SAF GROUP

Energy Tidbits

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"$2.5 to $4.6 Trillion Deficit We Face in Order to Make This [Energy] Transition" Says John Kerry

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 and not just a specific company results. Our target is to write on 48 to 50 weekends per year and to post by noon mountain time on Sunday.

This week's memo highlights:

1. US climate envoy Kerry says world faces a $2.5 to $4.6 trillion deficit to make the energy transition ie. far from being self funded (Click Here)
2. EU's plan to cut its Russian natural gas imports by 2/3 by Dec 31, 2022 is a global changer to energy markets for the 2020s. (Click Here)
3. Too bad RUS is holding up JCPOA as FR/DE/UK said Iran and US "have worked hard to resolve final bilateral issues and so we are ready to conclude this deal now" (Click Here)
4. UK Energy Secretary says "this is no longer about tackling climate change or reaching Net Zero targets". (Click Here)
5. By March 31, the Liberals are supposed to disclose their hard target for emissions reductions in the oil and gas sector by 2025. (Click Here)
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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Natural Gas – Natural gas draw of 124 bcf, storage now -281 bcf YoY deficit

YoY storage at -281 bcf YoY deficit

Weather is the key variable for natural gas in the winter and there can be WoW swings in gas demand (and therefore storage) with warmer or colder weeks. A good example is the EIA reported a 124 bcf draw (vs 120 bcf draw expectations) for the Mar 4 week, which was less than the 5-yr average draw of 89 bcf, and above last year's draw of 52 bcf. Storage is 1.519 tcf as of Mar 4, decreasing the YoY deficit to -281 bcf, from 216 bcf last week and storage is 289 bcf below the 5-year average vs 255 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 (03/04/21)		Historical Comparisons: 5-year average (2017-21)	
Region	03/04/22	02/25/22	net change	implied flow	Bcf	% change	Bcf	% change
East	317	358	-41	-41	355	-10.7	365	-13.2
Midwest	364	404	-40	-40	444	-18.0	449	-18.9
Mountain	93	96	-3	-3	114	-18.4	103	-9.7
Pacific	162	164	-2	-2	206	-21.4	178	-9.0
South Central	582	620	-38	-38	683	-14.8	715	-18.6
Salt	151	163	-12	-12	174	-13.2	216	-30.1
Nonsalt	431	457	-26	-26	509	-15.3	499	-13.6
Total	**1,519**	**1,643**	**-124**	**-124**	**1,800**	**-15.6**	**1,809**	**-16.0**

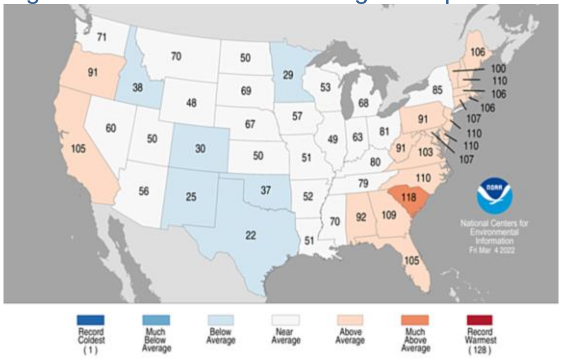
Source: EIA

Natural Gas – US was 18th warmest winter in last 128 years

18th warmest winter in 128 yrs

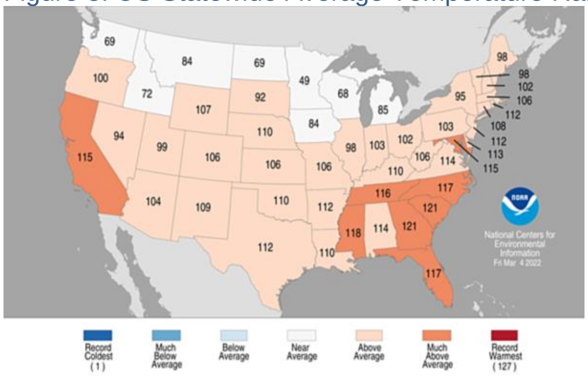
It's a good thing US LNG exports have been increasing because, if not, this warm of a winter would have set HH prices close to $2 and not high $4's. February saw temperatures that were almost right on average for the month after a very warm January and December in the US. NOAA posted its recap of February 2022 weather [LINK], which was the 62nd warmest in the last 127 years. It has been a very warm winter in the US and in the pre-LNG days, this typically would have resulted in lower as prices moving into shoulder season with HH at ~$2/mcf and not the $4.60/mcf it currently is trading at. D/J/F was the 18th warmest winter on record in the last 128 years. Below is a graphic depicting the state average temperature ranks.

Figure 2: US Statewide Average Temperature Ranks February 2022



Source: NOAA

Figure 3: US Statewide Average Temperature Ranks D/J/F 2022



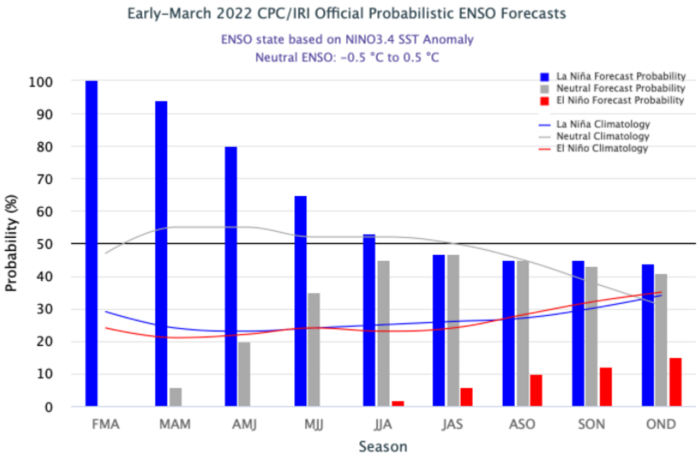
Source: NOAA

Natural Gas – 90% probability for La Nina/Normal conditions ie. a normal hurricane season

La Nina/El Nino focus to turn to summer

The CPC/IRI released its updated monthly El Nino/La Nina outlook is issued on the 2nd Thurs of every month [LINK]. It's March so the El Nino/La Nina focus is for the summer and to hurricane season. The trend is for increasing La Nina/Neutral conditions for the key hurricane season. The new March forecast for JAS is 47% (was 34%) La Nina, 47% (was 52%) Neutral and only 6% (was 14%) for El Nino conditions. The new ASO forecast is 45% (was 35%) La Nina, 45% (was 48%) Neutral and 10% (was 21%) El Nino conditions. ASO is the peak period for Atlantic hurricane season. Again, weather is never 100% the same, but El Nino summers are normally associated with low Atlantic hurricane seasons, whereas neutral/La Nina conditions are more likely normal hurricane seasons. Below is the CPC/IRI official ENSO forecast.

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



Source: CPC/IRI

Natural Gas – EIA forecasts US gas production growth in 2022

No surprise that, with continued stronger than expected oil and natural gas prices, the EIA increased its US natural gas production forecasts for 2022. However, what is different from prior years is that the increase isn't from associated natural gas from oil plays but from dry gas plays. The EIA released its monthly Short Term Energy Outlook March 2022 [LINK]. The EIA revised up both its 2022 and 2023 forecast for US natural gas production. (i) The EIA forecast shows US natural gas above the Q4/19 peak of 96.58 bcf/d, with Q4/22 US natural gas of 98.00 bcf/d (up 1.42 bcf/d from peak). (ii) For 2021, the EIA made downward revisions to Q4 keeping all other periods flat. 2021 US natural gas production is forecast to average 93.54 bcf/d (down from 93.57 bcf/d previously). (iv) US natural gas production is expected to average 96.09 bcf/d in 2022 (96.04 bcf/d previously) and 2022 is up 2.52 bcf/d YoY. 2023 production estimates were released and see Q1/23 production entering at 96.11 bcf/d (97.11 bcf/d previously) and exiting in Q4/23 at 100.10 bcf/d (98.84 bcf/d previously) for a 2023 average of 98.64 bcf/d. (v) The EIA wrote "*We forecast natural gas production to average 95.7 Bcf/d in March. For 2022, we expect that natural gas production will average 96.7 Bcf/d, which is 3.1 Bcf/d more than in 2021. We expect dry natural gas production to rise to an average of 99.1 Bcf/d in 2023*." Our Supplemental Documents package includes excerpts from the EIA STEO.

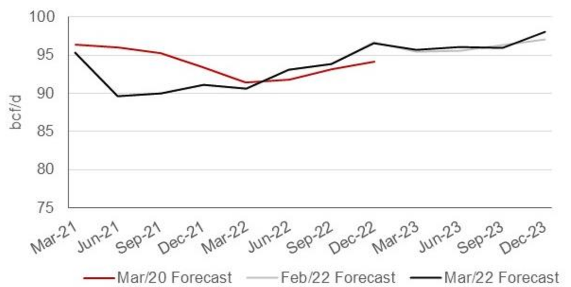
U.S. gas production +2.52 bcf/d in 2022

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

bcf/d	Q1/20	Q2/20	Q3/20	Q4/20	2020	Q1/21	Q2/21	Q3/21	Q4/21	2021	Q1/22	Q2/22	Q3/22	Q4/22	2022	Q1/23	Q2/23	Q3/23	Q4/23	2023
Mar-2022	95.29	89.59	89.99	91.15	91.51	90.59	93.15	93.86	96.57	93.54	95.69	96.09	96.97	98.00	96.69	96.11	98.75	99.60	100.10	98.64
Feb-2022	95.29	89.59	89.99	91.15	91.51	90.59	93.15	93.86	96.69	93.57	95.43	95.54	96.26	97.12	96.09	97.11	97.57	98.34	98.84	97.97
Jan-2022	95.29	89.59	89.99	91.14	91.50	90.59	93.15	93.89	96.33	93.49	95.94	95.55	95.96	96.69	96.04	96.71	97.13	97.89	98.45	97.55
Dec 2021	95.29	89.59	89.99	91.14	91.50	90.48	93.20	94.01	95.59	93.32	95.22	95.35	96.1	97.21	95.97					
Nov 2021	95.29	89.59	89.99	91.14	91.50	90.48	93.20	94.52	94.94	93.29	95.41	96.00	97.12	98.18	96.68					
Oct 2021	95.29	89.57	89.99	91.14	91.50	90.30	92.89	93.32	93.65	92.54	94.38	95.41	97.12	98.69	96.40					
Sept 2021	94.80	89.68	89.83	91.15	91.36	90.30	93.05	92.64	92.70	92.18	93.17	94.54	96.25	97.59	95.40					
Aug 2021	94.79	89.68	89.83	91.15	91.35	90.29	92.49	92.67	93.11	92.15	93.34	94.15	95.51	96.47	94.88					
July 2021	94.79	89.68	89.83	91.15	91.35	90.31	92.88	93.17	93.80	92.55	93.65	94.10	95.16	95.82	94.69					
June 2021	94.79	89.68	89.83	91.15	91.35	90.53	92.26	92.63	93.26	92.18	93.13	93.48	94.31	94.81	93.93					
May 2021	94.79	89.68	89.83	91.15	91.35	90.09	90.75	91.34	92.03	91.06	91.97	92.54	93.60	94.36	93.12					
Apr 2021	94.79	89.68	89.83	91.18	91.36	90.82	90.90	91.59	92.31	91.41	92.23	92.75	93.76	94.39	93.29					
Mar 2021	94.79	89.68	89.82	91.08	91.34	90.50	91.04	91.71	92.13	91.35	91.87	92.25	93.28	93.90	92.83					
Feb 2021	94.79	89.68	89.82	90.89	91.29	90.88	90.17	90.40	90.54	90.50	89.95	90.18	91.41	92.26	90.96					
Jan 2021	94.79	89.67	89.87	88.73	90.76	87.48	87.54	88.54	89.11	88.17	88.54	88.86	90.17	91.02	89.66					

Source: EIA STEO

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



Source: EIA STEO

Natural Gas – EIA STEO forecasts Nov 1/22 storage to be down YoY

The EIA STEO also forecasts US gas storage. Its forecast is a bit of mixed bag. (i) Winter 2021/22. US gas storage started winter 2021/22 at 3.66 tcf, which was down 283 bcf YoY.

EIA STEO storage forecast

But the EIA now forecasts end of winter (March 31, 2022) at 1.5 tcf, which is -24 bcf YoY and ~1.8% below the 5-yr average. (ii) Summer 2022. The EIA forecasts start of winter 2022/23 storage at 3.52 tcf, which is -115 bcf YoY ie. the YoY surplus is expected unchanged from March 31, 2022. The start of 2022/23 winter forecast is +1.8% below the 5-yr average. (iii) The EIA wrote *"We expect natural gas inventories to fall by about 95 Bcf in March, ending the withdrawal season at about 1.5 Tcf, which would be 10% less than the five-year average for this time of year. We forecast that natural gas inventories will end the 2022 injection season (end of October) at 3.5 Tcf, which would be 4% less than the five-year average."*

Figure 7: EIA STEO forecast US gas storage

	US Working Natural Gas in Storage (billion cubic feet)					
	Storage	2016-2021				
	Level	Low	High	Range	Average	Deviation
Mar 2016	2,486.3	1,184.9	2,486.3	1,301.4	1,835.6	35.4%
Oct 2016	4,012.7	3,236.3	4,012.7	776.4	3,624.5	10.7%
Mar 2017	2,062.5	1,184.9	2,486.3	1,301.4	1,835.6	12.4%
Oct 2017	3,816.5	3,236.3	4,012.7	776.4	3,624.5	5.3%
Mar 2018	1,390.3	1,184.9	2,486.3	1,301.4	1,835.6	-24.3%
Oct 2018	3,236.3	3,236.3	4,012.7	776.4	3,624.5	-10.7%
Mar 2019	1,184.9	1,184.9	2,486.3	1,301.4	1,835.6	-35.4%
Oct 2019	3,762.0	3,236.3	4,012.7	776.4	3,624.5	3.8%
Mar 2020	2,029.4	1,184.9	2,486.3	1,301.4	1,835.6	10.6%
Oct 2020	3,928.5	3,236.3	4,012.7	776.4	3,624.5	8.4%
Mar 2021	1,800.6	1,184.9	2,486.3	1,301.4	1,835.6	-1.9%
Oct 2021	3,664.6	3,236.3	4,012.7	776.4	3,624.5	1.1%
Mar 2022	1,530.4	1,184.9	2,486.3	1,301.4	1,835.6	-16.6%
Oct 2022	3,519.2	3,236.3	4,012.7	776.4	3,624.5	-2.9%
Source: Energy Information Administration - Short Term Energy Outlook March, 2022						

Source: EIA

Natural Gas – Did Biden's desire to expedite US LNG to Europe lose out to climate

Biden fails to expedite LNG

We have to believe the European leaders will be putting Biden in a "show me" position the next time he convinces them to join one of his priorities. Biden has been leading the charge to get as many leaders around the world to cut off imports of Russian oil, natural gas and LNG. This is a nothing burger for the US but a major sacrifice for Europe, but they went along with Biden. We have to believe Biden committed the US to move along approvals of US LNG projects on an expedited basis to help fill the massive Europe natural gas gap. We don't believe Biden would have deliberately made false promises. But it sounds like the Democrats Liberal wing has shot down any attempt for Biden to expedite LNG projects to help Europe in the 2020s. On Thursday, Reuters wrote [LINK] "*Early White House efforts to boost U.S. liquefied natural gas exports and cut Europe's reliance on gas from Russia after its invasion of Ukraine are proceeding slowly, because of concerns about climate change impacts, government and industry sources said. The Ukraine crisis has underscored Europe's dependence on Russia, which supplies about 40% of its natural gas used to heat homes and generate electricity, and the Biden administration has promised its allies it will help break that chain. The White House was weighing the announcement of an interagency review of ways to boost liquefied natural gas exports to Europe alongside Tuesday's decision to ban U.S. imports of Russian oil products, people briefed on government decision-making told Reuters. However, the interagency review has been shelved, at least for now, after some in the White House argued it would counter the administration's efforts to wean the U.S. off fossil fuels consumption and production and tackle climate change, the sources said*." Our Supplemental Documents package includes the Reuters report.

Points to continued challenge for oil, gas, LNG, NGLs approvals under Biden
We are highlighting this report as it is something to keep in mind for all new oil, natural gas, LNG or NGLs infrastructure project in the US. Our concern is that if Biden can't get the Democrat Liberals onside for expedited LNG process during an emergency where he is trying to rally the world for support to get more LNG and natural gas to Europe so they can cut off Russia natural gas and LNG, then what does that foretell for approvals during non-emergency times. It reinforces that Biden isn't in control of the agenda or at least has to pamper more to the far left. The US LNG supply will continue to grow, but this is a reminder that the US LNG growth isn't likely to surprise to the upside. And, if anything, there are likely to be slower timelines for any new LNG project approvals.

Guess Biden's stronger poll numbers don't mean much to +Democrat Liberals
We have to believe Biden promised European leaders that he would drive thru an expedited US LNG approval process if they joined his banning Russian oil, natural gas and LNG ban. We would hate to Biden lied to them, rather he just overestimated his power within the Democrats. He has probably been feeling good about his power with big jump in poll numbers. Last week, the NPR and PBS NewsHour poll [LINK] showed his biggest MoM approval increases with March being +8% MoM to 47% vs 50% disapprove and 3% unsure. The 47% is his best pol numbers since Aug. But perhaps the reason why the Democrat Liberals don't look at Biden having coattails is that his approval looks soft vs his disapproval. The 47% approval is split 18% strongly approve and 30% approve. The 50% disapproval is split 38% strongly disapprove and 12% disapprove. Our Supplemental Documents package includes excerpts from the poll.

Natural Gas –Cheniere sold out of existing trains but not Corpus Christi expansion

Cheniere CEO clarifies his sold out statement

There was quite a LNG excitement out of CERAWeek on Monday, when the reports starting hitting that Cheniere CEO Fusco said on stage that Cheniere was sold out of LNG until 2040. It turned out that wasn't quite accurate. But Cheniere is sold out of all existing LNG trains, just not its 1.3 bcf/d Corpus Christi expansion. Mid afternoon Monday, we tweeted [LINK] ""*i misspoke" says #Cheniere CEO to @SullyCNBC on headline $LNG is sold out until 2040. The sold out referred to existing 9 trains, which is why they are moving on Corpus Christi expansion to add 1.3 bcf/d LNG in 2025. Bet expansion sells out quickly! #OOTT #NatGas".* Cheniere CEO Fusco saw those headlines and made sure he went on CNBC to correct the record. We created a transcript of Fusco's comment to CNBC Brian Sullivan [LINK]. At 2:25 min mark, Sullivan "*there was a headline today that said you said that Cheniere was sold out of LNG until 2040. So I looked at that and I thought, well, there's no growth there, that headline is maybe misleading".* Fusco "*yeah and I apologize for that, I misspoke. So on a nine train platform, we are definitely sold out, which is why the expansion is so important to us. So with the expansion, we will create some breathing room for us to continue to sell more long term LNG*".

Natural Gas – EU's Russia gas plan is a global game changer for energy for 2020s

Global changer to energy for 2020s

On Tuesday, Europe announced its plan for energy that will be a global game changer for energy for at least the 2020s. It is the most significant energy event in a very long time and one that we will be writing on in much more detail than our brief comments today. It is huge and not just for natural gas. On Tuesday, the EU released "*REPowerEU: Joint European action for more affordable, secure and sustainable energy*". The plan said "*The European Commission has today proposed an outline of a plan to make Europe independent from Russian fossil fuels well before 2030, starting with gas, in light of Russia's invasion of Ukraine. This plan also outlines a series of measures to respond to rising energy prices in Europe and to replenish gas stocks for next winter. Europe has been facing increased energy prices for several months, but now uncertainty on supply is exacerbating the problem. REPowerEU will seek to diversify gas supplies, speed up the roll-out of renewable gases and replace gas in heating and power generation. This can reduce EU demand for Russian gas by two thirds before the end of the year. Commission President Ursula von der Leyen said: "We must become independent from Russian oil, coal and gas. We simply cannot rely on a supplier who explicitly threatens us. We need to act now to mitigate the impact of rising energy prices, diversify our gas supply for next winter and accelerate the clean energy transition. The quicker we switch to renewables and hydrogen, combined with more energy efficiency, the quicker we will be truly independent and master our energy system."* There is so much in this plan. It's more than natural gas, I's also coal and oil. But the natural gas target is to reduce their consumption of Russian natural gas by 2/3 by the end of 2022, and then completely by 2030. The implications are wide and deep, and we will be writing in detail on this plan. Our Supplemental Documents package includes the release. [LINK]

EU needs to cut 10 bcf/d of Russia natural gas by yr end to reach target

There is a massive and urgent Reduce and Replace need in Europe's new natural gas plan with Russia. Europe imported 15 bcf/d from Russia so its target is to cut 10 bcf/d of demand for Russian natural gas in 9 months. That is just not doable unless there is a big economic crash in Europe. Reducing natural gas consumption is already coming from natural gas demand destruction from high prices as noted in the Yara item later in the memo. But there will have to other demand destruction or forced conservation. Anyone who has been in Europe during heat waves and high natural gas prices will think at first there is something wrong with their hotel room air conditioning. There is nothing wrong, it's just a limit by the hotel. And then the item we have highlighted before, there will be a big pull on LNG to both ensure storage is full ahead of winter and to replace Russian natural gas. It's a massive challenge. They won't get there, but they will be significantly Russian natural gas and increasing LNG imports.

Europe had a natural gas crisis before cutting out Russia natural gas

Our concern for this new European plan is that it was done quickly and not necessarily reflecting that Europe had an energy crisis long before Ukraine and already had a huge energy challenge for the 2020s before Ukraine. Here is what we wrote in our Jan 23, 2022 Energy Tidbits. "*Once again, Shell CEO van Beurden gives a simple, but effective, warning to Europe on why it has a natural gas crisis. And that Europe needs some long term solutions as there isn't a quick fix to Europe's natural gas crisis. Europe needs more natural gas imports as its consumption is unchanged but its gas production is down 20% post pandemic. And actually said a similar warning as Putin on natural gas – Europe's move away from long term LNG or natural gas supply contracts is the key reason for today's crisis. On Friday, Le Figaro* *posted its interview with Shell CEO van Beurden [LINK]. "Ben van Beurden: "Reducing dependence on gas and oil is not feasible overnight"". Yesterday, we tweeted [LINK] "europe produces 20% less #NatGas than before thje pandemic & we consume as much. there are only long-term solutions for out of this crisis" ie. #LNG terminals but EU don't do LT supply deals. warns @VanBeurdenShell. lucky Dec was warm. Merci @guillaume_gui @IvanLetessier #OOTT." Le Figaro asks "How to get out of the energy crisis that Europe is going through?" Van Burden replies "On the contrary, price volatility undermines the will of committed companies in the energy transition. Reduce the dependence of our economies on gas and oil is infeasible overnight. Governments can take emergency action, but if they neglect the market, the exit of crisis will take longer. In the short and long term, we must increase energy supply. Europe produces 20% less gas than before the pandemic and we consume as much. There are only long-term solutions for out of this crisis, such as facilitating the construction of gas terminals liquefied natural to increase imports. The lack of contracts long-term gas supply is also a problem." Our Supplemental Documents package includes the Google Translate of the Le Figaro interview*."

Natural Gas – No surprise, seeing European buyers adding more long term LNG deals

More Europe long term LNG deals

No one should be surprised to see the start of announcements of European LNG buyers locking up long term LNG supply deals. As noted in the above Shell CEO comments, Europe has lagged Asians in locking up long term LNG supply. That has to change and we expect to see a wave of long term LNG supply deals much like we saw from Asian LNG buyers starting last summer. No surprise, the first announcements are expansions or building from some existing long term LNG supply deals.

Engie extends and upsizes previous long term LNG deal with Cheniere

On Wednesday, Cheniere announced [LINK] an amendment to the Engie Nov 2021 LNG sale and purchase agreement. Cheniere said that, under the SPA, Engie has agreed to purchase approximately 0.11 bcf/d of LNG from CCL on a free-on-board basis for a term of approximately 20 years, which began in September 2021. Note there was not a press release to the original Engie Nov 21 deal, rather there was a FERC filing that indicated a range of 0.4 to 0.12 bcf/d. The press release would suggest that the deal has now been finalized at the upper end of the original range. The purchase price for LNG under the SPA is indexed to the Henry Hub price, plus a fixed liquefaction fee. Cheniere commented *"We are pleased to build upon the long-term agreement we signed in 2021 with Engie, one of Europe's energy leaders in low carbon solutions, to increase the volume and extend the term beyond 2040," said Jack Fusco, Cheniere's President and Chief Executive Officer. "This SPA reflects the importance of a diverse and reliable long-term supply of natural gas for Europe and reinforces the value the LNG market places in Cheniere's commitment to climate and sustainability initiatives. We look forward to continuing to supply Engie with flexible, cleaner burning LNG as part of our shared vision of a lower carbon future."* Our Supplemental Documents package includes the Cheniere release.

Shell to buy another 0.26 bcf/d in 20 yr deal from Venture Global

No one should be surprised to see that Shell has locked up additional LNG supply for its LNG portfolio. As noted in last week's (March 6, 2022) Energy Tidbits, Shell announced it was going to exit its Gazprom ventures including the interest in the Sakhalin-2 LNG operations. On Monday Venture Global announced a 20 year sale and purchase agreement with Shell LNG NCC [LINK]. The agreement will provide Shell with an additional 0.26 bcf/d from Venture Global's Plaquemines LNG export facility in Louisiana. This new deal builds on Shell's existing contract for 0.26 bcf/d from the Calcasieu Pass LNG export terminal, bringing Shell's total long-term offtake from Venture Global's facilities to 0.52 bcf/d. Venture Global commented. *"Venture Global is honored that Shell, our first foundational customer at Calcasieu Pass, has chosen to expand its existing cooperation with our company with a second partnership at Plaquemines. Venture Global is committed to bringing low-cost US LNG online quickly, helping to keep the global market well supplied, while meeting our customers' growing energy and climate goals. We look forward to working with Shell for many years to bring low-cost, clean American LNG to the markets that need it most."* Below is a graphic depicting recent Long term LNG Deals around the world. Our Supplemental Documents package includes the Venture Global release.

Europe has a long way to go to catch up to Asia

Europe LNG buyers are 9 months behind Asian LNG buyers in locking up long term LNG supply. We turned very bullish on LNG outlook for the 2020s once TotalEnergies went force majeure on its Mozambique LNG in April 2021. We posted our April 28, 2021 blog *"Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?"* as we thought the market had overlooked that this force majeure backed up 5.0 bcf/d of Mozambique LNG that was originally planned to start in phases in 2024. And that this would create an earlier and larger LNG supply gap in the mid 2020s. Then we started to see validation of this view when Asian LNG buyers in July made an abrupt change to their LNG contracting and pivoted to trying to lock in long term LNG supply. On July 14, 2021 we posted our 8-pg "*Asian LNG Buyers Abruptly Change and Lock in Long Term Supply – Validates Supply Gap, Provides Support For Brownfield LNG FIDs".* Here is an excerpt from the blog "*The last 7 days has shown there is a sea change as Asian LNG buyers have made an abrupt change in their LNG contracting and are moving to lock in long term LNG supply. This is the complete opposite of what they were doing pre-Covid when they were trying to renegotiate Qatar LNG long term deals lower and moving away from long term deals to spot/short term sales. Why? We think they did the same math we did in our April 28 blog "Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?" and saw a much bigger and sooner LNG supply gap driven by the delay of 5 bcf/d of Mozambique LNG that was built into most, if not all LNG supply forecasts. Asian LNG buyers are committing real dollars to long term LNG deals, which we believe is the best validation for the LNG supply gap. Another validation, Shell, Total and others are aggressively competing to invest long term capital to partner in Qatar Petroleum's massive 4.3 bcf/d LNG expansion despite plans to reduce fossil fuels production in the 2020s. And even more importantly to LNG suppliers, the return to long term LNG contracts provides the financing capacity to commit to brownfield LNG FIDs. The abrupt change by Asian LNG buyers to long term contracts is a game changer for LNG markets and sets the stage for brownfield LNG FIDs likely as soon as before* *year end 2021. It has to be brownfield LNG FIDs if the gap is coming bigger and sooner. And we return to our April 28 blog point, if brownfield LNG is needed, what about Shell looking at 1.8 bcf/d brownfield LNG Canada Phase 2? LNG Canada Phase 1 at 1.8 bcf/d capacity is already a material positive for Cdn natural gas producers. A FID on LNG Canada Phase 2 would be huge, meaning 3.6 bcf/d of Cdn natural gas will be tied to Asian LNG markets and not competing in the US against Henry Hub. And with a much shorter distance to Asian LNG markets. This is why we focus on global LNG markets for our views on the future value of Canadian natural gas."* Below is our updated table of Asian and Europe LNG buyers new long term supply deals since July 1, 2021. Our Supplemental Documents package includes our April and July blogs.

Figure 8: Long Term LNG Supply Deals since July 1, 2021

Long-Term LNG Buyer Deals Since July 1, 2021							
Date	Buyer	Seller	Country Buyer / Seller	Volume (bcf/d)	Duration Years	Start	End
Asian LNG Deals							
Jul 7, 2021	CNOOC	Petronas	China / Canada	0.30	10.0	2022	2032
Jul 9, 2021	CPC	QatarEnergy	Taiwan / Qatar	0.16	15.0	2022	2037
Jul 9, 2021	Guangzhou Gas	BP	China / US	0.13	12.0	2022	2034
Jul 12, 2021	Korea Gas	QatarEnergy	Korea / Qatar	0.25	20.0	2025	2045
Sept 29, 2021	CNOOC	QatarEnergy	China / Qatar	0.50	15.0	2022	2037
Oct 7, 2021	Shenzhen	BP	China / US	0.04	10.0	2023	2032
Oct 11, 2021	ENN	Cheniere	China / US	0.12	13.0	2022	2035
Nov 4, 2021	Unipec	Venture Global LNG	China / US	0.46	20.0	2023	2043
Nov 4, 2021	Sinopec	Venture Global LNG	China / US	0.53	20.0	2023	2043
Nov 5, 2021	Sinochem	Cheniere	China / US	0.12	17.5	2022	2040
Nov 22, 2021	Foran	Cheniere	China / US	0.04	20.0	2023	2043
Dec 6, 2021	Guangdong Energy	QatarEnergy	China / Qatar	0.13	10.0	2024	2034
Dec 8, 2021	S&T International	QatarEnergy	China / Qatar	0.13	15.0	2022	2037
Dec 10, 2021	Suntien Green Energy	QatarEnergy	China / Qatar	0.13	15.0	2022	2037
Dec 15, 2021	SPIC Guangdong	BP	China / US	0.03	10.0	2023	2033
Dec 20, 2021	CNOOC Gas & Power	Venture Global LNG	China / US	0.26	20.0	2023	2043
Dec 29, 2021	Foran	BP	China / US	0.01	10.0	2023	2032
Jan 11, 2022	ENN	Novatek	China / Russia	0.08	11.0	2024	2035
Jan 11, 2022	Zhejiang Energy	Novatek	China / Russia	0.13	15.0	2024	2039
Feb 4, 2022	CNPC	Gazprom	China / Russia	0.98	30.0	2023	2053
Total Asian LNG Buyers New Long Term Contracts Since Jul/21				**4.53**			
Non-Asian LNG Deals							
Jul 28, 2021	PGNiG	Venture Global LNG	Poland / US	0.26	20.0	2023	2043
Nov 12, 2021	Engie	Cheniere	France / US	0.11	20.0	2021	2041
March 7, 2022	Shell	Venture Global LNG	US / US	0.26	20.0	2024	2044
Total Non-Asian LNG Buyers New Long Term Contracts Since Jul/21				**0.63**			
Total New Long Term LNG Contracts since Jul/21				**5.16**			
*Excludes Asian short term/spot deals							
*on Dec 20, CNOOC also agreed to buy an additional 0.13 bcf/d from Venture Global for an undisclosed shorter period							

Source: Company reports, SAF Group

Natural Gas – TotalEnergies CEO spoke to "highest authority" on not exiting Russia

TotalEnergies spoke to highest authority

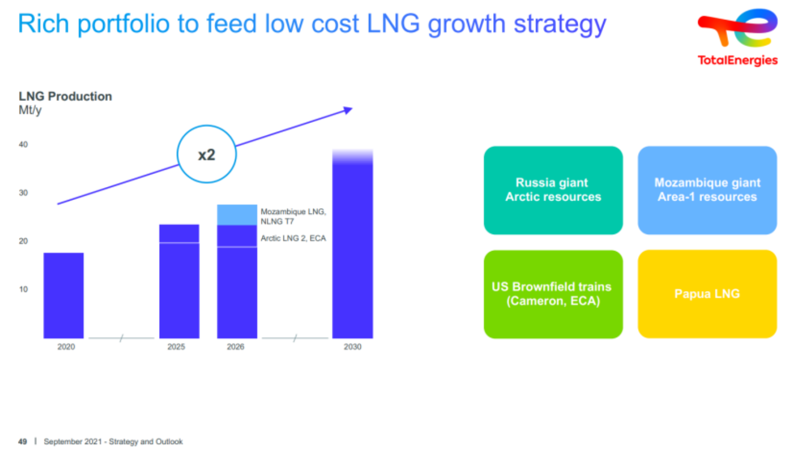
Last week's (March 6, 2022) Energy Tidbits memo noted that TotalEnergies did not join the other European supermajors like BP and Shell and say they will sell or get rid of their Russian interests. No one should have been surprised by this as Russian LNG is a major part of TotalEnergies growth plan. And as TotalEnergies CEO Patrick Pouyanne said this week, he consulted with the highest authority in France on this decision. Pouyanne didn't drop names but surely he meant he talked with Macron. On Monday, we tweeted [LINK] on the Reuters report [LINK] "*Pouyanne said TotalEnergies did not come under government pressure to fully exit Russia following the Ukraine invasion. TotalEnergies is the only major Western energy company that does not plan to fully exit Russia; BP, Shell and Exxon all announced their intentions to withdraw. TotalEnergies has said it will halt all new spending in Russia. The*

French oil major holds a 19.4% stake in Novatek (NVTK.MM), Russia's largest producer of liquefied natural gas (LNG), as well as a stake in the Novatek-led Arctic LNG project. "I had discussions obviously with the highest authority in my country and there is no push from them for us to exit Russia," Pouyanne told a gathering of energy executives. Pouyanne said that Western sanctions on Russia exclude natural gas and that it would therefore be inconsistent for companies that produce the gas to exit the country." Our Supplemental Documents package includes the Reuters report.

Russia LNG is a key to TotalEnergies growth plan

On March 1, we tweeted [LINK] "*Here's why, at least for now, @TotalEnergies says will no longer provide capital for "new" projects in Russia & not sell like @bp_plc @Shell. Existing currently moving ahead RUS #LNG projects are core part of their growth for 2020s. #OOTT #NatGas.*" The existing currently moving ahead LNG projects in Russia are just too significant to TotalEnergies growth. Our tweet included slides from their Sept 2020 and Sept 2021 Strategy and Outlook slide decks. Their Russian Arctic LNG projects is one of their "*flagship LNG projects fueling 2025 growth*." Russia LNG has become even more important given the multi-year delays being seen at its' Mozambique LNG. Below is one of the slides from the Sept 2021 Investor Strategy and Outlook. Our Supplemental Documents package includes slides from both the Sept 2020 and Sept 2021 slide decks.

Figure 9: TotalEnergies Russia Arctic LNG Growth



Source: TotalEnergies

Natural Gas –TotalEnergies reminds – not enough regas terminals to replace RUS gas

Europe isn't ready to replace Russian gas

We have always enjoyed TotalEnergies CEO Pouyanne's comments as he tends to be direct in his views. The Reuters report also noted Pouyanne reminding of some of the basics for Europe's natural gas problem with the push to get rid of Russian natural gas. The big headlines from Pouyanne's comments were ""*What is happening today in Europe is a big wake up call to a lot of policy makers if they are serious about security of supply, affordability and of course climate change compatibility.*" And he reminded of one of the basics – Europe does not have enough LNG regas terminals to replace Russian pipeline natural gas.

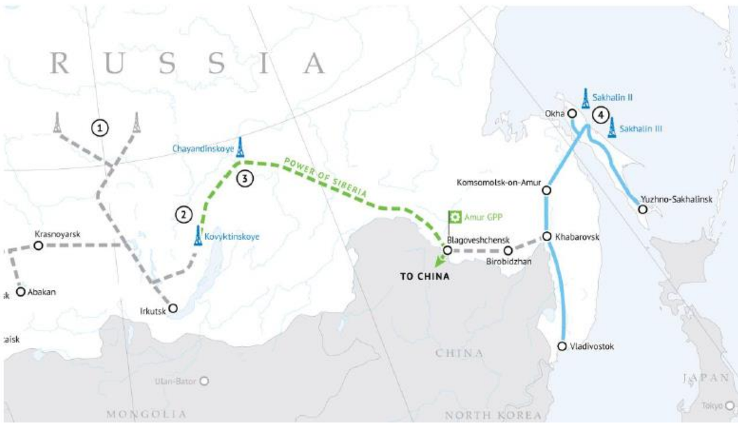
Pouyanne reminds that there is a big LNG infrastructure capex ahead as "*The reality in Europe is that we don't have enough re-gas terminals today to replace the volume of piped gas from Russia by LNG."* One related logistical item not in Pouyanne's comments is that it will likely take much longer to start from scratch and order new FSRUs or onshore regas equipment. The queue is already long.

Natural Gas – No surprise, Japan stays in Russia's Sakhalin-2 LNG 1.3 bcf/d project

Japan stays in Sakhalin-2 LNG

Earlier this morning, we tweeted [LINK] on the Nikkei Asia report that Japan is staying in Gazprom's Sakhalin-2 LNG project that is producing approx. 1.3 bcf/d LNG. Sakhalin-2 ownership is currently Gazprom 50%, Shell 27.5%, Mitsui 12.5% and Mitsubishi 10%. Last week's (March 6, 2022) Energy Tidbits highlighted Shell's announcement that it would exit its Gazprom deals. Japan takes ~60% of the LNG supply, which should be expected as Sakhalin-2 is the closest LNG supply to Japan with shipping times less than a few days. Nikkei Asia wrote "*The government and trading companies analyzed the risks involved in withdrawing from the project. The spot market would have to fill the gap resulting in almost $20 billion in additional cost to the public. Upward pressure on electricity and gas prices, which are already on an upward trend, would intensify further. And if Japan were to withdraw, there is concern that "China will take over the interests," according a government official."* Below is a Gazprom map showing the location of Sakhalin-2 to Japan. Our Supplemental Documents package includes the Nikkei Asia report.

Figure 10: Gazprom in Eastern Russia 2019 map



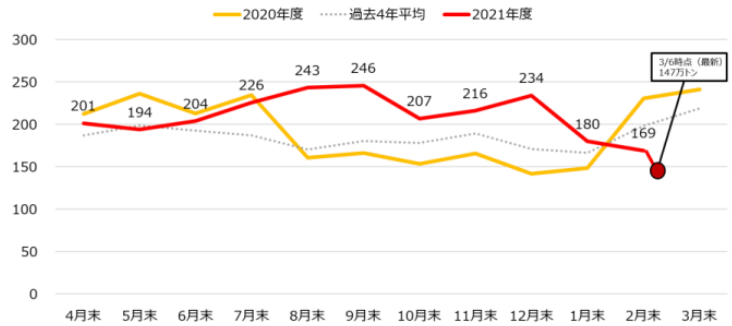
Source: Gazprom

Natural Gas – Japan's LNG stocks decrease significantly at 1.47 mm tons

Japan LNG stocks below 5 yr avg

The colder than normal February led to increased demand but also more LNG cargos to ensure Japan wouldn't be caught short to end winter. The net impact was slightly higher WoW LNG stocks. Japan's METI data was released on Tuesday [LINK] and gave us insight into Japan's LNG stocks. LNG stocks decreased for the week ended Mar 6, from 1.80 mm tons the previous week, and are now at 1.47 mmt, the lowest levels since Dec 2020; this is below last year's levels of 2.41 mm tons and 8% below the 5-year average of 2.19 mmy. The decrease is likely a result of the well below average temperatures in Japan over the course of the week. We have been noting that Japanese LNG buyers returns to the spot market after weeks of absence to resupply the quickly dwindling stockpiles of LNG. We expect further increases in the coming weeks as Japan is expected to experience warmer weather during March and demand is likely to dampen. Below is a chart depicting Japan's LNG stocks.

Figure 11: Japan's LNG Stocks



Source: METI

Natural Gas – 1st threat from Russia on existing Nord Stream 5.3 bcf/d gas to Europe

Novak warns on potential Nord Stream deliveries

Finally, we saw the first reminder from Russia that they could cut natural gas supplies from the existing 5.3 bcf/d Nord Stream pipeline. We have to believe this would be a last resort as natural gas is a key cash generator for Russia. And especially so at this time of the year. The time to play this wildcard is winter and not going into the lower demand shoulder season. This is the existing in-service pipeline to Germany. Nord Stream 2 is the similar 5.3 bcf/d pipeline that is awaiting in-service approvals from Germany. On Monday, we tweeted [LINK] "*#Novak, RUS has right to impose an embargo on #NatGas thru existing 5.3 bcf/d Nord Stream 1 "but so we are not making this decision". Good thing for Europe winter is effectively over. Winter #NatGas demand is 2x summer demand. #OOTT".* Our tweet linked to the TASS report [LINK] that said "*Russia, in connection with unfounded accusations regarding the energy crisis in Europe and the imposition of a ban on Nord Stream 2, has every right to make a "mirror" decision and impose an embargo on gas transportation through Nord Stream 1, which is 100% loaded. Deputy Prime Minister of the Russian Federation Alexander Novak told reporters about this. "But so far we are not making this decision. No one will benefit from this. Although European politicians are pushing us to this with their statements and accusations against Russia," Novak stressed.*" It was interesting to note that Gazprom's website has been out of commission for the last couple days. Our Supplemental Documents package includes the TASS report.

Figure 12: Nord Stream and Nord Stream 2

Source: Gazprom, BBC

Natural Gas – EU natural gas demand destruction, Yara cuts ammonia/urea production

EU natural gas demand destruction

We suspect we may have missed other reports, but we certainly expect to see more reports of natural gas demand destruction post the EU's new plan to reduce Europe's natural gas imports from Russia by 2/3 by Dec 31, 2022. Industrial natural gas users have to look at this and realize that Europe natural gas prices will be much higher than expected for the balance of 2022. On Wednesday, a major European fertilizer company, Yara International, announced [LINK] that they would be reducing production at their Ferrara and Le Havre plants. The two plants have a combined annual capacity of 0.14 bcf/d of ammonia and 0.12 bcf/d of urea, production of both ammonia and urea is expected to operate at 45% capacity by the end of the week. This is not Yara's first such announcement. Our Sept 19, 2021 Energy Tidbits reported on a similar reduction to production due to then high natural gas prices. The other impact we will all see is that this is only going to add to higher food prices. Our Supplemental Documents package includes the Yara announcement.

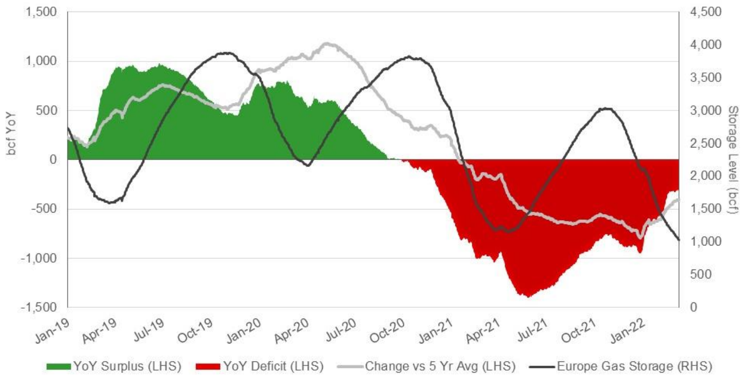
Natural Gas – Europe storage YoY deficit is now only 6.89% ie. 26.30% full vs 33.19%

Europe storage down to 26.30% full

Europe avoided natural gas shortages this winter with the combination of warmer weather, strong wind generation and a massive increase in US LNG imports. As a result, the YoY Europe storage gap continues to narrow since the start of the winter natural gas season. Europe gas storage started down 18.52% YoY and is now down to a YoY deficit of 7.82%. Draws to European gas storage units continued this week. It was a smaller draw due to the warmer weather. Europe inventories are at their lowest level at this time of the year in more than a decade. 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 tightened since Nov 1. Despite the warm weather and US LNG, storage as of Feb Mar 10 is still only at 26.30%, which is -6.89% less than last year levels of 33.19% and are -10.26%

below the 5-year average of 36.56%. The set up for winter natural gas prices continues to support strong winter natural gas prices. Below is our graph of Europe Gas Storage Level.

Figure 13: Europe Gas Storage Level



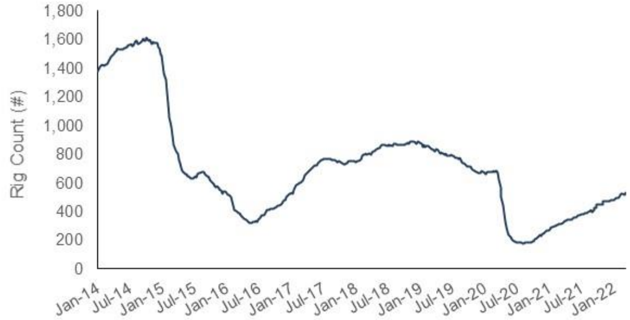
Source: Bloomberg
Prepared by SAF Group https://safgroup.ca/news-insights/

Oil – US oil rigs +8 WoW at 527 oil rigs at Mar 11

Baker Hughes released its weekly North American drilling activity data on Friday. We expected another increase given the ~$110/bbl WTI and producers have ramped up production with the elevated prices. There is still strong oil, NGLs and natural gas prices and industry has fresh 2022 capex budgets and is still just catching up in 2021 from an extremely low 2020 activity level. This week US oil rigs were up +8 WoW at 527 oil rigs, with all major oil and gas basins either flat or down slightly. Oil rigs are +355 off the bottom of 172 in Aug14/2020 week. There were modest basin changes this week; Permian was up +6 at 316 rigs this week while Bakken was flat at 33 rigs after increasing for consecutive weeks. US oil rigs hit their 2020 peak at 683 on March 13 and have since fallen by 157 to 527 oil rigs (-15%). US gas rigs were +5 WoW with increases in the Haynesville basin reflecting the heightened $4 HH. Below is our graph of US oil rigs since January 1, 2014.

US oil rigs +3 WoW

Figure 14: Baker Hughes Total US Oil Rigs



Source: Baker Hughes

Oil – US frac spreads -8 to 272 for week ended March 11

Mark Rossano (C6 Capital Holdings) held his weekly US frac spread recap for week ended March 11 on the Primary Vision network. YouTube video is at [LINK]. For the week ended March 11, US frac spreads at the high point in the week were -8 to 272. This follows the -10 for the week ended March 4. Rossano noted these decreases were not unexpected for this time of year. He said some of the smaller basins that had picked up a spread or two were down, Permian was down a touch, Appalachia was flat, and Haynesville was down a little. He emphasized that this is seasonal and should get back to picking up as you get into April. Also he highlighted that the pause in frac spreads is happening at the same time as rigs are increasing as there needs to be a build up of DUCs.

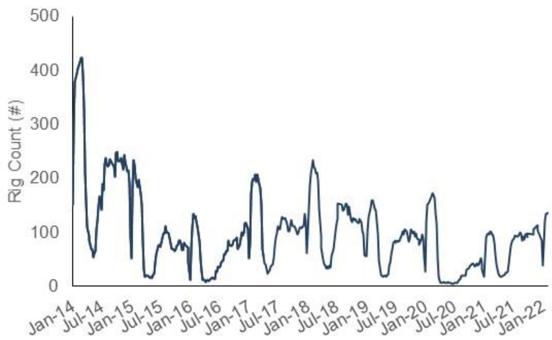
Frac spreads -8 to 272

Oil – Total Cdn rigs -11 to 206 total rigs, +90 rigs YoY

Total Cdn rigs were up -11 this week to 206 total rigs. Cdn oil rigs were -7 at 127 rigs. Cdn gas rigs were -3 at 79 gas rigs; attributed to the end to winter drilling season. We expect to see much bigger WoW declines in the next few weeks. Total rigs are now +194 since the June 26, 2020 all-time low. Cdn drilling has recovered YoY, a year ago Cdn oil rigs were 58 and Cdn gas rigs were 58 for a total Cdn rigs of 116, meaning total Cdn rigs are +90 YoY and total rigs are +17 vs 2019.

Cdn rigs -11 WoW

Figure 15: Baker Hughes Total Canadian Oil Rigs



Source: Baker Hughes

Oil – US weekly oil production flat at 11.6 mmb/d

In the absence of any inclement weather, US production has remained flat in line with the expectation for the quarter. Weekly production in the US was flat this week at 11.6 mmb/d for the week ended Mar 5. Lower 48 production drove total production and was flat from last weeks level at 11.2 this week, Alaska was also flat this week. US oil production is up YoY at +1.6 mmb/d from last year's February freeze and is still down significantly at -1.5 mmb/d since the 2020 peak of 13.1 mmb/d on March 13. Absent weather impacts, we would expect US oil production to remain relatively flat if not inch up a little higher in Q1/22.

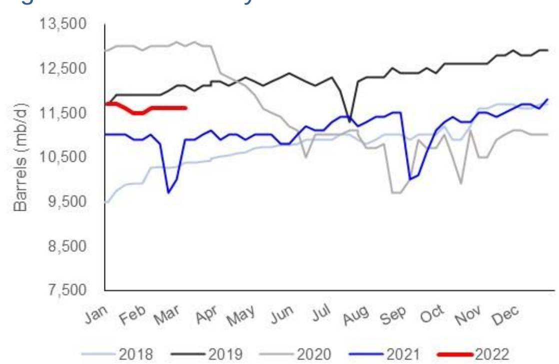
US oil production flat WoW

Figure 16: 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
2019-Jan	01/04	11,700	01/11	11,900	01/18	11,900	01/25	11,900		
2019-Feb	02/01	11,900	02/08	11,900	02/15	12,000	02/22	12,100		
2019-Mar	03/01	12,100	03/08	12,000	03/15	12,100	03/22	12,100	03/29	12,200
2019-Apr	04/05	12,200	04/12	12,100	04/19	12,200	04/26	12,300		
2019-May	05/03	12,200	05/10	12,100	05/17	12,200	05/24	12,300	05/31	12,400
2019-Jun	06/07	12,300	06/14	12,200	06/21	12,100	06/28	12,200		
2019-Jul	07/05	12,300	07/12	12,000	07/19	11,300	07/26	12,200		
2019-Aug	08/02	12,300	08/09	12,300	08/16	12,300	08/23	12,500	08/30	12,400
2019-Sep	09/06	12,400	09/13	12,400	09/20	12,500	09/27	12,400		
2019-Oct	10/04	12,600	10/11	12,600	10/18	12,600	10/25	12,600		
2019-Nov	11/01	12,600	11/08	12,800	11/15	12,800	11/22	12,900	11/29	12,900
2019-Dec	12/06	12,800	12/13	12,800	12/20	12,900	12/27	12,900		
2020-Jan	01/03	12,900	01/10	13,000	01/17	13,000	01/24	13,000	01/31	12,900
2020-Feb	02/07	13,000	02/14	13,000	02/21	13,000	02/28	13,100		
2020-Mar	03/06	13,000	03/13	13,100	03/20	13,000	03/27	13,000		
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								

Source: EIA

Figure 17: US Weekly Oil Production



Source: EIA, SAF

Oil – EIA STEO increasing its forecast for US oil production growth to Q4/23

EIA forecasts US 2022 oil exit at 12.27 mmb/d

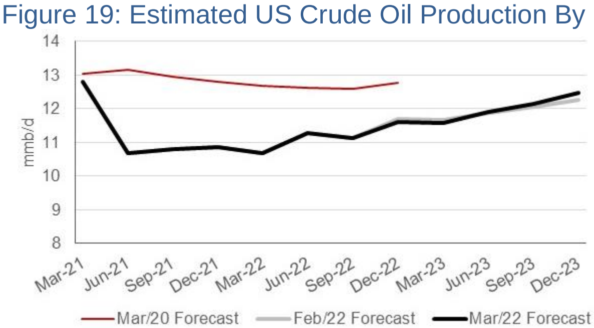
There was no surprise to see the EIA STEO increase its forecast for US oil production given higher oil prices and the flight from Russian oil at the onset of the Ukrainian invasion. The EIA notes that their forecasts are subject to greater uncertainty amid the rapidly evolving confliuc in Europe. (i) The EIA slightly raised the 2020 forecasted production numbers, up 0.01 mmb/d from last month. (ii) The EIA forecast slightly lowered its US crude expectations thru the back half of 2021, still not returning anywhere near the Q4/19 peak of 12.88 mmb/d, with Q4/21 US crude of 11.62 mmb/d (down 1.24 mmb/d from peak). Q4/21 of 11.62 mmb/d is +0.74 mmb/d YoY vs Q4/20. Full year 2020 US oil production is up at 11.29 mmb/d and is down 1.09 mmb/d YoY from 12.29 mmb/d in 2019. (iii) Full year 2021 is decreased by 0.02 mmb/d vs February STEO to 11.18 mmb/d, which is down -0.11 mmb/d YoY from 2020. (iv) The EIA forecasts a shift back to YoY growth in 2022 with production averaging 12.03 mmb/d, +0.85 mmb/d YoY (was 11.97 mmb/d previously), with Q4/22 production of 12.48 mmb/d, is still down -0.4 mmb/d from Q4/19. (v) The 2023 outlook was released and projects crude production to begin Q1/23 at 12.75 mmb/d and close the year in Q4/23 at 13.24 mmb/d for and average of 12.99 mmb/d in 2023. (vi) In the US oil production commentary, the EIA wrote *"U.S. crude oil production fell below 11.6 million b/d in December 2021 (the most recent monthly historical data point), a decline of 0.2 million b/d from November 2021. We forecast that production will rise to average 12.0 million b/d in 2022 and then to recordhigh production on an annual-average basis of 13.0 million b/d in 2023. The previous annual-average record of 12.3 million b/d was set in 2019."*

Figure 18: Estimated US Crude Oil Production By Forecast Month

mmb/d	Q1/20	Q2/20	Q3/20	Q4/20	2020	Q1/21	Q2/21	Q3/21	Q4/21	2021	Q1/22	Q2/22	Q3/22	Q4/22	2022	Q1/23	Q2/23	Q3/23	Q4/23	2023
Mar-22	95.25	86.63	92.30	93.76	91.99	94.41	96.53	98.58	100.32	97.46	100.01	99.93	100.97	101.49	100.60	102.28	102.37	102.80	102.76	102.55
Feb-22	95.05	84.98	92.78	94.63	91.86	94.09	96.19	98.20	99.70	97.05	99.70	100.04	101.10	101.56	100.90	102.23	102.30	102.67	102.70	102.48
Jan-22	95.05	84.98	92.78	94.63	91.86	94.02	96.14	98.12	99.27	96.89	99.49	100.15	101.12	101.33	100.52	101.77	102.33	102.60	102.37	102.28
Dec-21	94.94	84.93	92.74	94.59	91.80	93.98	96.07	97.91	99.63	96.90	99.29	100.06	101.15	101.29	100.45					
Nov-21	95.83	84.90	93.47	95.43	92.42	94.68	96.69	98.59	100.10	97.53	99.83	100.43	101.59	101.64	100.88					
Oct-21	95.83	84.90	93.47	95.43	92.42	94.66	96.67	98.52	99.98	97.46	99.84	100.57	101.67	101.70	100.95					
Sept 21	95.83	84.90	93.47	95.43	92.42	94.66	96.49	98.55	99.77	97.38	99.59	100.62	101.79	102.00	101.01					
Aug 21	95.59	84.84	93.33	95.38	92.30	94.60	96.71	99.06	100.06	97.63	99.67	100.93	102.06	102.29	101.25					
July 21	95.59	84.85	93.33	95.39	92.30	94.50	96.74	99.03	100.15	97.63	99.81	101.02	102.13	102.41	101.35					
June 21	95.40	84.85	93.33	95.39	92.26	94.50	96.86	98.96	100.27	97.67	99.86	101.01	102.05	102.29	101.31					
May 21	95.41	84.88	93.31	95.42	92.27	94.76	96.96	98.91	100.05	97.69	100.00	101.08	102.19	102.39	101.42					
Apr 21	95.30	84.78	93.21	95.32	92.17	95.26	96.84	98.71	99.79	97.67	99.90	100.93	102.06	102.34	101.32					
Mar 21	95.06	84.95	93.25	95.42	92.18	95.19	97.04	98.61	99.12	97.50	99.79	100.94	102.13	102.42	101.33					
Feb 21	95.20	85.04	93.37	95.51	92.29	95.74	97.20	98.55	99.14	97.67	99.61	100.77	101.96	102.29	101.17					
Jan 21	95.18	84.97	93.35	95.37	92.22	95.98	97.28	98.58	99.26	97.77	99.67	100.65	101.79	102.17	101.08					

Source: EIA STEO

Figure 19: Estimated US Crude Oil Production By Forecast Month



Source: EIA STEO

Oil – We didn't see why the praise for Granholm's speech on work with oil/gas

Crafty Granholm speech

We waited a couple days before commenting on Energy Secretary Granholm's CERAWeek speech but finally gave in on Friday as we just don't think people read the speech. Rather, we suspect people ran with the headlines. People have been wanting to see the Biden administration come out to support the oil and gas sector to produce more in the times of the emergency to see how more oil, natural gas and LNG can get to Europe. And there was universal praise for Granholm's speech that it was a change in the Biden view and that the administration was now prepared to work with the oil and gas sector to increase oil and gas production. Rather, we thought it was a craftily drafted speech. In a nicer way, she says what the Biden line has been – the oil and gas sector should be producing more. She didn't say the administration would do anything to support that. The headlines from here speech was on her sentence that the administration is ready to work with you. That was the sentence, but the problem is that she says that the administration is there to work with the oil and gas sector, not on increasing oil production, but on seizing the opportunity of clean energy. On Friday, we tweeted [LINK] "*1/2. Worth reading @SecGranholm #CERAWeek speech, Yes she tells #Oil sector needs to produce more. "And that means you producing more right now, where and if you can" "So yes, right now, we need oil and gas production to rise to meet current demand" #OOTT.*" And [LINK] "*2/2. But note the end of the sentence that got all the headlines "I'm here to tell you that the Department of Energy, and the entire Biden administration, is ready to work with you to seize the opportunity of clean energy." plus there was other crafty drafting. #OOTT".* We encourage people to read the speech. Our Supplemental Documents package includes the Granholm speech. [LINK]

If any doubts on our Granholm speech view, look at what Biden said on Friday
Earlier this morning, we tweeted [LINK] "*In case you thought @SecGranholm 03/09 was a changed Biden approach to reach out in partnership to #Oil #Gas sector and not just crafty drafting. it didn't last long, #Biden's 03/11 reverts to use the same old language. Any US #Oil growth will be because of industry. #OOTT* " We wish we had been in the room for the House Democratic Caucus Issues Conference to see how the Liberal wing of the Democrat caucus greeted Granholm on her CERAWeek speech. Even in today's careful world, we have to believe she got a lot of high fives. There should be no doubt it was a crafty speech and not representing a change in the Biden administration approach and reach out in partnership with the oil and gas sector. Because if it was a changed approach, it didn't last very long. That is clear after seeing Biden's comments to the conference. Biden went back to the same old oil patch lines that people forgot after the Granholm speech. Here is what the White House transcript [LINK] wrote "*But guess what? They have over 7,000 permits to dig oil if they want. Why aren't they out pumping oil? Why aren't they out pumping oil? Because they've said and they're very clear — Wall Street bankers have made it very clear — not a joke, check it out. And I recommend these two articles to you, just as a little bit of a primer. You probably already know it. What's happened? Well, the oil companies and executives, they don't want to pump more oil, although they have every capacity to do so. Nothing is slowing them up from doing it if they want to. Why? Rather than spend the profits on the increased price of gasoline, they would rather take those profits and buy back stock — buy back their own stock, rather than take that money and invest it in pumping new oil. Not a joke. Not a joke."*

Oil – Biden says US gasoline prices are really Putin's price hike

Putin's price hike

Everyone in the US has now heard Biden and his officials new message that inflation, gasoline prices, etc are due to Putin and Putin's price hike. Our concern isn't that the new messaging is that high gasoline prices are Putin's fault and that it seems to be working. Rather, we feel the same about this as what is happening in the EU – they are forgetting there was an energy crisis as in Europe or gasoline prices were up as in the US before Russia invaded Ukraine. Our concern remains that using Putin as cover for the energy challenges before his invasion means Biden and others won't be dealing with the root issues prior to Ukraine. Rather they are just kicking the can down the road. Here is an excerpt from the White House transcript of Biden's comments to Democrats on Friday "*Make no mistake, inflation is largely the fault of Putin*." "*So don't tell me gas prices rose because I've slowed down the American energy production. In my first year in office, American production grew by 9.7 million barrels a day to 11.6 million while we still made a major, major effort to deal with global warming and changing the way in which we shift to renewable — renewable energy. And don't tell me gas prices rose because of the American Rescue Plan. The San Francisco Reserve — Federal Reserve analyzed this and other outfits confirm: The Rescue Plan contributed to 0.3 percent of inflation — 0.3 inflation. They're the facts. Democrats didn't cause this problem. Vladimir Putin did.*"

Oil – TC Energy says Keystone XL terminated and will not proceed

Keystone XL will not proceed

The potential revival of Keystone XL has been getting a lot of attention in light of Biden's outreach to Maduro that is seen as a potential step towards a return of Venezuela oil to the US. It looks like TC Energy doesn't want to get dragged into the revival of Keystone XL political debate. There wasn't a press release but it looks like TC Energy made sure they got their message out via an email to Reuters. On Tuesday, Reuters reported "*TC Energy Corp said on Tuesday its Keystone XL (KXL) pipeline project to carry Canadian oil to U.S. refineries will not be revived, even as politicians on both sides of the border call for its resurrection to help replace Russian oil imports to North America. Ukraine crisis sparks huge disruption in global trading system The United States on Tuesday banned Russian oil imports in retaliation to Moscow's invasion of Ukraine, a decision that is expected to worsen disruptions in the global energy market. "The Keystone XL Pipeline Project was terminated and will not proceed," a TC Energy spokesman said in an email."* Our Supplemental Documents package includes the National Post reprint [LINK] of the Reuters report.

Oil – No update yet on potential CP rail strike/lockout as early as March 16

Potential CP rail strike/lockout could be March 16

As of our 7am MT news cut off, we have not seen any update on the potential CP rail strike or lockout that could happen as early as March 16. Last week's (March 6, 2022) Energy Tidbits memo noted the TCRC announcement that the union voted 96.7% in favor of a strike if they aren't able to reach a deal by March 16. [LINK]. We tweeted *"ICYMI, Potential CP rail strike/lockout on March 16 if no negotiated deal. Union voted 96.7% for strike action if no deal. Latest data is Dec, total Cdn crude by rail exports to US of 131,000 b/d. #OOTT #Oil".* The strike date is set for March 16. The TCRC release noted *"Also, tomorrow, March 01, 2022, all Local Chairmen, Division Presidents and Secretary Treasures will be sent several documents regarding the preparations necessary in the event a strike or lockout occurs on March 16, 2022. While we are committed to negotiating collective agreements, we must move forward to make the arrangements for a work stoppage if required. We would ask that everyone assist the local executive and strike captains in this necessary procedure. The bargaining committee will provide updates and support as needed."*

Liberals haven't stepped in before with back to work legislation

If there isn't success in the conciliation process, we should expect an actual strike because the Liberals haven't previously stepped in to enact back to work legislation to stop a rail strike. Our Dec 1, 2019 Energy Tidbits highlighted the end of the 8-day

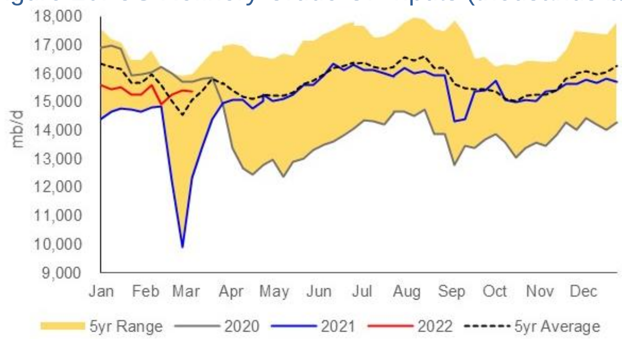
CN Rail strike. At that time we wrote "*Oil – CN Rail strike ended on Day 8, but says "weeks, not days" to recover. As expected the CN Rail strike ended with a negotiated deal and not back to work legislation. It was well reported that the Liberals were doing all they could to avoid, what we called the nuclear option of recalling parliament to pass back to work legislation as the first bill of the new Liberal minority government. Especially a bill that would be supported by Conservatives but opposed by the NDP, who they will be needed support to stay in govt. The strike ended up lasting 8 days, so longer than the prior 7 day strike. National Post* [LINK] re*ported on comments from CN Executive Vice President of Corporate Services Sean Finn writing "We're looking at weeks to recover fully," Sean Finn, CN's executive vice-president of corporate services, said in an interview Thursday. "This is a complex network — 21,000 miles of track that at any given time 100,000 rail cars are operating on" and "During the strike, CN operated its network at about 10 per cent capacity. It will take between one and four weeks to clear the backlog depending on how far a customer is from an operating yard and how frequently they typically receive service, Finn said."*

Oil – Refinery inputs -0.021 mmb/d WoW at 15.377 mmb/d

Refinery inputs down WoW

The EIA crude oil input to refinery data is for the week ended Mar 4. This is normally the seasonal period when crude oil inputs to refineries slightly declines due to turnarounds. US refineries have also been impacted by unplanned outage that have been impacting crude oil inputs. This week, the EIA reported crude oil inputs at refineries, down 0.021 mmb/d this week to 15.377 mmb/d for the week ended Mar 4 and are +3.67 mmb/d YoY from last years February Freeze in the Permian. Refinery utilization was up at 89.3%, which is +20.1% YoY though is still below 5-year average utilization levels. Total products supplied (i.e., demand) decreased WoW, up 0.381 mmb/d to 21.210 mmb/d. Motor gasoline was up 0.219 mmb/d at 8.962 mmb/d from 8.743 mmb/d last week. Gasoline supplied, a proxy for demand, was up last week. Gasoline stockpiles are at their lowest levels with demand for gasoline at a 4-week high. The four-week average of production supplied decreased to 21.566 mmb/d, up from last year.

Figure 20: US Refinery Crude Oil Inputs (thousands b/d)



Source: EIA

Oil – US “net” oil imports up +1.962 mmb/d WoW at 3.897 mmb/d

US “NET” imports were up +1.962 mmb/d to 3.897 mmb/d for the Mar 4 week. US imports were up +0.552 mmb/d to 6.319 mmb/d. US exports were down -1.374 mmb/d to 2.422 mmb/d. The WoW increase in US oil imports was driven by US’s Top 10 imports by country were up 0.230 mmb/d from Top 10. Some items to note on the by country data. (i) Canada was up this week by +0.101 mmb/d to 3.731 mmb/d, which is now ~0.1 mmb/d above the average levels in Jan/Feb of 2020. (ii) Saudi Arabia was up 181,000 b/d to 0.701 mmb/d this week. (iii) Colombia was down -0.073 mmb/d to 0.71 mmb/d. (iv) Ecuador was up +0.160 at 0.160 mmb/d. (v) Iraq was down 107,000 b/d to 188,000 b/d. (v) Venezuela remained at 0 due to US sanctions. (vi) Mexico was down by 85,000 b/d to 0.412 mmb/d

US “net” oil imports up WoW

Figure 21: US Weekly Preliminary Oil Imports by Major Countries

(thousand b/d)	Dec 24/21	Dec 31/21	Jan 7/22	Jan 14/22	Jan 21/22	Jan 28/22	Feb 4/22	Feb 11/22	Feb 18/22	Feb 25/22	Mar 4/22	WoW
Canada	4,032	3,803	3,340	3,556	3,752	3,953	3,631	3,342	3,869	3,630	3,731	101
Saudi Arabia	609	418	294	381	596	613	383	250	358	520	701	181
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	648	226	584	902	321	383	958	510	768	497	412	-85
Colombia	184	64	241	193	143	286	258	234	332	144	71	-73
Iraq	268	226	317	434	133	412	226	225	285	295	188	-107
Ecuador	308	95	58	0	0	236	101	98	98	0	160	160
Nigeria	58	53	0	0	43	9	144	182	25	43	96	53
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	6,107	4,885	4,834	5,466	4,988	5,892	5,701	4,841	5,735	5,129	5,359	230
Others	652	779	1,235	1,279	1,248	1,193	688	949	1,093	638	960	322
Total US	6,759	5,664	6,069	6,745	6,236	7,085	6,389	5,790	6,828	5,767	6,319	552

Source: EIA, SAF

Oil – Biden administration says no decisions have been made on Venezuela oil

Last week’s (March 6, 2022) Energy Tidbits noted the surprise report that Biden officials were in Venezuela to meet with the Maduro government. Early March 6, we tweeted [LINK] “"*never let a good crisis go to waste". US to meet #Maduro govt, potential to find path for more VEN #Oil to markets. If US wants more heavy/medium to Gulf Coast & world, faster to send US officials to meet with @jkenney to work to restart #KeystoneXL #OOTT.”* The Biden administration tried to downplay the meetings as they were perceived as being just a way to hopefully get more oil on the market to help bring down the oil price when nothing has really changed in Venezuela. On Thursday, the White House held a “*Background Press Call by Senior Administration Officials Previewing the Visit of President Duque of Colombia*” [LINK]. No surprise that given Colombia’s disagreement with the US dealing with Maduro, there were a number of questions on the Venezuela meetings including about oil. The White House transcript also included the redacted comments that may have been the most telling and imply that a potential restart of Venezuela oil has at least been discussed, if not decided upon, by the Biden Administration. Here is one excerpt. “*Q. Thanks so much, guys, for doing this call. I was hoping, [senior administration official], you could address the Colombian Energy Minister’s recent comments. He gave an interview to the Financial Times where he questioned whether the United States would — he said it was difficult to justify if the United States was seeking to get Venezuelan oil. He went on to say it’s hard to understand how the United States would — if the United States just banned oil from Russia, that it’s hard to explain why you’d then buy it from Venezuela. That was my first question.”* The reply was “*The question about oil is really — I think it’s speculation, given that there was a Wall Street Journal, I think, article. [Redacted.] So I — hard for me to really kind of comment on that decision that really hasn’t been — hasn’t been made*.” Our Supplemental Documents package includes other excerpts from the briefing.

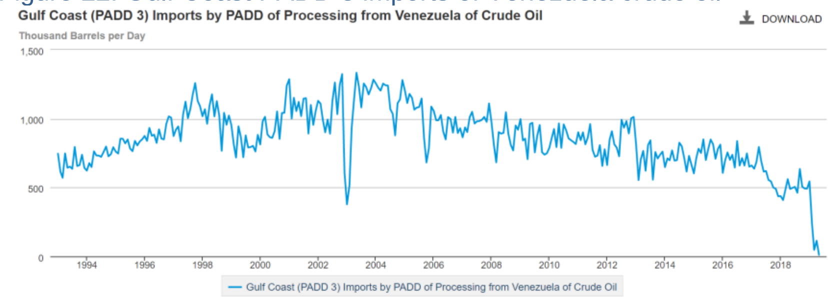
Biden admin on Venezuela oil

Oil – A return of Venezuela oil would hurt Cdn heavy/medium to Gulf Coast PADD 3

Cdn oil to Gulf Coast

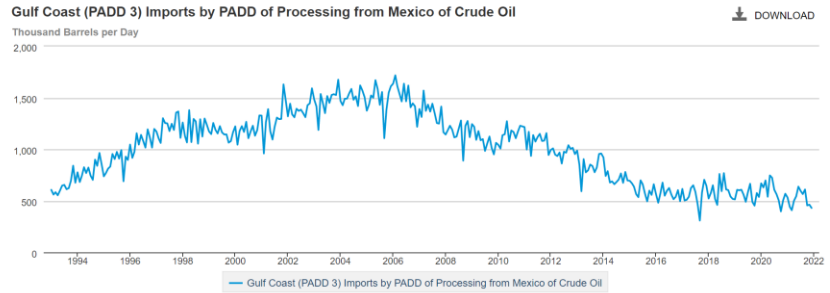
For several years, we have been highlighting how Cdn heavy/medium oil has benefited by the decline of Venezuela and Mexico oil production and exports to the Gulf Coast PADD 3. But if the US relaxes sanctions on Venezuela, it should lead to a return of Venezuela oil to the Gulf Coast, which was its key market ie. it will hurt Cdn heavy/medium to the Gulf Coast. Below are the EIA graphs for Gulf Coast PADD 3 crude oil imports from Venezuela, Mexico and Canada. Please be careful of the different vertical scales, but the graphs show the clear correlation of increasing Cdn heavy/medium crude oil to decreasing Venezuela/Mexico crude oil to the Gulf Coast.

Figure 22: Gulf Coast PADD 3 imports of Venezuela crude oil



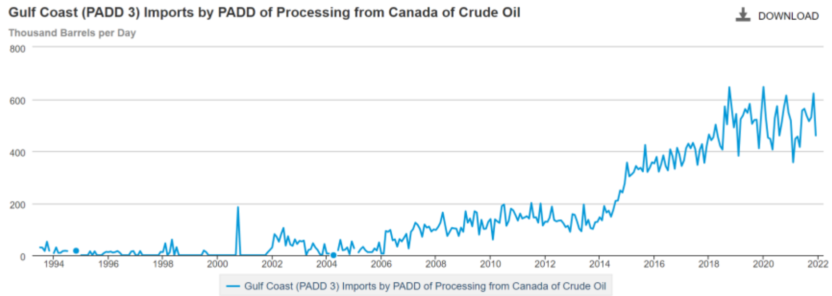
Source: EIA

Figure 23: Gulf Coast PADD 3 imports of Mexico crude oil



Source: EIA

Figure 24: Gulf Coast PADD 3 imports of Canada crude oil



Source: EIA

Oil – Colombia says has more capacity to export oil than Venezuela right now

Colombia says can help US with oil

Colombia President Ivan Duque met with Biden on Thursday. There was a pre-meeting joint press conference but Duque did not make the same oil comments he made later at a post meeting press conference at the Colombia embassy. But we would expect Duque would hve made these comments in the Biden meeting that Colombia has more capacity to provide near term oil to the US than Venezuela. The Merco Press report "*Duque tells Biden Colombian crude available if needed"* [LINK] "*President Iván Duque has made Colombian oil available to the United States if the Joseph Biden administration needs to stabilize global energy prices following Russia's military operations in Ukraine, it was announced in Bogotá Thursday. A US delegation met in recent days with Venezuelan leader Nicolás Maduro in Caracas to negotiate the purchase of oil from that country, in what was perceived as a sign of softening from Washington after having declared that Maduro was not the legitimate President of Venezuela. "Colombia today is a country that has more capacity to supply hydrocarbons than Venezuela has," Duque claimed in a press conference at the Colombian Embassy in Washington after meeting with Biden at the White House. The first meeting between the two leaders was marked by last weekend's US mission to Venezuela to discuss both the oil crisis and the release of US prisoners. Duque confirmed that he spoke with Biden about the energy issue and told him that "Colombia is an actor that can contribute much more" than Venezuela. He added that Colombia produces more than 890,000 barrels per day, that it has the goal of reaching one million, and that currently Colombian crude represents 3% of US imports. The Colombian head of state added that the Colombian oil company Ecopetrol has in Texas the "largest investment" of a foreign oil company in the United States."*

Colombia just reported Jan oil production was 0.740 mmb/d

It was interesting to see Duque say Colombia is producing more than 890,000 b/d because they just reported January production a week ago. Last week's (March 6, 2022) Energy Tidbits reported the March 1 Colombia Ministry of Mines and Energy release [LINK] "*Colombia's controlled oil production was 739,848 average barrels per day (BOPD) during January 2022, which represented a slight decrease of 0.75% compared to the same month in 2021."* Also, our Jan 23, 2022 Energy Tidbits highlighted that week's Argus report [LINK], that Colombia's Mines and Energy Ministry expects to increase the oil production to 0.800 mmb/d in 2022, which were the same production goals the nation had entering 2021. The ministry hopes that 60 exploration wells will be drilled in 2022, up from the 34 wells drilled from Jan-Nov. A total of 112 upstream contracts will be in the exploration phase with agreed investments close to $4.11bn in 2022. Below is the monthly historical Colombia oil production data.

Figure 25: Colombia Oil Production

million b/d	2015	2016	2017	2018	2019	2020	2021	21/20	2022	22/21
Jan	1.036	0.986	0.860	0.860	0.899	0.884	0.745	-15.7%	0.740	-0.7%
Feb	1.030	0.955	0.864	0.823	0.893	0.878	0.746	-15.1%		
Mar	1.023	0.917	0.804	0.856	0.885	0.857	0.745	-13.0%		
Apr	1.029	0.915	0.857	0.865	0.891	0.796	0.745	-6.4%		
May	1.027	0.904	0.851	0.866	0.895	0.732	0.703	-3.9%		
June	1.010	0.888	0.857	0.864	0.892	0.730	0.694	-4.9%		
July	0.947	0.843	0.856	0.860	0.869	0.735	0.731	-0.5%		
Aug	0.968	0.827	0.858	0.866	0.883	0.742	0.748	0.8%		
Sept	1.009	0.859	0.851	0.869	0.879	0.749	0.744	-0.7%		
Oct	1.005	0.846	0.864	0.879	0.883	0.751	0.740	-1.5%		
Nov	0.990	0.855	0.851	0.883	0.880	0.761	0.747	-1.9%		
Dec	0.999	0.837	0.870	0.889	0.882	0.759	0.745	-1.8%		

Source: Bloomberg, Colombia Ministry of Mines and Energy

Oil – Vitol's Muller warns Russia oil cuts to lead to shortage of sweet crude in west

Shortage of sweet barrels in the west

It seems like people are now also realizing that it's not just the challenge of replacing a quantify of oil being squeezed off from Russia, but getting the right quality (API, H2S) of oil on a timely basis to the places that need to replace Russian oil. In this case, it means a shortage of sweet crude (not sour) for western countries. Later in the memo, we note the comments from Star Fuels Matt Stanley on how Iranian light is a good substitute for Russia's Urals blend crude. Last week's (March 6, 2022) Energy Tidbits noted our early March 6 tweet [LINK] on the very near bullish comments for oil from Vitol's Head, Asia, Mike Muller on the Gulf Intelligence podcast Daily Energy Markets – March 6th [LINK]. We tweeted ""*1/2. Bullish & topical for #Oil markets tomorrow will be @vitolnews @michaelwmuller comments on @sean_evers podcast. Many great oil insights ie. shipping RUS oil around south of Africa adds 1 mth to supply chain #OOTT must listen to podcast."* And [LINK] "*2/2. @michaelwmuller closer "And the market is just telling you there's not enough oil in prompt end. The law of high prices is going to have to weed out the weaker demand and destroy it" Much more in the ppodcast. thx @sean_evers. #OOTT Bulish for #Oil".* On Tuesday, we tweeted [LINK] an item from the transcript we made of Muller's comments on this crude quality issue. This was in last week's memo. He said "*Now with millions of barrels a day of Russian oil probably likely to be backed in. some of it perhaps making the long way around thru [??]around the bottom end of Africa to eastern Asian markets. The impact is going to be very profound. If you have to build a artificially long maritime pipeline to transport the oil to the other hemisphere, that does away with a month's worth of demand as that oil is in transit. It's like line fill on a pipeline. And even if all goes there, there's still going to be a shortage of sweet barrels for the western hemisphere refining system."* Our Supplemental Documents package includes the transcript we made from Mike Muller's March 6 comments.

Oil – Oil demand is now moving to seasonal increases after Q1 demand lows

Oil demand about to ramp up

There is no question that two years of Covid impacting markets has meant that some of the fundamentals to oil demand tend to be overlooked. One of the fundamentals that we have warned about for decades is that there is a typical seasonal pattern to oil demand with Q1 the seasonal low. Yesterday we tweeted [LINK] a reminder "*Buckle up. What if UAE doesn't bend & #Biden can't convince KSA to increase #Oil supply ASAP. Oil demand is always seasonally low in Q1 & then ramps up. He is running out of near term supply help If RUS keeps delaying #JCPOA & return of Iran #Oil incl from floating storage. #OOTT*." Our tweet included the below table showing the current quarterly oil demand forecasts from the EIA, IEA and OPEC.

Figure 26: Current EIA, IEA and OPEC Oil Demand Forecasts

million b/d	Q1/21	Q2/21	Q3/21	Q4/21	Q1/22	Q2/22	Q3/22	Q4/22
EIA	94.1	96.2	98.2	99.7	99.7	100.0	101.1	101.6
IEA	94.1	96.2	98.7	100.2	98.9	100.1	101.7	101.6
OPEC	93.8	95.4	97.4	99.8	99.1	99.8	101.3	102.9
Source: EIA STEO Feb 2022, IEA OMR Feb 2022, OPEC MOMR Feb 2022, Bloomberg								

Source: EIA, IEA, OPEC, Bloomberg

Oil – Did Aramco point to the Houthis drone impacting Riyadh refinery operations?

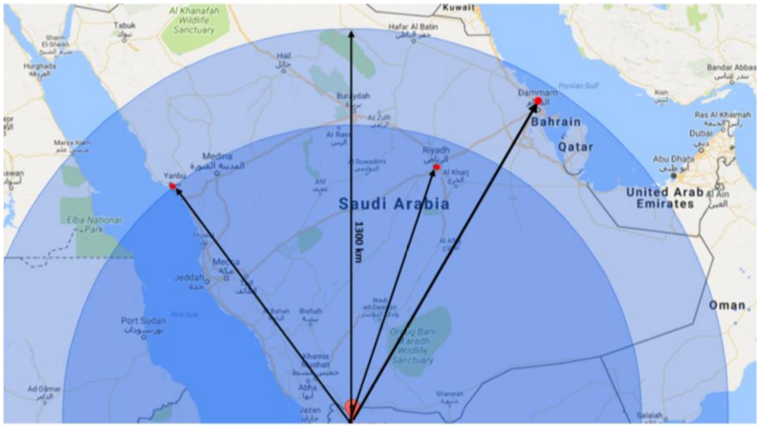
Did drone impact Riyadh refinery?

We recognize that everyone is accepting the Saudi Press Agency Friday morning report [LINK] at face value that "*An official spokesman at the Ministry of Energy stated that at around 04:40 AM of yesterday, the Riyadh oil refinery was attacked by a drone, resulting in a small fire that has been brought under control. The attack did not result in any injury or death nor was the supply of oil or its derivatives affected.*" Note that the SPA report was at 01:42 Riyadh time on Friday and the attack is being reported at 04:40 Riyadh time on Thursday. Also note that the SPA is confirming there was a drone hit on the Saudi Aramco Riyadh refinery, but is downplaying any impact. Our initial Thursday night tweet [LINK] noted the release but also said "*no 3rd party reports on impact*". As of our 7am MT news cut off, we still haven't seen a 3rd party report. However, we wonder if there is a distinction between any impact on "supply" vs operations. And we wonder if Saudi Aramco signaled there was a problem with the Riyadh refinery operations by their actions. It's why, early Friday morning, we tweeted [LINK] "*Did drone hit Riyadh refinery production capability, even if no impact to "supply" of oil or its derivatives? Drone hit Thurs at 4:40 Riyadh time or 1:40 GMT. Note @iamsharoncho @elizabethlow Thurs 3:47 GMT report #Aramco seeks unusually large amount of diesel in rare move. #OOTT".* We remembered a Bloomberg Thursday morning report that was written a day before any reports of the drone attack. The timing was that the Bloomberg report was posted about two hours after when SPA said the drone hit. But again, SPA did not say this until a day later. We were going to write up the Bloomberg anyway because of the title "*OIL TENDER: Aramco Seeks Diesel for Saudi Arabia in Rare Move. Aramco Trading is seeking an unusually large volume of diesel for prompt delivery to Saudi Arabia in a rare move for the country, which is usually an exporter of the fuel, according to traders who asked not to be identified. * Co. sought ~1.2m-4.6m barrels of 10ppm sulfur gasoil for delivery to Ras Tanura, Jizan, Jeddah and Duba via a tender * Delivery period from mid-March to mid-April.*" Is it a coincidence that Aramco just happened to seek an "*unusually large volume of diesel*" for immediate delivery? We just find it hard to believe that the SPA report didn't come out for a day later for a reason. Our Supplemental Documents package includes the SPA report and Bloomberg diesel order report.

If Houthis can reach Riyadh, they can reach all Saudi oil infrastructure

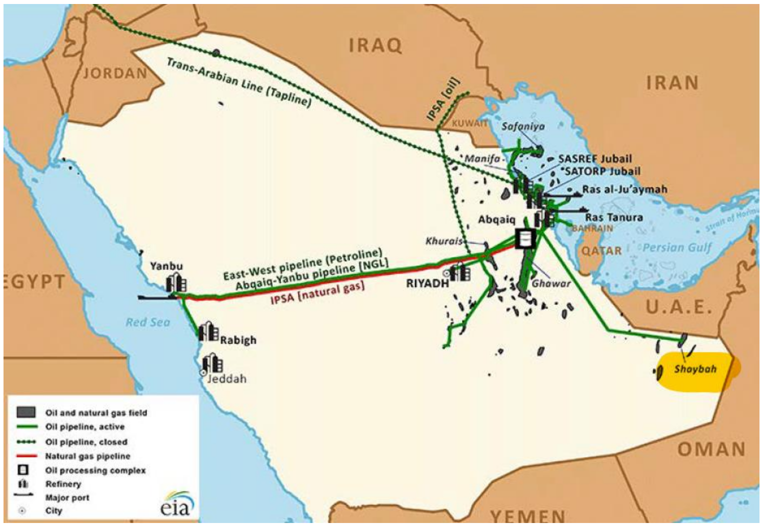
The initial SPA report did not blame the Houthis. The Houthis came out on Friday claiming responsibility for the Riyadh drone attack and that they also launched missiles at two other southern Saudi Arabia refineries. We always remind that if the Houthis can reach Riyadh, they have the long range missile range that can reach any Saudi oil infrastructure including in the Persian Gulf. We have not seen confirmation from exactly where in Houthis territory the ballistic missile was launched, but our below is the 2019 map showing Houthi reported missile range capability should be close. Also below is the EIA Saudi oil and natural gas infrastructure map.

Figure 27: Houthi Reported Missile Launch Capability Range



Source: GoogleMaps, SAF

Figure 28: Saudi Arabia Major Oil and Natural Gas Infrastructure



Source: EIA

Oil – Saudi crown prince MBS is ghosting Biden

MBS is ghosting Biden

No should have been surprised to see the WSJ report [LINK] "*The White House unsuccessfully tried to arrange calls between President Biden and the de facto leaders of Saudi Arabia and the United Arab Emirates as the U.S. was working to build international support for Ukraine and contain a surge in oil prices, said Middle East and U.S. officials. Saudi Crown Prince Mohammed bin Salman and the U.A.E.'s Sheikh Mohammed bin Zayed al Nahyan both declined U.S. requests to speak to Mr. Biden in recent weeks, the officials* *said, as Saudi and Emirati officials have become more vocal in recent weeks in their criticism of American policy in the Gulf."* We have to wonder if Biden was convinced by the energy transition side that the days of needing Saudi Arabia as the swing oil producer had gone the way of the DoDo bird. Biden was negative of Saudi Arabia and must have thought he would never need them. The WSJ reminded "*The rift between Mr. Biden and Saudi Arabia's crown prince stretches back to the 2020 presidential election, when the Democratic candidate vowed to treat the kingdom as a "pariah" state after a Saudi hit team killed Mr. Khashoggi in 2018 in Istanbul.There is "very little social redeeming value in the present government in Saudi Arabia," Mr. Biden said during a presidential debate in 2019."* There were many other items such as the criticism of the Saudi war on the Houthis, pulling Patriot missile system out of Saudi Arabia, not resupplying Patriot missiles, etc.

MBS "simply, I do not care" if Biden misunderstands something about him

The reason we say no surprise to the WSJ report was the item from last week's (March 6, 2021) Energy Tidbits memo - The Atlantic's March 3 report "Absolute Power" [LINK] report that was based on its interviews Saudi crown prince Mohammed bin Salman. In that memo, we wrote *"MBS says their "aim is to keep it and strengthen it" talking about their long historical relationship with the US. The headlines were on his Biden comments and warning to not interfere in Saudi domestic issues. The Atlantic wrote "We asked whether Biden misunderstands something about him. "Simply, I do not care," he replied. Alienating the Saudi monarchy, he suggested, would harm Biden's position. "It's up to him to think about the interests of America." He gave a shrug. "Go for it." For now, MBS's main request to the outside world, and especially the United States, is the usual request of misbehaving autocrats—namely, to stay out of his internal affairs. "We don't have the right to lecture you in America," he said. "The same goes the other way." Saudi affairs are for Saudis. "You don't have the right to interfere in our interior issues." It reminds that no one should expect the Saudi's to bend over in anyway to the US on oil. The problem for Biden and the Democrats is that it's difficult to reverse their view on MBS. We look at it as another of the situations where Biden and the Democrats like to have a villain to make sure they can get people onside their views. But by doing so, it makes it difficult for Biden to back track in a public way. It's like now with the oil companies, they really can't say anything positive about them or ask them to help without looking very weak. They made the oil companies the villains to sell energy transition for so long. How can they go back and say something good. They made MBS out to be a huge villain, Biden's team making it clear that Biden wouldn't meet or talk with MBS, only the King, they pulled out a Patriot missile defense system from Saudi Arabia, and have supposedly not given in to Saudi's request for more Patriot missiles to replace the shot missiles. So no surprise by the MBS comments on US. And unfortunately for the US, it means that Saudi isn't likely to help the US unless it helps them. We will be watching to see if there are reports on restocking Patriot missiles and any potential MBS/Biden meeting.*"

Oil – DE/FR/UK says JCPOA ready to be concluded, but then there is Russia

Russia holding up JCPOA deal

Last week's (March 6, 2021) Energy Tidbits was titled "*Will Russia's Attempt to Backdoor Some US Ukraine Sanctions Delay a Return To JCPOA?*" and, unfortunately, that has turned out to be true. And this is despite reports that the US and Iran have resolved key issues and are ready to sign. As of 7am MT news cut off, the latest on JCPOA is that the 8th round is on pause and the parties have returned to their capitals for discussions. The reports point to the Russian wildcard from last weekend that we described as a wildcard of Russia trying to backdoor sanctions by including items in the new JCPOA. We said we don't know how this will play out and when. And, as of this morning, we haven't seen any indication of when the 8th round will resume. Yesterday, we saw reports that indicate the deal is ready to be concluded. Yesterday, we tweeted [LINK] "*No doubt RUS holding up #JCPOA. @Deana_Kjuka @business reports FR, UK, DE "it is our understanding that Iran & the US have worked hard to resolve final bilateral issues & so we are ready to conclude this deal now". But who knows how long RUS backdoor attempt holds up deal. #OOTT".* Yesterday, Bloomberg reported "*France, Germany and the U.K. noted they're disappointed that the Iran nuclear talks were suspended, adding that "a fair and comprehensive deal is on the table ready for conclusion," according to an emailed press release on Saturday. "It is our understanding that Iran and the U.S. have worked hard to resolve final bilateral issues and so we are ready to conclude this deal now," the statement said."* This statement was also a confirmation that the deal was ready to go and could have been signed on Tues/Wed when Blinken was in Europe. We don't recall ever seeing France, Germany and UK saying the deal is ready to be concluded. They also made it clear it is Russia holding up the conclusion, saying "*Nobody should seek to exploit Joint Comprehensive Plan of Action (JCPOA) negotiations to obtain assurances that are separate to the JCPOA."* Our Supplemental Documents package includes the Bloomberg report.

Oil – Best indicator Biden isn't giving up for a JCPOA, no longer say time is running out

Biden wants JCPOA

We thought we saw the best indicator this week that Biden isn't going to give up on getting a return to the JCPOA. He had the perfect opportunity all week after Russia, last weekend, threw the roadblock into what many, including us, thought was on track to the JCPOA deal being concluded on Tues/Wed when Blinken was in Europe. No one knows if or how long it will take for Russia to stop blocking the JCPOA. So this was the opportunity for Biden to say enough is enough, no JCPOA. Especially as this uncertainty would have fit to the consistent Biden commentary that time was running out as Iran was advancing its nuclear program. However, we believe that, on Thursday, we saw Press Secretary Psaki's comments on JCPOA indicate a major shift in Biden messaging that indicates he is not going to walk away from JCPOA. We try to track messaging on key items on a daily basis to look for changes in messaging. And, as is often the case, it is what gets dropped from the messaging that points out the biggest change. That is what we found when comparing Psaki's JCPOA comments on Thursday vs Feb 23. On Thursday, we tweeted [LINK] *"Looks like #Biden really wants & not going to give up on return to #JCPOA. @PressSec asked today if window closing for deal? Here is what she didn't say today vs Feb 23 saying "And there's very little time remaining to reach a deal given the pace of Iran's nuclear advances" #OOTT."* The key was Psaki dropping the standing line that there is very little time remaining to get to a deal. This has been a standard in the Biden position on JCPOA and we believe dropping this time criteria is significant. On Friday, the White House press gaggle [LINK] also did not include this running out of time warning when discussing JCPOA. Our Supplemental Documents package includes excerpts from the White House transcripts for Psaki's March 10 and Feb 23 briefings.

On Feb 1, Biden gave his clearest indicator he was prepared to give a little

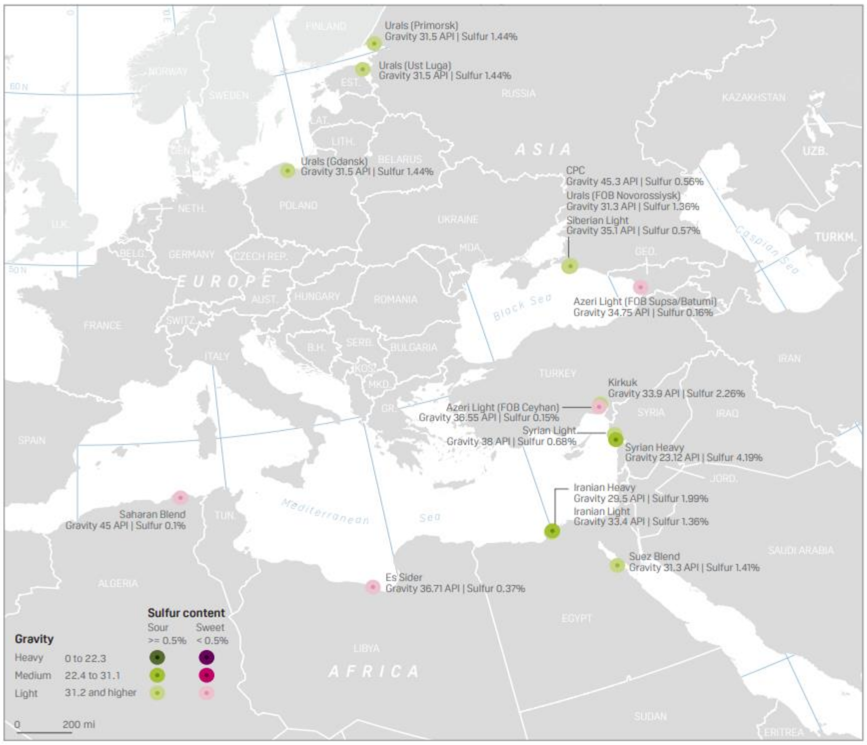
We have been of the view that Biden was going to give in to some degree to get a revised JCPOA. We still believe that. And we think that Biden has clearly signaled he was prepared to make changes. Our Feb 6, 2022 Energy Tidbits memo was titled "*Biden's Team Messages Prepared to Give on "Details" to Get JCPOA Done*". At that time, we wrote "*No question it was a week of indicators pointing to a JCPOA deal coming very soon. On Tuesday morning, we tweeted [LINK] "Sounds like #Biden prepared to make last minute concessions to get #JCPOA. "We are prepared to go back into the deal. It doesn't mean that every detail of the negotiation has been resolved from our side, but we are prepared to make those tough choices" US State Dept. #OOTT." Yesterday, we retweeted [LINK] the Tuesday tweet with the message "#JCPOA. #Biden had this briefing on Tues for a reason - he is prepared to give on something to get JCPOA done. Reality is that any give will be messaged as a "detail". #OOTT ." There was a US State Department background briefing on Monday afternoon (not Tues as in my tweet) on JCPOA and it seemed like there must be a reason. Last week's (Jan 30, 2022) Energy Tidbits noted the US official comment that they were "in the ballpark" for a JCPOA deal. At the Monday briefing, the Stated Dept official was specifically asked about the "in the ballpark" comment. The official didn't shoot down or confirm the question of the other US official saying they were in the ballpark for a deal. Rather he talked about making progress but still more work to be done. But then we saw what looked to be the one big opening given by the US as to why there will be a deal. At the start, he stuck to the line that its really up to Iran and that the US will remove sanctions that are inconsistent with the JCPOA. But then there is this exchange that he admits they will have to make some concessions but these are just details. The US State Dept transcript [LINK] has the official saying "Again, your question is kind of a different way to ask the prior question about what we think, where we are in the negotiations, which I don't want to – I'm not going to address outside of the negotiating room. I'd say the decisions that need to be made by the U.S. in order to come back to the deal have been made. We are prepared to go back into the deal. It doesn't mean that every detail of the negotiation has been resolved from our side, but we are prepared to make those tough choices."*

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

Iran oil similar to Russia Urals

On Wednesday, we tweeted [LINK] on a good reminder from the Gulf Intelligence daily Podcast [LINK] that Iran's crude oil quality would be a good replacement for Russian Urals crude oil to Europe. We tweeted *"#JCPOA. Good reminder from @gulf_intel podcast. Matt Stanley @starfuels reminds Iran light matches API and H2S very well and is a good substitute RUS Urals. See below @SPGlobalPlatts crude specs map. #OOTT".* Our tweet included the below Platts map that noted crude qualities for Russia were Urals (Primorsk) 31.5 API 1.44% H2S, Urals (Ust Luga) 31.5 API 1.44% H2S, and Urals Gdansk 31.5 API 1.44% H2S, which compares to Iranian Light 33.4 API 1.36% H2S.

Figure 29: Platts Specifications Guide Europe and Africa Crude Oil



Source: S&P Global Platts

Source: Platts

Oil – Energy Intelligence on Iran's near term oil capability if a JCPOA

Iran's near term oil capability

On Tuesday, we tweeted [LINK] on comments on Iran's near term oil supply potential from Amena Bakr (Deputy Bureau Chief & Chief OPEC Correspondent, Energy Intelligence) on the Gulf Intelligence Podcast "Daily Energy Markets – March 8th" [LINK]. As an aside, this is one of the only podcasts we try to listen to every morning. Bakr was asked how much crude could Iran unleash on the market, just by loading oil from its floating storage. Our tweet included the transcript we made of Bakr's answer ",, *it's a way to ease supply back into the market is to sign a deal with Iran. Recently I spoke to officials who were attending the gas forum in Qatar and their assessment is that current production is around 2.5 million barrels, they said that they could reach 4 in three months time. I think that's a bit optimistic, but they do have that ambition to revive their production as fast as possible. but in the meantime, while they are doing that, which might take longer of course to reach the 4 million barrel mark, they have floating storage, maybe 60 million barrels of floating storage, which they are ready to unleash into the market. but one point the official said to me in Qatar is that we need to find buyers for this oil. we need to secure the buyers and make sure that all payments are cleared. That also takes a little bit of time for them. I know that they have been in talks with buyers in Asia. But yeah I think its just a matter of also figuring out when the* *sanctions are removed. There is a period in between I'm sure they're going to have to work out how these transactions happen. "*

Oil – Feels like UAE is warning they want a higher quota within OPEC+

UAE want a higher quota?

We have to believe the UAE staged a little messaging this week as a reminder they want to increase their quota allocation within OPEC+. We find it to believe any other reason for the UAE mixed messages. On Wednesday, we tweeted [LINK] on the statement from the UAE Ambassador to the US, Yousef Al Otaiba, [LINK] "*We favor production increases and will be encouraging OPEC to consider higher production levels*." This was not an verbal comment to someone, this was an official press release, which we do not would be issued without approval from the UAE, including the UAE Energy Minister Suhail Mohamed Al Mazrouei. Later on Wednesday, we tweeted [LINK] on Al Mazrouei's tweet [LINK] "*The UAE believes in the value OPEC+ brings to the oil market. The UAE is committed to the OPEC+ agreement and its existing monthly production adjustment mechanism."* He is specifically saying he is committed to the existing monthly OPEC+ production adjustment mechanism. We do not believe he is saying UAE doesn't want OPEC+ to increase the monthly production adjustments or, more likely, the UAE won't try to get a higher quota allocation. There has to be a reason why UAE would have these seemingly contradictory statements. Our Supplemental Documents reports include the UAE Ambassador release and energy minister tweet.

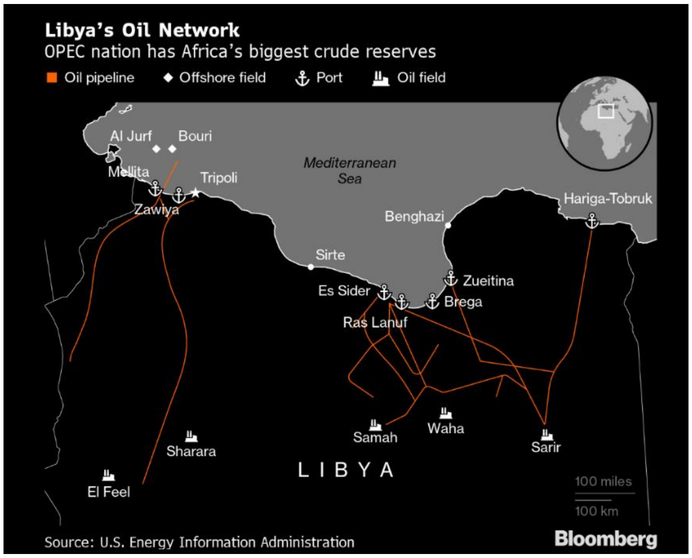
Oil – Libya's oil supply interruptions likely to increase, last week's force majeure over

Libya force majeure ends quickly

Last week's (March 6, 2022) Energy Tidbits highlighted the March 6 breaking news of Libya oil supply interruption. Early March 6, we tweeted [LINK] "*Looks like more #Libya #Oil risk near term. Production down to 920,000 b/d from 1.2 mmb/d on Wed says Oil Minister Oun reports @S_Elwardany hmohareb@bloomberg.net. Fields being shut down by groups, parallel govts being set up, #OOTT."* Later, the Libya National Oil Corporation released a Facebook post announcing a force majeure following a forced shut in of ~330,000 b/d from their El Sharara and El Feel Fields [LINK]. The action has caused a loss of 330,000 b/d and is the equivalent of 160 mm Libyan dinars. The Chairman of the Board of Directors commented *"We were assured that a group of suspicious gangs, led by the so-called Muhammad Al-Bashir Al-Qarj, closed the crude pumping valves, and the implementation of our obligations towards refiners in the oil market became impossible. Therefore, we are compelled to announce (the state of force majeure) and to As is the case in the oil industry. These closures come after a price jump that exceeded $100 per barrel. The same gang closed these valves between 2014 and 2016 and coincided with the price boom. All these indicators confirm that they have suspicious links driven by hidden hands. To drag the country into chaos, and a report was submitted to the Public Prosecution to take deterrent and accurate measures to reveal the planners, implementers and beneficiaries of this defective act."* The force majeure didn't last long. On Tuesday, the NOC Facebook posting said El Sharara was back on but the adjacent El Feel oil field was still off. And then, on Wednesday, the NOC Facebook noted El Feel was back on production. As a result, Libya was back to approx. 1.2 mmb/d by the weekend. Our view on Libya is unchanged, we are concerned that this is only just the start of a return to more oil supply interruptions especially with the east's move to set up the return of a parallel government.

It doesn't take a lot of resources to cause these supply interruptions
One of the reminders from the Libya NOC description of the Sharara/El Feel force majeure is that it doesn't seem to take a lot of gangs to cause these supply interruptions. To the most part, these are locally based groups. There was another reminder of this with yesterday's Libya Observer report "*Group loyal to Haftar and in support of PM-designate threatens to blockade Libya's oil*" [LINK]. They wrote "*A group of locals, known to be loyal to Khalifa Haftar and have more than once blockaded oil exports, in the Oil Crescent Region threatened Friday to shut down oil ports and blockade exports if the Government of National Unity (GNU) didn't hand over power to the new government appointed by the House of Representatives (HoR) and headed by Fathi Bashagha. The locals said they would shut down oil exports if the UN Support Mission in Libya (UNSMIL) continued to support the GNU.*"

Figure 30: Libya oil and gas map



Source: Bloomberg

Oil – IEA provides oil vs refined products split of 60 mmb release from strategic reserves

IEA release 45.7 mmb crude, 16.9 mmb products

Last week's (March 6, 2022) Energy Tidbits highlighted the IEA announcement that an extraordinary meeting with its 31 member countries in which they agreed to make 60 mmb of oil available following the Russian invasion of Ukraine [LINK]. The IEA noted IEA members hold collectively 1.54 bnb in reserves, this release would account for 4% of the total and is equivalent to 2 mmb/d. The IEA provided the by volume that would be released by each country. This week, the IEA provided additional details on the by country releases [LINK]. The IEA provided splits of how much crude oil vs refined products and how much was from private vs public storage. The IEA reports that the commitments are for 45.7 mmb of crude oil and 16.9 mmb of refined products. Our Supplemental Documents package includes both of the IEA releases.

Oil – Japan reduces strategic oil stockpiling obligation to 66 days from 70 days

On Thursday, Japan's METI announced that its support for the coordinated IEA oil reserves release meant "*In response to this, the Ministry of Economy, Trade and Industry decided to release 7.5 million barrels from private stockpiles, and for 30 days from March 10 to April 8, the amount of private stockpiling obligations based on the Act on Securing Oil Stockpiling, etc. Was reduced from 70 days to 66 days by 4 days.*" What isn't clear is this a temporary reduction in the 70 days obligation or a new lower 66 days of stockpiles obligation. METI didn't indicate any return of volumes as is seen in the US SPR releases. We will monitor and advise. Our Supplemental Documents package includes the METI announcement. [LINK]

Japan reduces reserves to 66 days

Oil – Is Vortexa crude oil floating storage -17.1 mmb WoW due to replacing Russia oil?

Yesterday, we tweeted [LINK] "*Was there a scramble for floating oil cargos to avoid Russian crude? Would seem so unless there is a big revision to #Vortexa crude #Oil floating storage for 03/11 est 79.21 mmb, which is down 17.1 mmb WoW vs revised up 96.29. Thx @Vortexa @TheTerminal #OOTT.*" We have to wonder if this big WoW reduction in crude oil floating storage is linked to avoiding Russian crude supply. We are referencing the Vortexa global crude oil floating storage data posted on the Bloomberg terminal as of 1pm MT yesterday. And we note that these estimates get revised over the course of the week. Note we do not check daily for the revisions, so our comments are compared to the March 4 and Feb 25 estimates posted on Bloomberg on March 5 at 3pm MT. (i) As of 1pm MT yesterday, Bloomberg has posted Vortexa crude oil floating storage estimate estimate as of March 11 was 79.21 mmb, which was down 17.1 mmb WoW vs March 4 of 96.29 mmb. Note March 4 was revised +5.02 mmb from the Bloomberg estimate posted as of 3pm on March 5. (ii) This is a big WoW drop, which, unless revised, probably reflects buyers taking floating cargos in light of a scramble to avoid Russia oil. Prior to this week, crude oil floating storage has generally been stuck around 100 mmb. (iii) Below are the last several weeks estimates made as of today at 1pm MT, March 5 at 3pm MT and Feb 28 at 4am MT. Note this Feb 25 data wasn't posted on the weekend as is the normal practice. (iv) As a reminder, Vortexa estimates get revised over the weekend, next week and even weeks later. Today's March 4 estimate is 96.29 mmb, which is +5.02 mmb vs 91.27 mmb posted as of 3pm on March 5. Today's Feb 25 estimate is 96.67 mmb, which is +1.08 mmb vs 95.59 mmb posted as 3pm on March 5. (v) March 11 estimate of 79.21 mmb is -144.23 mmb vs June 26, 2020 peak of 223.44 mmb. (vi) March 11 estimate of 79.21 mmb is +19.63 mmb vs pre-Covid March 13, 2020 of 59.58 mmb. Below is the Bloomberg posted Vortexa crude oil floating storage data for the past two years as was posted yesterday at 1pm MT.

Vortexa crude oil floating storage

Figure 31: Vortexa Floating Storage March 11 Posted on Bloomberg 1pm MT Sat

Source: Bloomberg, Vortexa

Figure 32: Vortexa Estimates Mar 11 1pm MT, Mar 5 3pm MT, and Feb 28 4am MT

Est as of Mar 12, 1pm MT

FZWWFST VTXA Inde — 03/10/2020 - 03/11/2022

	Date	Mid Px
Fr	03/11/2022	79207
Fr	03/04/2022	96290
Fr	02/25/2022	96668
Fr	02/18/2022	88504
Fr	02/11/2022	104.323k
Fr	02/04/2022	105.319k
Fr	01/28/2022	96377
Fr	01/21/2022	98631
Fr	01/14/2022	83624
Fr	01/07/2022	92340
Fr	12/31/2021	93862

Est as of Mar 5, 3pm MT

FZWWFST VTXA Inde — 03/03/2020 - 03/04/2022

	Date	Mid Px
Fr	03/04/2022	91266
Fr	02/25/2022	95594
Fr	02/18/2022	90582
Fr	02/11/2022	105.596k
Fr	02/04/2022	108.301k
Fr	01/28/2022	97268
Fr	01/21/2022	100.968k
Fr	01/14/2022	85494
Fr	01/07/2022	93164
Fr	12/31/2021	96699
Fr	12/24/2021	95972

Est as of Feb 28, 4am MT

FZWWFST VTXA Inde — 02/25/2021 - 02/25/2022

	Date	Mid Px
Fr	02/25/2022	94196
Fr	02/18/2022	91273
Fr	02/11/2022	105.439k
Fr	02/04/2022	109.303k
Fr	01/28/2022	100.26k
Fr	01/21/2022	100.67k
Fr	01/14/2022	84345
Fr	01/07/2022	92945
Fr	12/31/2021	95983
Fr	12/24/2021	97736
Fr	12/17/2021	96391

Source: Bloomberg, Vortexa

Oil – Bloomberg Oil Demand Monitor, Gas demand remains robust given high prices

Bloomberg's Oil Demand Monitor

We recommend reading the weekly Bloomberg terminal Oil Demand Monitor for a good recap of key oil demand indicators around the world. Despite oil prices that continue to drive upwards, road fuel demand appears to remain robust. Vehicle miles driven in the US was 0.6% below 2019 levels for the week ended Feb 27 even as nationwide prices for fuel surpassed $3.60/gal; they have since surpassed the $4 mark. Taipei, London and Madrid all had congestion levels which were above the equivalent week in 2019, the first time since Dec 13 that +3 cities have surpassed that level. Contrary to expectations of demand destruction with prices so high, the underlying concern about supply in the wake of Russia's invasion of Ukraine has led to a temporary increase in some places, such as Poland. Fuel demand in the UK remains robust as diesel soared at the end of Feb to levels that have not been seen since the panic buying that occurred in late September. Average petrol sales per service station exceeded 10,000L on Feb 25 with diesels surpassing 13,000L that same day. The increase in sales is mainly attributed to the heightened consumer demand amid the Ukraine conflict. Combined U.K. stockpiles of gasoline and diesel were 34% full on Feb. 27, down from a normal level of 45% a week earlier. At the peak of September's buying spree, stockpiles dipped as low as 16% full and recovered to 35% two weeks later. US passenger throughput was +5..7% above 2019 levels and total commercial flights around the world remained down -9.4%. Seat capacity worldwide remains down -14% from the equivalent week in 2019. Refinery utilization was up this week vs 2019 across the US for the Feb 25 week. US GoM refineries are down 1.6% from the equivalent week two years ago while US east and Midwest refineries remain well above. Our Supplemental Documents package includes the Bloomberg Oil Demand Monitor.

Figure 33: Congestion levels rising in Cities

Source: Bloomberg

Oil & Natural Gas – Liberals hard targets for oil & gas emissions reductions by Mar 31

Liberals oil and gas emissions targets by March 31

We remind that the Liberals previously announced that it would be releasing its hard targets for emissions reductions for the oil and gas sector by the end of March. These are to include the hard targets the Liberals are setting for emissions reductions for 2025. Don't forget the Liberals are now legally obligated to check on a year basis that they are on track to hit those hard targets. This is our big concern that the worst is still to come for the oil and gas sector. For some reason, this doesn't seem to be a big issue for most. But our view is unchanged. In our Dec 12, 2021 Energy Tidbits, we wrote "*The Liberals Friday afternoon Dec 3 press release didn't get any coverage so we didn't see it until we did our Sunday afternoon what did we miss search of websites. We take advantage of NFL football for a leisurely afternoon of searching news. And that is when we saw the Liberals Dec 3 release "Canada to launch consultations on new climate commitments this month, establish Emissions Reduction Plan by the end of March 2022". [LINK] (i) ERP is the 2030 Emissions Reduction Plan. Liberals confirmed it will be established by March 31, 2022. This is the plan will set the emissions reductions targets for the oil and gas sector including the 5 year targets for the pace and scale needed to keep the oil and gas sector on track to be net zero by 2030. They previously announced the first hard target is 2025 for how much emission reductions are needed to keep the oil and gas sector on track. This all links to the Canadian Net-Zero Emissions Accountability Act, which also included that there will be yearly checks to make sure they are on track for the 5-yr targets. This remains our big concern – reductions are needed right away. (ii) This progress tracking will be made even stricter. The release said "Canada's 2030*

Emissions Reduction Plan is the first of many requirements under the Canadian Net-Zero Emissions Accountability Act. The Government of Canada is considering more formal, ongoing, and consistent engagement processes for the establishment of future emissions reduction targets, plans, and reports." (iii) Note the classic political speak saying something that sounds sincere that, in reality, means nothing. "The ERP will be informed by early consultations on these new commitments." They will be doing a lot of consultations. But all this means is that they will consult and "be informed". All it does is to tick the box that they consulted and didn't just drive thru what they wanted without consulting. (iv) Positive for CCS. They don't say it, but that is the likely interpretation that they need or CCS. The Liberals are talking about "net-zero emitting electricity" vs "non-emitting electricity". There was what looks like a different position in Trudeau's COP26 speech that we did not highlight but jumped out in the Friday release. On Friday, the Liberals said "At COP26 in Glasgow in November 2021, Prime Minister Trudeau announced on the world stage Canada's commitment to cap and cut emissions from the oil and gas sector and to achieve net-zero emitting electricity in Canada by 2035." This was shift from their June 11 policy statement [LINK] that said "Canada's electricity grid is over 80% emissions-free—one of the cleanest in the world—and is on track to meet its goal of having 90% non-emitting electricity generation by 2030." (v) This release came out on Friday so ahead of the Environment Minister Guilbeault meeting in Calgary with big oil and gas companies. If you haven't heard Guilbeault's interviews, it's worth doing so. He is very smooth at saying things that sound accommodative to industry but, if you listen closely, he does stick to his strong climate views. So if you look at the Friday release, we saw some of this smooth set up in the Friday release as we think this is one of the first Liberal releases (or maybe the first) that they acknowledged the oil sands efforts. The release said "Many of Canada's oil and gas producers have made their own net-zero commitments. Canadian Natural Resources, Cenovus Energy, Imperial, MEG Energy, and Suncor Energy—collectively accounting for around 90 percent of Canada's oil sands production—have each committed to achieving net-zero emissions from their oil sands operations by 2050."

Energy Transition – UK, no longer about tackling climate change or Net Zero targets

UK backs off Net Zero target

Our latest concern for how the politicians are setting up the world's energy picture for the 2020s is that they are using Putin and Russia's invasion on Ukraine as cover for all the energy problems and don't want to specifically say the energy transition wasn't working. So they won't go back to address the inherent energy transition supply/demand problems that set up the energy crisis pre Russia. You gotta give politicians credit as they never let a good crisis go to waste. On Thursday, we tweeted [LINK] "*Forgot to mention UK's tackling climate change & #NetZero plans weren't working before #Putin hence #EnergyCrisis in 2021. Note his closing "in the meantime, we need more investment in North Sea oil & gas production". #Oil #NatGas will be stronger thru 2020s. #OOTT.*" UK Energy Secretary Kwarteng posted a 2:15 min video [LINK]. Kwarteng spends most of the video on items like accelerating clean energy, renewables, nuclear, etc. But note the start "*this is no longer about tackling climate change or reaching Net Zero targets. There is now an urgent need for Britain to become energy independent*". That's a pretty clear statement that the UK can't focus on reaching Net Zero targets. But then the other key Kwarteng like "*of course, we need to recognise that this transition will not happen overnight. In the meantime, we need more investment in North Sea oil and gas production as we make the move to cheaper, cleaner power. Turning off domestic production – as some are calling for – would be completely insane right now and we're not* *going to do it*". Politicians are certainly jumping on this opportunity to slow down or pause or change their Energy Transition and Net Zero plans without saying the Energy Transition wasn't working. The short video is worth a listen.

2022 Prediction #1, leaders admit energy transition isn't working
UK Energy Secretary Kwarteng may be blaming it on Russia, but has clearly indicated UK has to change its focus from climate change and reaching Net Zero targets to making UK energy independent. This fits our expectation for 2022. In our Dec 12, 2021 Energy Tidbits, we noted what we called our 2022 Prediction #1. At that time we 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. Last week's (Dec 5, 2021) Energy Tidbits wrote on the ADNOC CEO speech There was much more in the speech, which is why we tweeted [LINK] "If more leaders have a "Macron Moment" in 2022, maybe COP28 UAE in 2023 can be catalyst for getting down to work on practical, commercial, sustainable energy solutions: pro climate/pro growth? See SAF Group transcript of @SultanAhmedalj8 #ADIPEC keynote. #EnergyTransition #OOTT." We do wonder if we will see more world leaders accept that the energy transition isn't working according to their aspirations and that there is an increasing risk of a decade of energy crisis like seen in Europe in H2/21 unless the world puts in an achievable energy transition plan." We think COP26 will turn out to be turning point, but a turning point to force energy transition leaders into changing their plan. It why we think we will more of the energy transition leaders come out of the closet and admit this in 2022. But what got us to tweet this week was after seeing Saudi Aramco CEO Nasser speech at the WPC in Houston. Nasser said "There is one more thing that can no longer remain unsaid. A majority of key stakeholders agree with these realities as much as they believe in addressing climate change. We know this, because they say so in private. They should say it publicly too. I understand their dilemma. Publicly admitting that oil and gas will play an essential and significant role, during the transition and beyond, will be hard for some." So our #1 2022 Prediction is that we will see leaders come out of the close and admit, in a politician's way, that the energy transition plan needs to be changed. The key result will be that fossil fuels are needed for way longer and the outlook for oil, natural gas and LNG will be stronger thru 2030 and beyond.*

Energy Transition – Boris Johnson wants "climate change pass" for more natural gas
We have to give the UK some credit because they are at least trying to deal with the problem and get increased oil and natural gas production. Or at least trying to get the climate change side to relax a bit on increasing natural gas production in the US and Canada to help send

Boris "climate change pass"

more LNG to Europe. On Monday, we tweeted [LINK] ""*The Times has been told that Johnson wants the West, particularly the US and Canada, to ramp up its own production of gas to help remove the "massive leverage" Russia has over EU countries". Will EU join Asia in signing long term #LNG contracts? Thx @Steven_Swinford #OOTT."* The Times reported [LINK] "*Boris Johnson believes the West should be given a "climate change pass" to help wean the EU off Russian gas supplies as he faces mounting pressure over the government's 2050 net-zero target. The Times has been told that Johnson wants the West, particularly the US and Canada, to ramp up its own production of gas to help remove the "massive leverage" Russia has over EU countries. While retaining the government's target, Johnson is understood to believe that western countries should be able to increase gas production during the transition to nuclear and renewables. It came as Nigel Farage, the former Ukip leader, announced that he is launching a political movement to campaign for a referendum on the net-zero policy."*

Energy Transition – Kerry $2.5-4.6 trillion deficit to make the energy transition

$2.5 to $4.6 trillion for energy transition

We suspect John Kerry won't be pleased that The National (UAE news) posted the video clip of his March 9 comments. Yesterday, we tweeted [LINK] "1*/2. @ClimateEnvoy Kerry says #EnergyTransition is $ trillions short of being self funding. "fully funding this transition we have to make in our economies globally is going to require mobilising not just $100 billion but trillions of dollars .... #OOTT"* and [LINK] "*2/2. ... No single government, no group of governments can meet the $2.5 to $4.6 trillion deficit we face in order to make this transition." What took so long to admit #EnergyTransition is not self funding ie. energy costs are going up big time. #OOTT*." This is the first US estimate we have seen of the cost to fund the energy transition and, more importantly, that it is trillions short of being self funded. No one should argue against making the world cleaner and healthier for future generations. It's unfortunate though that energy transition leaders didn't tell their citizens the reality that it was going to be expensive. But now, the path of direction isn't going to change, but the reality will soon be settling in that this means much higher energy costs for all. We were looking for a video of US Special Climate Envoy John Kerry's remarks at CERAWeek, but only found a couple clips. However, we found a YouTube video of his March 9 comments to an informal UN Security Council meeting attended by Dr Sultan Al Jaber, the UAE's Special Envoy for Climate Change, about the need for the private sector, governments and other actors to mobilise climate finance [LINK]. Kerry says "*fully funding this transition we have to make in our economies globally is going to require mobilising not just $100 billion but trillions of dollars. No single government, no group of governments can meet the $2.5 to $4.6 trillion deficit we face in order to make this transition. So, we have to work together, my friends. Multilateral development banks, private sector, NGOs, governments. And if, if we legitimately treat this as the existential threat that it is, then we can lay the groundwork for building and rebuilding an even stronger, safer, healthier, more stable world."*

Last June, Biden has no idea how many $ trillions to get US to carbon neutral

At least the Biden administration is now giving their estimate for the cost of the energy transition. Recall how Energy Secretary Granholm looked at her Senate testimony last June. Our June 27, 2021 Energy Tidbits wrote "*We think Energy Secretary Granholm may have inadvertently taken away the credibility for the Biden administration to shoot down any views that the energy transition will make energy very expensive in the future. We recognize that Senate and House hearings with*

Biden cabinet members, in this case Energy Secretary Granholm, are basically used by the questioners to make their political point. However, in this case, we tweeted on an exchange between Rep Senator Kennedy and Granholm. Kennedy's problem is that the Biden's push to reduce emissions won't mean much if China and India don't similarly step up. But linked to that was the exchange that caused us to tweet [LINK] "US can't control what CN IN actually spend to be #CarbonNeutral, but politics aside, shouldn't #Biden admin have a rough estimate of how many $trillions to get US to carbon neutral? How can anyone say #EnergyTransition won't cost more? #NatGas #OOTT". The exchange starts with Kennedy asking Granholm how many trillions it will cost to get the world to carbon neutral, she doesn't have a number, he asks hundreds of trillions and she replies "it would be a lot, for sure" with a smile. We don't think we are been bias by saying most people think she is a well liked person and we suspect she probably that might be enough to change questions. However, it was Kennedy so he comes back asking how much the energy department thinks it will cost to make the US carbon neutral? Granholm replies, "again, it would be a lot", Kenney asks "hundreds of trillions?", Granholm "I don't know about hundreds of trillions but it would a lot of money", Kennedy "it'd be in the trillions", Granholm "Yes", Kennedy "mid trillions?", Granholm "I don't know". We recognize Kennedy is trying to play at gotcha you in getting Granholm to commit to an estimate but, the more we thought about it, we thought it was a good question – shouldn't the Biden administration have some even really rough idea of what they think it will cost? Because without some rough cost with many unproven assumptions, how can they continue to argue that estimates or even calls that the energy transition will be expensive are incorrect or based on old thinking? Didn't Granholm take away their credibility to say that in the future. The gotcha you question may not have worked the way Kennedy wanted, but really did work in a different way."

Its understandable, but a little scary that Biden has no idea what it will cost
We have to wonder if Granholm had this estimate or a similar estimate last June and didn't want to reveal it to the Senate as it was so high. In our June 27, 2021 Energy Tidbits, we wrote "*The clear reminder from the Granholm comments is that the Biden administration has no idea how much this energy transition will cost the US, who will be required to pay up to get there and what it means to the cost of energy relative to today. No one can or at least should not disagree with the ambition to reduce global emissions. But it is a little scary to be committed to a path with no idea of what it costs. Maybe this is okay for the US, but think about how countries in the world can commit to a similar path? Maybe there is an estimate but the only reason we can think she would not disclose it is if it was very high. But, if we take her at face value, there isn't one and, to be fair to Granholm and the Biden administration, any estimate of how much it will cost to get to carbon neutral would require many far from confident assumptions. Just think about the comments from John Kerry (that he tried to backtrack) that half of the ability to get there will come from technologies still to be developed. So what could Granholm assume?"*

Energy Transition – Replacing Russia means Fukushima concerns must be forgotten
One of the major energy themes to emerge from the western world's ambition to eliminate or significantly reduce dependence on Russia oil, natural gas and NGLs for power. It hasn't

Fukushima concerns are old news

seem to come up much yet about cutting Russia's uranium. It sounds like Germany isn't going to reverse its nuclear power elimination program, but we are seeing nuclear being reconsidered in countries like Belgium and a greater urgency for return to nuclear in Japan. Essentially what is happening is that the world's movement away from nuclear post Fukushima nuclear reactor disaster is being put to the background by the need for reliable, known nuclear power. The reality is that emissions reductions leaders have no choice but to reconsider nuclear if they want to have reliable, affordable power that are emissions free.

Fukushima nuclear reactor disaster was March 11, 2011

One of the tragic events that shaped the energy industry in the last decade was the 10 years ago, on March11, 2011, the huge 9.0 earthquake offshore Japan sent a huge 15 metre tsunami that killed over 15,000 people and 3,000 people missing. And from the energy side, it hit Fukushima and its three Daichi nuclear reactors. The World Nuclear Association [LINK] previously wrote "*causing a nuclear accident on 11 March 2011. All three cores largely melted in the first three days. The accident was rated 7 on the INES scale, due to high radioactive releases over days 4 to 6, eventually a total of some 940 PBq (I-131 eq). Four reactors were written off due to damage in the accident – 2719 MWe net. After two weeks, the three reactors (units 1-3) were stable with water addition and by July they were being cooled with recycled water from the new treatment plant. Official 'cold shutdown condition' was announced in mid-December. Apart from cooling, the basic ongoing task was to prevent release of radioactive materials, particularly in contaminated water leaked from the three units. This task became newsworthy in August 2013. There have been no deaths or cases of radiation sickness from the nuclear accident, but over 100,000 people were evacuated from their homes to ensure this. Government nervousness delays the return of many. Official figures show that there have been well over 1000 deaths from maintaining the evacuation, in contrast to little risk from radiation if early return had been allowed."* It reshaped the energy industry putting a halt on most nuclear momentum (only now being regained) and led to acceleration of LNG.

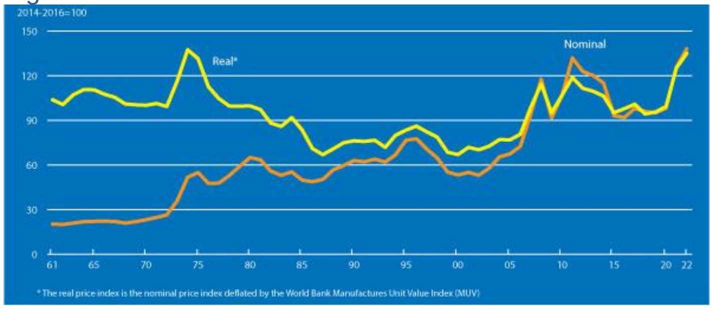
Capital Markets – UN FAO Food Price Index in Feb is +20.7% YoY

UN food price index +20.7% YoY

UN global food price index is right near all time record highs and were +20.7% YoY in Feb. We have highlighted before how global food prices are going up at multiples higher than is being indicated in the US food price index. And there are global concerns that food prices are going to keep higher in 2022 in part of items how high natural gas prices are leading to a massive escalation in ammonia prices that have to flow thru to food prices or lesser harvests. Our fear is that we will keep seeing the same headlines for many months to come. The headline was in line with what we have been expecting in UN FAO index reports after noting a decline in last months food price index; it noted a rebound in food prices in January. On Thursday, the UN posted its monthly update of its FAO Food Price Index [LINK] titled "*The FAO Food Price Index rises to a new all-time high in February*" Note this is on a Real price basis. The FFPI averaged 140.7 points for Feb 2022, which was +3.9% MoM and +20.7% YoY. All food categories registered monthly increases. The Cereal Price Index was +3.0% MoM and +14.8% YoY and Dairy Price Index that was +6.4% MoM and +24.8% YoY. The Vegetable oil Index was up 8.5% MoM marking an all time high. We were surprised to see that the Meat Price Index was one of the lowest YoY price increase areas, up 1.1% MoM and

15.3% YoY. Below is the all time FFPI graph. Our Supplemental Documents package includes the UN FAO Food Price Index update.

Figure 34: UN FAO Food Price Index



Source: UN

Demographics – Not the traditional rejuvenation of US work force

Young people staying out of labor force

One of the big challenges for business in and now coming out of the pandemic has been getting enough workers. There was a good Bloomberg report on Friday that provides some of the labor force participation data that would point to there not being a quick end to this worker challenge. The first thought that came to mind is that this is not the traditional rejuvenation of the labor force as young people just aren't coming back to work at the same time as the expected exit of baby boomers from the labor force. The Bloomberg report is a good read. A few of the points are "*Despite spectacular job growth over the past 22 months, the U.S. labor-force participation rate is still 1.1 percentage points — which amounts to about 1.8 million people — short of where it was on the eve of the pandemic in February 2020." "Part of what's going on is just that Americans are getting old, with the eldest members of the giant Baby Boom cohort turning 76 this year. By the estimate of economists Jason Furman and Wilson Powell III, 0.3 percentage point of the decline in labor force participation since February 2020 can be chalked up to the aging of the population since then." "Labor-force participation among those 20 through 24 has followed a steadier line. It's been rising, but is still well short of the pre-pandemic rate. Explaining this, and the smaller but still significant participation declines among those in their late 20s and early 30s, has become something of a cottage industry over the past year."* We love their last point that experts have been struggling to figure out the labor participation declines of younger people. Our Supplemental Documents package includes the Bloomberg report.

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

@Energy_Tidbits on Twitter

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

LinkedIn – Look for quick energy items from me on LinkedIn

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.

It took 50 years but National League finally adopts the designated hitter

Good news this week with Major League Baseball and the players agreeing to a new deal that will see an end to the lockout. The season will start late, but there will be a full season. In addition to the compensation, there were a number of changes to the game including the universal adoption of the designated hitter. The National League is finally giving in after 50 years to adopt the DH. I had the good fortune to attend a number of St. Louis Cardinals home games in 1973, which was the year the DH was adopted by the American League. And remember the big debate if the game was better or worse with the DH. I don't know which is better but the first wave of DH's was a great way to keep some great hitters (who were no longer the best fielders) in the game such as Orlando Cepeda, Gates Brown, and Rico Carty. The Toronto Blue Jays didn't arrive until 1977, but who can't remember that first year DH, Otto Velez.

A replacement for banned Russian vodka imports - Dan Akroyd's Crystal Head

After hearing on the ban of Russian vodka imports, among other items, we couldn't tweet [LINK] a replacement suggestion – Canadian Dan Akroyd's Crystal Head vodka. Crystal Head is distilled in Newfoundland. And one of the big advantages of the unique bottle design is that you put it on the bookshelf in your office and use as display or bookends.

Figure 35: Crystal Head vodka bottles

Source: Crystal Head, SAF Group

Gatorade says its new smaller bottle is to make it easier to grab

Everyone knows Shrinkflation now and the stories are more or less everywhere on examples of Shrinkflation. But we couldn't help note the Quatz March 10 report "*How companies are hiding inflation without charging you more*" [LINK] because of a great quote from Gatorade that their new smaller bottles aren't necessarily linked to Shrinkflation but more to improved aerodynamics of the bottle design that make it easier to grab. Quartz wrote "*Gatorade—the sports drink brand of PepsiCo—recently replaced its 32 oz size with a 28 oz bottle for the same price. That's the equivalent of a 14% price increase. "Basically we redesigned the bottle, it's more aerodynamic and it's easier to grab," said a company representative. "The redesign generates a new cost and the bottles are a little bit more expensive…this is only a matter of design." Gatorade did not respond to questions about whether its customers preferred the aerodynamic bottle or the difference in manufacturing costs. "I am very confident that the difference in cost between a 28 oz plastic bottle compared to a 32 oz plastic bottle for the type of plastic used in water bottles is probably less than 2 cents." Larry Chiagouris, a professor of marketing at Pace University told Quartz."*

Figure 36: Old Gatorade bottle on left, New Gatorade bottle on right

Source: Quartz

March Madness starts today with Selection Sunday

The crazy approx. 3 weeks of March Madness NCAA Men's basketball championship starts today with Selection Sunday to pick the teams to qualify. The First Four games are on March 15/16, First Round March 17/18, Second Round March 19/20, Sweet 16 March 24/25, Elite Eight March 26/27, Final Four April 2 and Championship April 4. This means we will be hearing about everyone's bracket and not just on sports TV, but also business channels like CNBC. We recognize that the world of research analysts speaking on the phone with US clients isn't like it was, but having a bracket is a great conversation starter with many US clients. One history item, March Madness stopped having the championship game in the early 1980s. Wish everyone luck especially those who work at Berkshire Hathaway. We haven't heard yet but assume Warren Buffet will be offering his billion dollars or at least $1 million per year for lift to any of the Berkshire Hathaway employees who can have a perfect bracket.