, Genesis 156, Kia 156, Lexus 157, and an industry average was 180. (iv) One negative surprise was the poor ranking of EVs. Tesla was officially included for the first time and ranked near the bottom with a ranking of 226 PP100. But to be fair, it was better than Volkswagen 230, Audi 239, Maserati 255, Volvo 256 and Chrysler, which were the worst 5 of ICE vehicles. Polestar had a brutal 328 rating. Our Supplemental Documents package includes the J.D. Power release. [LINK]

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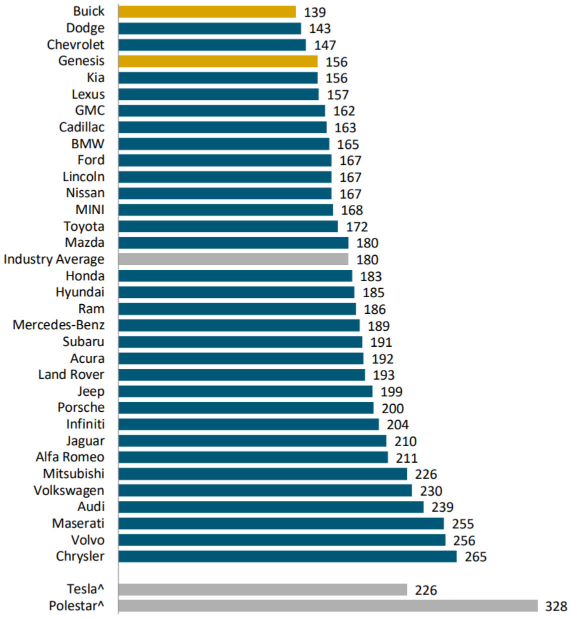
Figure 31: 2022 US Initial Quality Study: Brand Ranking Problems per 100 Vehicles (PP100)



Source: J. D. Power

Energy Transition - GM expects EV profit parity to ICE by 2030?

GM sees EV profit parity by 2030

We are sure we aren't the only ones who wonder what assumptions GM is using for EV sales prices and government EV subsidies for their long term planning that sees the profitability of EVs reaching parity to ICE vehicles by 2030. One of the huge concerns for many industries, including EVs, is the very high cost and the outlook for high costs for years of critical metals. On Thursday, we tweeted [LINK] "*#GM CFO "we think we can get an electric vehicle to parity, profit parity if you will, by the end of the decade with their ICE counterpart". In the face of critical metals cost outlook, wonder what #EV prices & govt subsidies assumed to make the math work? Thx @DavidWestin #OOTT".* Here is the transcript we created of this section of the interview from GM CFO Paul Jacobson interview with Bloomberg's David Westin on June 29, 2022 [LINK]. Items in "italics" are SAF Group created transcript At 14:00 min mark, Westin "… *ten years down the road, what percentage of the cost of the vehicle* [EV] *will just be tied up in a battery like that* [pointing to the EV battery]. Jacobson "*well the battery and the motor systems are sort of the equivalent of the engine and the transmission today. It is costing more, obviously for those systems going forward, but we think that technology is going to come down over time as well, which is why we said we think we can get an electric vehicle to parity, profit parity if you will, by the end of the decade with their ICE counterpart*". We have to wonder what EV sales price, level of government subsidies and lower critical metals prices are assumed in this planning?

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

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

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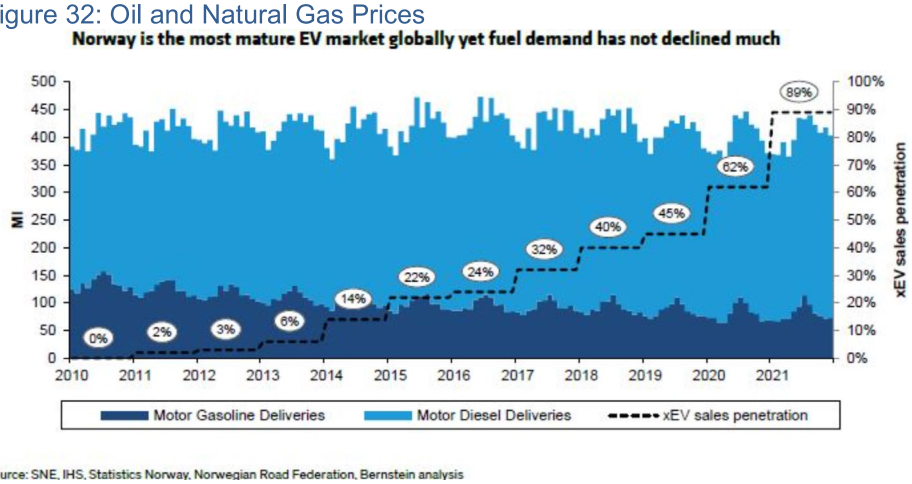
governments are going to do all they can to force continued rapid EV growth. Rapid EV growth is no question a key part of the equation of gasoline/diesel demand destruction. But what we also don't believe the EV aspirations (and related gasoline/diesel demand loss) have dealt with the reality of the 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 32: Oil and Natural Gas Prices



Source: Sanford Bernstein

Water – Cows are not just big methane emitters, also big water consumers

Cows water consumption

We have to wonder when the far left will be more aggressively going after the meat industry, not for their profits but for their environmental impact. We normally only mention cows with respect to their methane emissions, but they are also huge water consumers and lead to deforestation. It was Canada Day holiday on Friday so BNN Bloomberg wasn't playing its normal Canadian based programs, but was picking up Bloomberg. On Friday morning, Bloomberg Markets interviewed Eric Jenkusky (Matrix Food Technologies CEO) who was highlighting the huge use of water and impact on deforestation by cows. Jenkusky said "*a single cow, for instance, that is of calf bearing age, uses 8,760 gallons of water a year*". We know that cows need huge amounts of water relatives to people ie. 8 cups a day is ½ gallon a day or 182.5 gallons a year. But it seemed like a huge number so wanted to see what data was out there. It turns out that number looks high, relative to Canadian cows. The Beef Cattle Research Council (Canada) [LINK] estimates bred Heifers & dry cows use 32.9 liters/day or 3,170 US gallons a year. But the BCRC estimates a lactating cow uses 64.0 liters/day or 6,167 US gallons a year. Regardless, it's a big use of water. One interesting

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tidbit from the BCRC estimates is the huge range of water intake per cow depending on the temperature. For the lactating cows, the daily intake in liters is 43.1 at 4.4C, 47.7 at 10C, 54.9 at 14.4C, 64.0 at 21.1C, 67.8 at 26.6C and, surprisingly, down to 61.3 at 32.2C.

Figure 33: Approximate Total Daily Water Intake of Beef Cattle

	Intakes in litres for temperatures in Celsius (C)					
Animal Description	4.4°C	10°C	14.4°C	21.1°C	26.6°C	32.2°C
Feeders & Replacements 2 - 6 Months	20.1	22.0	25.0	29.5	33.7	48.1
Feeders & Replacements 7 - 11 Months	23.0	25.7	29.9	34.8	40.1	56.8
Feeders & Replacements 12 Months & Older	32.9	35.6	40.9	47.7	54.9	78.0
Bred Heifers & Dry Cows	22.7	24.6	28.0	32.9	-	-
Lactating Cows	43.1	47.7	54.9	64.0	67.8	61.3
Herd Bulls	32.9	35.6	40.9	47.7	54.9	78.0

Source: Beef Cattle Research Council

Capital Markets – IFIC: Mutual funds and ETF assets -1.0% in May

Mutual Fund & ETF assets decrease MoM

Last Wednesday, the IFIC (Investment Funds Institute of Canada) reported [LINK] mutual funds and ETF sales for May. IFIC does not provide any commentary on the numbers but there should be no surprise that the assets are down. Market price decreases accounted for majority of the overall decrease in net assets as Russia invaded Ukraine and China continued COVID lockdowns. For May, the IFIC reported "*Mutual fund assets totalled $1.895 trillion at the end of May 2022. Assets decreased by $18.6 billion or 1.0% compared to April 2022. Mutual funds recorded net redemptions of $6.4 billion in May 2022. ETF assets totalled $310.9 billion at the end of May 2022. Assets increased by $0.9 billion or 0.3% compared to April 2022. ETFs recorded net sales of $2.6 billion in May 2022."* Our Supplemental Documents package includes the IFIC release.

Capital Markets – USDA consumer price index for food +10.1% YoY

USDA consumer price index for food

The USDA's official food price data keeps going up, but we continue to believe it is nowhere as much as what Americans feel when they go to the grocery stores in the US. Whenever we ask American friends, how much higher YoY is your grocery bill, we haven't for months heard anyone say it was only 10%. This feels like what we heard last summer about inflation being transitory, the real food price increases are way higher than per government data. The USDA posted its consumer price index for food data for May last Friday [LINK], which is +1.1% MoM and +10.1 % YoY, compared to April at +9.4% ; while it has finally increased over 10%, it still seems low given the rapidly increasing grocery bills being reported. This is for the overall food price index, which weights various changes like beef/veal +10.2% YoY, pork +13.3%, eggs +32.2% with changes like fresh vegetables +8.2% YoY, dairy products +11.8% YoY and cereals & bakery products +11.6% YoY. We also just don't see how the USDA won't be low in their 2022 forecast which predicts price escalation between 5.0-6.0% throughout the year.

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Capital Markets – Cost of July 4th cookout +17% YoY

Cost of cookout up 17%

A good example of the more than 10% cost increase was seen on Monday, when the American Farm Bureau Federation reported [LINK] that the average cost of a summer cookout for 10 people is $69.68, which is up 17% from $59.50 last year. The Bureau blames supply chain disruptions, inflation and the war in Ukraine for the substantial price increase. Farmers are feeling the price-point pain too, according to AFBF Chief Economist who stated "*Despite higher food prices, the supply chain disruptions and inflation have made farm supplies more expensive; like consumers, farmers are price-takers not price-makers. Bottom line, in many cases the higher prices farmers are being paid aren't covering the increase in their farm expenses. The cost of fuel is up and fertilizer prices have tripled*". The ABF highlighted that the largest year-to-year price increase was for ground beef, up 36% from last year. On the big picture concerns, the AFBF president stated *"The increased cost of food and supplies is a very real concern in our country and across the globe. U.S. food assistance programs and food banks help those who struggle to make ends meet here at home, but the story is much different around the globe as food insecurity skyrockets. The big impact of a single event in Ukraine shows how dependent the world is on stable, productive agriculture"*. Our Supplemental Documents package includes the AFBF report.

Capital Markets – Manhattanites who moved to Palm Beach had average income $728k

High income Manhattanites move to Palm Beach

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. Our Supplemental Documents package includes he dynuz report.

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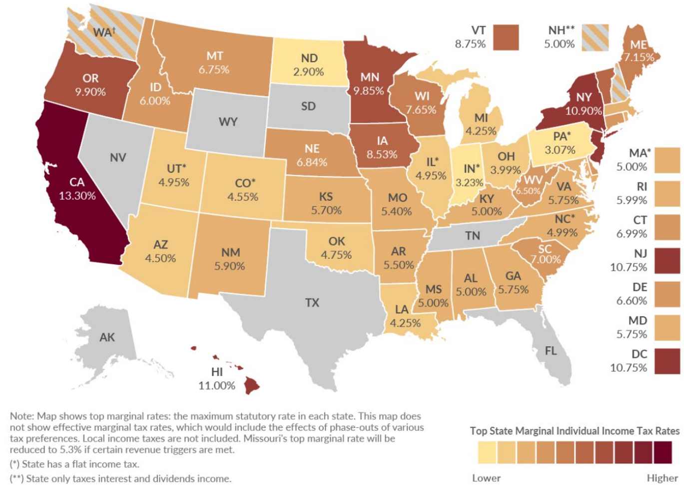
Figure 34: State Individual Income Tax Rates and Brackets 2022



Source: Tax Foundation

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

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

@Energy_Tidbits on Twitter

LinkedIn – Look for quick energy items from me on LinkedIn

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

Look for energy items on LinkedIn

Misc Facts and Figures.

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

1st real post Covid Calgary Stampede starts on Friday

The world-famous Calgary Stampede starts on Friday and runs July 8-17. But the reality is that the it is much more than just the Calgary Stampede itself, rather it's the atmosphere and what the city does building around the Calgary Stampede. It's always interesting to see the surprise from visitors as they see the normal friendliness of Calgarians. As for the official Calgary Stampede, if you can, try to scoop infield seats for the daily rodeo or great seats for the nightly chuckwagon races. As to food on the Stampede grounds, look for every type (and always new

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types) of deep-fried foods. Lastly, if it's anything like pre Covid stampedes, Calgary can rival Mardi Gras in terms of late-night partying.

The Museum of Failure comes to Calgary
The Museum of Failure is in Calgary at least thru August. It describes itself "*Innovation needs failure ! Museum of Failure is a collection of failed products and services from around the world. The majority of all innovation projects fail and the museum showcases these failures to provide visitors a fascinating learning experience. Every item provides unique insight into the risky business of innovation."* A couple examples of world leading brands that had some big bombs. Heinz colored ketchups. Heinz started with the Blastin'Green ketchup but expanded the EZ Squire to a number of colors such as Awesome Orange, Totally Teal, Stellar Blue, Passion Pink and Funky Purple, as well as a Mystery Color that were in bottles that concealed the mystery color. Nike Magneto sunglasses in the mid 90s. The Mangeto eliminated the temple so there was nothing that needed to hooked onto your eye. However, the caveat was that the sunglasses required gluing magnets to your head so the sunglasses would clip onto the magnets. Then Nike CEO Parker said on stopping the Magneto, *"Personally, I thought it was a bit impractical," "I didn't think consumers would actually get to a point where they were comfortable taping magnets to their head. There were better solutions*."

Figure 35: Heinz colored ketchups and Nike Magneto sunglasses

Source: Museum of Failure

KC Chiefs Joe save 3 young boys on June 29, 1983
Any NFL fans from the early 80s will remember the tragic story on how Kansas City Chiefs running back Joe Delaney lost his life at the age of 24 on June 29, 1983. NBC's Profootball Talk wrote [LINK] "*Joe Delaney and his wife, Carolyn, had three young daughters. On June 29, 1983, three young boys Joe Delaney didn't know had gotten into a two-acre, man-made pond. They were struggling. They needed help. Joe Delaney jumped in to help them. "I can't swim good, but I've got to save those kids," Joe Delaney said. "If I don't come up, get somebody." One of the boys managed to get out of the pond. The other two boys drowned. Joe Delaney drowned, too. Here's the original Associated Press story regarding Delaney's death.*

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It happened 39 years ago today. Every year on June 29, we remember the heroism and selflessness of Joe Delaney. We also remember the tragedy, for Delaney, for his wife, for their children, and for the rest of his family and friends. He was 24. He acted without thought or hesitation. Those boys needed help, and Joe Delaney sprang into action." Our Supplemental Documents package includes the Profootball Talk report.

>35,000 years old baby woolly mammoth found in Yukon

There was some exciting news last week in Yukon. CBC reported [LINK] "*A perfect storm of events has led to a once-in-a-lifetime discovery for a gold miner, a First Nation, a veteran paleontologist and a territory. "I don't know how to process it all right now, to be honest with you. It's amazing," said Dr. Grant Zazula, the Yukon government's paleontologist. A little after noon on June 21, National Indigenous People's Day, a young miner working in Yukon's Eureka Creek, south of Dawson City, was digging up muck using a front end loader when he struck something. He stopped and called his boss who went to see him right away. When he arrived, Treadstone Mining's Brian McCaughan put a stop to the operation on the spot. Within half an hour, Zazula received a picture of the discovery. According to Zazula, the miner had made the "most important discovery in paleontology in North America." It was a whole baby woolly mammoth, the first one ever found in North America and, according to Zazula, only the second in the world. "She has a trunk. She has a tail. She has tiny little ears. She has the little prehensile end of the trunk where she could use it to grab grass," said Zazula. "She's perfect and she's beautiful." "Zazula thinks Nun cho ga was probably about 30 to 35 days old when she died. Based on the geology of the site, Zazula believes she died between 35,000 and 40,000 years ago. "So she died during the last ice age and found in permafrost," said Zazula."*

Figure 36: Baby woolly mammoth discovered in Yukon

Source: CBC

Did you know a 500 euro notes was called a "Bin Laden"?

It must have been a Europe saying, but we've asked a handful of Cdn investors who were adults in the Bin Laden years and none were aware that the 500 euro note was called a "Bin Laden". In the Daily Mail report on Prince Charles accepting £2.5 million in various bags of money from former Qatari Prime Minister Sheikh Hamad Bin Jassim bin Japer Al Thani. The Daily Mail reported "*Three donations of nearly*

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£900,000 a time – in 500 euro note”s – were stuffed in carrier bags and a holdall.” “Another time, the sheikh was said to have been in a private meeting with the prince at Clarence House, in 2015, when he gave him £850,000 in a holdall. Aides are said to have then counted the money – the €500 notes are nicknamed 'Bin Ladens' thanks to their popularity with terrorist money launderers, as well as drug barons – before it was paid into the account of the prince's charity at central London royal bank Coutts.”

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