Energy Tidbits

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BlackRock's New "*How to Invest in the Net Zero Transition*" is Positive for Oil and Natural Gas Stocks

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. BlackRock's new "*How to invest n the Net Zero transition*" is positive for oil and natural gas stocks. (Click Here)
2. TotalEnergies CEO points another year before it is likely able to lift its Mozambique LNG force majeure, which is holding back ~5 bcf/d of new LNG supply (Click Here)
3. IEA Oil Market Report includes "*a reassessment of historical data has resulted in a significant upgrade to our demand estimates."* (Click Here)
4. Looks like geopolitical risk premium to Libya oil will be returning with eastern Libya parliament to return to its own PM. (Click Here)
5. Western Canada crude oil inventories are down >14 mmb since early Nov to <25 mmb at Jan 31. (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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Table of Contents

Natural Gas – Natural gas draw of 222 bcf, storage now -441 bcf YoY deficit

Gas draws have increased as the colder weather has settled in across the US. The EIA reported a 222 bcf draw (vs 222 bcf draw expectations) for the Feb 4 week, which was above the 5-yr average draw of 150 bcf, and last year's draw of 171 bcf. Storage is 2.101 tcf as of Feb 4, increasing the YoY deficit to -441 bcf, from 392 bcf last week and storage is 215 bcf below the 5-year average vs 143 bcf below last week. Below is the EIA's storage table from its Weekly Natural Gas Storage Report [LINK].

YoY storage at -441 bcf YoY deficit

Figure 1: US Natural Gas Storage

	Stocks billion cubic feet (Bcf)				Historical Comparisons: Year ago (02/04/21)		Historical Comparisons: 5-year average (2017-21)	
Region	02/04/22	01/28/22	net change	implied flow	Bcf	% change	Bcf	% change
East	485	541	-56	-56	537	-9.7	512	-5.3
Midwest	552	616	-64	-64	674	-18.1	618	-10.7
Mountain	121	133	-12	-12	151	-19.9	133	-9.0
Pacific	181	196	-15	-15	258	-29.8	210	-13.8
South Central	763	837	-74	-74	923	-17.3	842	-9.4
Salt	207	231	-24	-24	264	-21.6	260	-20.4
Nonsalt	556	606	-50	-50	659	-15.6	582	-4.5
Total	**2,101**	**2,323**	**-222**	**-222**	**2,542**	**-17.3**	**2,316**	**-9.3**

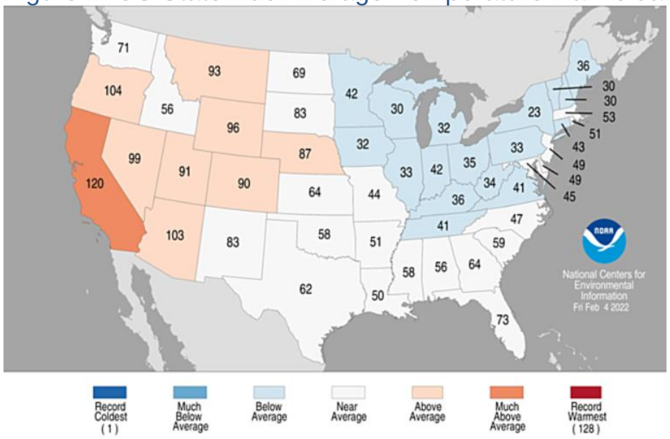
Source: EIA

Natural Gas – US was generally average temperature in Jan

January saw temperatures cool from record warm temperatures in December indicating positive outlooks for the natural gas withdrawal season. NOAA posted its recap of January 2022 weather [LINK], which was the 58th warmest in the last 127 years. Strong LNG exports have continued to maintain strong HH prices despite the mild winter the majority of the US has experienced to date. The northeastern US saw slightly below average temperatures in January while the western states were warmer. The average temperatures across all lower 48 states was 31.0 degrees F, 0.9 degrees F above the 20th century average for January. Below is a graphic depicting the state average temperature ranks.

Cooler January temperatures

Figure 2: US Statewide Average Temperature Ranks January 2021



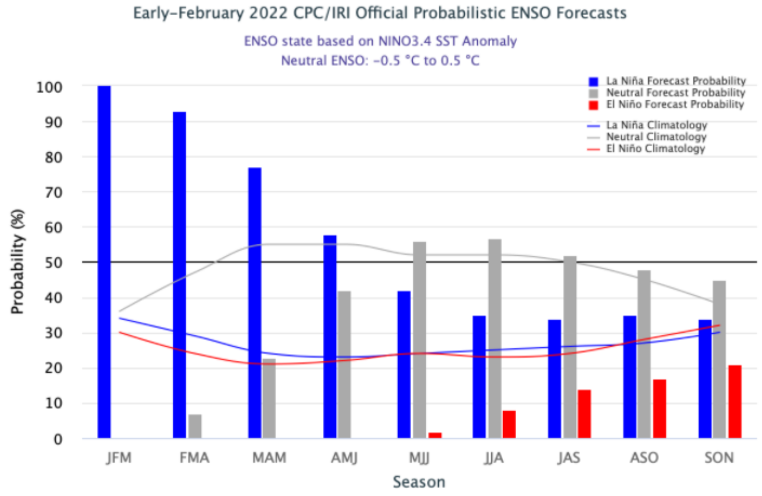
Source: NOAA

Natural Gas – 86% 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]. Focus on El Nino forecasts will now move to the summer. The new El Nino updates on the potential transition to ENSO-neutral conditions. The forecast expects more La Nina and neutral conditions over the summer which typically indicates a more neutral hurricane season. The new forecast for JAS is 34% La Nina, 52% Neutral and only 14% for El Nino conditions. The new ASO forecast is 35% La Nina, 48% neutral and 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 3: Early-February NOAA El Nino/La Nina Outlook



Source: CPC/IRI

Natural Gas – EIA forecasts US gas production growth in 2022

U.S. gas production +2.52 bcf/d 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 February 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 97.12 bcf/d (up 0.54 bcf/d from peak). (ii) For 2021, the EIA made downward revisions to Q3 and a large upward revision to Q4. 2021 US natural gas production is forecast to average 93.57 bcf/d (up from 93.49 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 97.11 bcf/d (96.71 bcf/d previously) and exiting in Q4/23 at 98.84 bcf/d (98.45

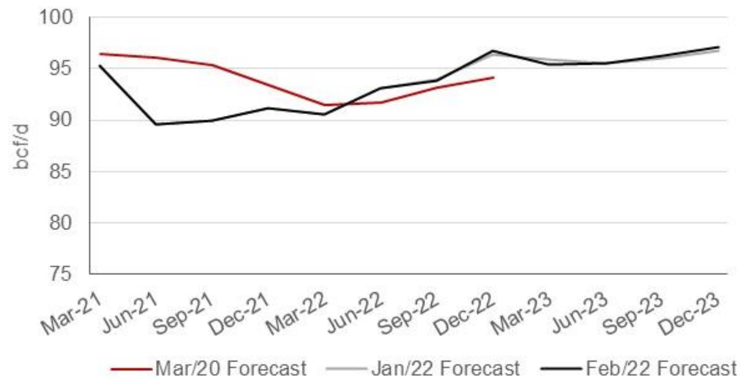
bcf/d previously) for a 2023 average of 97.97 bcf/d. (v)The EIA wrote "*We forecast natural gas production to average 95.6 Bcf/d in February and 96.1 Bcf/d for all of 2022, driven by natural gas and crude oil price levels that we expect will be sufficient to support enough drilling to sustain production growth. We expect production to rise to an average of 98.0 Bcf/d in 2023."* Our Supplemental Documents package includes excerpts from the EIA STEO.

Figure 4: 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
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					
Dec 2020	94.79	89.67	89.72	89.36	90.88	87.65	87.25	88.13	88.61	87.91										

Source: EIA STEO

Figure 5: 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

EIA STEO storage forecast

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. But the EIA now forecasts end of winter (March 31, 2022) at 1.56 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 3.56 tcf, which is -100 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 *"U.S. natural gas inventories ended December 2021 at 3.2 trillion cubic feet (Tcf), 3% more than the 2016–20 average. We forecast inventories will end March 2022 at 1.8 Tcf, which would be 8% more than the 2017–21 average for the end of March."*

Figure 6: 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	3,665.7	3,236.3	4,012.7	776.4	3,624.5	1.1%
Mar 2022	1,559.9	1,184.9	2,486.3	1,301.4	1,835.6	-15.0%
Oct 2022	3,560.4	3,236.3	4,012.7	776.4	3,624.5	-1.8%

Source: EIA

Natural Gas – TotalEnergies CEO maybe Mozambique LNG work restart in H2/23

TotalEnergies Mozambique LNG

Wow! There was a big positive for LNG prices in the 2020s on Thursday, when TotalEnergies CEP Pouyanne threw cold water on the potential for a lifting of the Mozambique LNG force majeure in 2022. He was clear that maybe it will take a year to lift the force majeure. And then he added in something that most have overlooked – it will take six months after TotalEnergies makes the restart decision to actually get construction underway. We listened to the Q4 call on Thursday and, as soon as we could make a transcript from our iphone recording, we tweeted [LINK] "*1/2. #LNGSupplyGap getting biggger. Expect longer time to restart @TotalEnergies #Mozambique. In Q&A, @PPouyanne "But my view is that the conditions under which we could restart the project might be fulfilled, maybe it will take a year. I don't know. We'll see" #LNG #NatGas #OOTT.*" And [LINK] "*2/2. @PPouyanne "We know that when we say yes we can come back, it will take six months really to start up again". Hope was 2022 restart for 1st #LNG in 2026. Backs up ~5 bcf/d of #MozambiqueLNG. see SAF 04/28/21 blog. Need brownfield FIDs ie. #LNGCanada Phase 2. #NatGas #OOTT".* There was much more to Pouyanne's direct comments but there is only so much we can put in a tweet. One other example was "*We will not build a plant in a country where we will be surrounded by soldiers."* Pouyanne was clear, the restart of work on Mozambique LNG is likely not happening until at least H2/2023. Our Supplemental Documents package includes the transcript we created of Pouyanne's comments.

Didn't Pouyanne point to or infer an earlier construction restart last week?

Last week's (Feb 6, 2022) Energy Tidbits memo noted the comments from TotalEnergies CEO Pouyanne that seemed to point to or infer that a force majeure lifting could be within a matter of a few months. So Pouyanne's comments in the Q&A were a big surprise as they pointed to the restart of actual work being 18 months away and not a few months away. But it makes sense. Pouyanne's comments were made while he was in Mozambique and having his meeting with Mozambique President Nyusi. We should have said that we have to wonder if he was downplaying the risk of a longer delay in front of Nyusi. Clearly, Pouyanne didn't want to say what he said on the Q4 call in front of Mozambique press which he was in Mozambique. We also now know that Pouyanne isn't planning to go back to

Mozaqmbique until sometime in 2023. On Jan 31, the Club of Mozambique [LINK] reported ""*I am optimistic", said Pouyanné, about the resumption of works, although without commitments. The CEO of TotalEnergies said that the next time he returns to Mozambique, he wants to be able to go "to Palma, Mocímboa da Praia and Mueda" "When I see that life is back to normal, with State services and the population, then the project can start over"".*

Pushes back TotalEnergies Mozambique LNG first cargos until at least 2027

Pouyanne's comments point to a physical restart of construction not until at least Q3/2023. And that then points to first LNG not until sometime in 2027, which is at least a year later than their expectations/hopes from their 2-day investor outlook. Our Oct 1, 2022 Energy Tidbits wrote " *this week that included their longer term outlook, which had to include what are they now assuming for first LNG cargoes from Mozambique LNG. We have been highlighting how the entry of Rwandan troops has been the key driver for pushing out the rebels and re-establishing security in the LNG centered northern regions. Prior to this week, we had not seen TotalEnergies estimate a restart date. But this week, they presented their long term outlook including first Mozambique LNG in 2026. That is two years later than the original start year of 2024 but one year later in their revised timing before the force majeure. In their prepared remarks, mgmt said "This forecast of upstream production in 2026 includes Mozambique LNG production only in 2026. This relies on the assumption that the project activity will review in 2022." No surprise there were a number of questions on this assumption. And mgmt did caution "You know that we do not control all the situation, a security situation in Cabo Delgado. This would impact the '26 target by $500 million" ie. a 1 year delay in Mozambique from this assumption reduces 2026 cash flow by $500 million. In the Q&A, mgmt seemed to exercise caution on this assumption. Mgmt replied "We have some -- there are some positive evolutions on the ground, but it has to be consolidated. There is a war. So we will not -- what we will not do on Mozambique is remobilizing to remobilize. That's clear. So if we are not able to remobilize beginning next year, then the delay in Mozambique LNG this $500 million could go to 27%." We believe TotalEnergies wants to avoid what happened in Dec 2020 thru March 2021. Recall, previously that, in Dec 2020, TotalEnergies had shut down development for 3 months due to the security risk and then had restarted on Wednesday, March 24, 2021. Then there were 3 days of violence and attacks followed, and TotalEnergies suspended operations on the Saturday and started to pull all staff out of Mozambique. That was when construction stopped and then a month later TotalEnergies declared force majeure. At that time, we thought TotalEnergies would want to have a longer period (ie. 6 months or so) of perceived security/stability before agreeing to restart. So at least for now, TotalEnergies is hopeful that construction restart can happen in early 2022."*

Reminder Mozambique LNG delays are 5 bcf/d, not 1.7 bcf/d Total Phase 1

The reason this is a big plus to LNG in the 2020s is that we continue to stress that TotalEnergies force majeure on its Mozambique LNG Phase 1 is much more than holding its 1.7 bcf/d Phase 1. It's actually holding back a total of 5 bcf/d of

Mozambique LNG. And that 3 bcf/d of this 5 bcf/d was supposed to be onstream in 2024/2025. This was the reason why, on April 28 2021, we posted a 7-pg blog "*Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?*" [LINK] We thought, and still think, there has been a major change to the outlook for LNG supply in the 2020s and one that is still being overlooked – there is a big new LNG supply gap starting around 2025 that is hitting faster and bigger than anyone expects. We saw Total's April 27, 2021 announcement of force majeure at its Mozambique Phase 1 LNG of 1.7 bcf/d was much more significant that viewed. We just didn't see market focused on the fact that this situation backs up an additional 3.3 bcf/d of LNG supply that is also being counted on in all LNG supply forecasts. Total's Phase 2 of 1.3 bcf/d was to follow, and Exxon's Rozuma Phase 1 of 2.0 bcf/d was originally expected to go FID in 2019 but is now not expected to have a FID decision until 2022 at the earliest. Mozambique is considered a premium LNG supply region for Asia and is in LNG supply forecasts. Total's original in service for Phase 1 is 2024. We had been warning that Mozambique has a major LNG market impact and its why we posted the April 28 blog. Its also why earlier we said that this is starting the clock running for other LNG projects wanting to go FID to make their mind up ie. like LNG Canada Phase 2. Our Supplemental Documents package includes our 7-pg April 28, 2021 blog.

Natural Gas – India confirms target is natural gas to 15% of energy mix by 2030

India natural gas target 15% of energy mix

On Thursday, India Ministry of Petroleum & Natural gas press released [LINK] "*The Minister of State for Petroleum and Natural Gas, Shri Rameswar Teli in a written reply to a question in the Lok Sabha today informed that the Government has set a target to raise the share of natural gas in energy mix to 15% by 2030. At present, share of natural gas in primary energy mix has increased from 6.3% to 6.7% from 2020 to 2021.*" Lok Sabha is their parliament. . We couldn't find out why they felt the need to make this release as this 15% target has been long stated. Our Supplemental Documents package includes the Ministry release.

On Feb 4, India's minister reminded of this 15% target

Last week's (Feb 6, 2022) Energy Tidbits memo highlighted The Economic Times (India news) Feb 4 reporting of comments by India's minister for petroleum and natural gas, Hardeep Singh Puri at The World Energy Policy Summit 2022. The Economic Times wrote "*Referring to India's target to reach net-zero carbon emissions by 2027, he said the government has already taken several measures to overhaul the hydrocarbon policy framework to ensure energy security for the country while pursuing the green path to progress."* And quoted Puri *"We are rapidly deploying natural gas in our energy mix by increasing its share from the current 6 per cent to 15 per cent by 2030*". This is not a new initiative, and Puri has spoken before with much more specific progress on this rapid buildout. Our Supplemental Documents package includes The Economic Times Feb 4 report.

Petronet sees India LNG imports +12.4 bcf/d to reach 15.8 bcf/d in 2030

To put in perspective, India's push to get natural gas to 15% of its energy mix would mean added LNG imports of approx. 3 times the capacity of Qatar's big LNG expansion project. The best illustration of the added LNG import impact was from

Petronet. Our October 24, 2021 Energy Tidbits memo wrote "*We continue to believe India's moves to increase natural gas to 15% of its energy mix by 2030 is a game changer for LNG markets in the 2020s. Especially as we have seen clear signs of action toward that target. On Friday, there was very bullish for India's LNG import growth from Petronet CEO Singh at the India Energy Forum on Friday. As soon as we saw the reports, we tweeted [LINK] "Bullish for #LNG #NatGas in 2020s. #Petronet CEO fcasts India LNG imports +12.4 bcfd to reach 15.8 bcfd (120 MTPA) in 2030. In line with his June est, see below SAF Group June 20 Energy Tidbits #Petronet sees LNG imports +13 bcfd to 2030. Thx @JournoDebjit @rajeshsing13 #OOTT". Bloomberg's India energy team reported "India's import of natural gas is expected to hit 120 million tons/year by 2030 as the nation targets an energy mix goal, Akshay Kumar Singh, CEO of Petronet LNG, said at the India Energy Forum by CERAWeek. NOTE: India aims to boost use to natural gas to 15% of primary energy mix from about 6% now. * India's current annual LNG import is about 26 million tons". Singh is forecasting India's LNG imports to grow from current 26 MTPA (3.4 bcf/d) to 120 MTPA (15.8 bcf/d) in 2030. That is an increase of 12.4 bcf/d to 2030. This is very bullish for LNG and natural gas in the 2020s. Our Supplemental Documents package includes the Bloomberg report."*

India has been serious to expand natural gas infrastructure

The biggest change in the past 2 years is that India is getting serious about increasing natural gas consumption including the infrastructure. This is the key, it is getting serious and starting the key requirement to build out the domestic infrastructure to make natural gas accessible throughout more of India. Our September 19, 2021 Energy Tidbits memo wrote "*Natural Gas – India to expand natural gas distribution to cover 96% of population. LNG buyers better hope that the security picture in Mozambique get settled to an acceptable level for TotalEnergies, Exxon and others to get back to moving on 5 bcf/d of LNG capacity that has been held up now for several months. Because we continue to see support for the major LNG demand theme for the 2020s – India's target to double the share of natural gas in its energy mix to 15% by 2030. Yesterday, we retweeted [LINK] "Positive to #LNG. India to expand #NatGas distribution to cover 96% of population. Fits move to double #NatGas share of energy mix to 15% by 2030, which #Petronet CEO est adds 13 bcf/d #LNG demand. See [LINK]." Our retweet was of an India Ministry of Petroleum and Natural Gas tweet [LINK] on the new 11th round of bidding for city distribution of natural gas, and that "once completed, the CGD network in India shall cover 86% of the Country's area and 96% of the population". This will take years to roll out but covering 86% of India and 96% of its population is a good indicator for a strong ramp up in natural gas uses post 2025. And we expect that the industrial/commercial coverage ratio is much the same ie. call it 90% of India."*

Remember Modi's highlighted India "should be a gas-based economy"

Our August 15, 2021 Energy Tidbits memo highlighted Modi's 75th anniversary of India independence speech. Modi has been stressing the importance to increase natural gas share of India's energy mix from 6% to 15% by 2030. India posted the Modi speech transcript at [LINK]. This is a big picture speech about the future for India and Modi's tries to set a vision for the next 25 years to the 100th anniversary.

It's a general speech but it is also good reminder to people in the west that India still has a long way to go to catch up. Modi notes how they *"have made authentic efforts to construct toilets in 100% households*". One of his major themes was that India should be a gas based economy but targets to be energy independent in 25 years. Modi didn't get into his policy to increase natural gas share of the energy mix from 6% to 15% by 2030 and only gave gas a glancing mention, but the mention is significant – India "should be a gas based economy". Our August 15, 2021 Energy Tidbits had more detailed on the other Modi speech themes.

Natural Gas – India Petronet LNG in discussions with Qatar to extend supply past 2028

Petronet LNG trying to extend Qatar supply deal

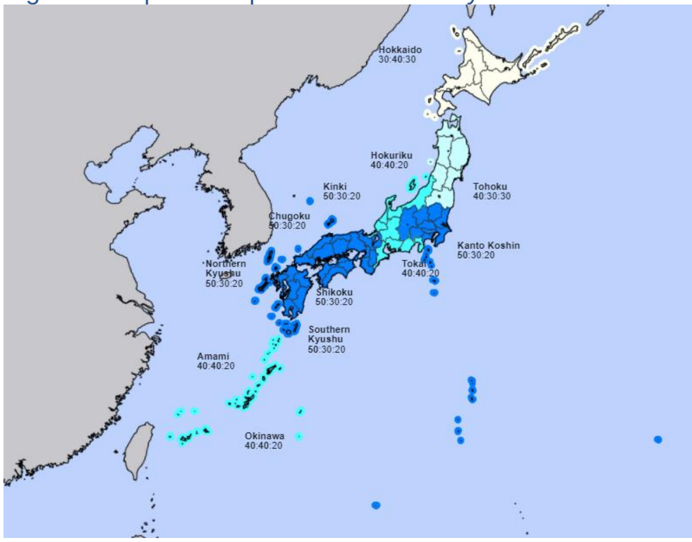
India's Petronet LNG released its Q3/2022 results (quarter ended Dec 31, 2021) and held its analyst call on Thursday. There was nothing in the Q3/2022 release on an updated long term LNG outlook. However, in the Q&A, mgmt was asked on the global LNG market and if they were trying to tie up new long term LNG supply from Russia and others. Mgmt said they were in discussion with Qatargas on extending its existing LNG contract past 2028. Mgmt replied "*I am just what I could get from you, that projects are coming, no doubt. As far as the financing is concerned, this is not an issue. And projects are coming up with the prices now we realize are very high. But as far as our contract is concerned with Qatargas, we are seeking to extend it after 2028 and we have already started discussions with the Qatargas and we are in talks for extending this contract for the future period. And apart from that, other terms and conditions will also be discussed like the prices of --price of natural gas, which will be determined how it has to be -- it should be Brent based or it should be mix of Henry Hub, mix of JKM and Brent or Henry Hub. So like that those issues are to be finalized, but we are very much serious about extending the contract beyond 2028. This we have conveyed to our counterpart, in Qatargas, and they are in discussion with us and perhaps we have a timeline of December 2023 by which we have to confirm that we are going to extend it. So from now onwards, we have started discussion and we are hopeful that this will be concluded. This is a very good contract for India, looking at the kind of prices and even the distance, which is there, it's a very minimal shipping cost for bringing LNG to India. So this is the most favorable contract India has ever had."*

Natural Gas – Japan expects continued cold end to winter

Japan forecasted cold end to winter

Japan is expected to have a cold end to the winter as the below average temperatures experienced in January persists into February. The Japan Meteorological Agency posts its weekly temperature probability forecast for the next 4 weeks on Thursday mornings. [LINK]. JMA forecasts that Japan will experience well below normal temperatures for the remainder of Feb before returning to above average temperatures towards the end of the month. The northern regions of Japan are expected to have closer to normal temperatures while the southern regions are expected to be well below average temperatures. Below is the JMA forecast for the next four weeks of the forecast period (Feb 12 - Mar 11), which expects below normal temperatures for the next 4 weeks.

Figure 7: Japan Temperature Probability Forecast Feb 12 – Mar 11



Source: Japan Meteorological Agency

Natural Gas – Scholz just couldn't utter the words Nord Stream 2

Scholz won't say Nord Stream 2

Biden hosted German Chancellor Scholz on Monday at the White House. The media focus was on how specific a commitment Biden could get from Scholz on potential actions against Russia in the event of a Ukraine invasion. (i) Biden was clear that he will stop Nord Stream 2 if Russia invades Ukraine and, interestingly, he says he will do so even if under Germany control. Biden was asked "*But how will you -- how will you do that exactly since the project and control of the project is within Germany's control?"* Biden's reply "*We will -- I promise you we will be able to do it*." (ii) Scholz would not say the words Nord Stream 2. Scholz was clearly very careful about making sure he said he was unified with the US but also very careful to not say Nord Stream 2 But one other item isn't getting any attention is that Scholz view on being unified is on "sanctions", whereas Biden jumps right out and says he will stop Nord Stream 2. Biden doesn't say he will do it by sanctions. Perhaps that's implied. Schulz is saying unified on sanctions. Here is one example "*And we made it very clear if there was a military aggression against Ukraine, this will entail severe consequences that we agreed upon together, severe sanctions that we have worked on together*." Our Supplemental Documents package includes the transcript from the Biden/Scholz press conference.

Natural Gas – Biden couldn't say how he would deliver on his LNG promise to Europe

Biden couldn't explain his LNG promise

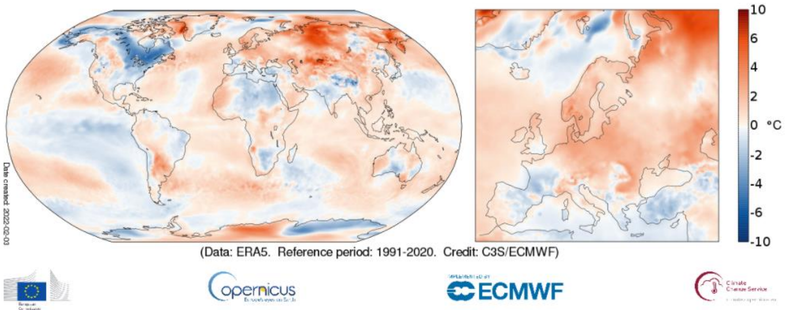
Just like Scholz wouldn't say the words Nord Stream 2 in the Biden/Scholz press conference, Biden couldn't/wouldn't answer how he would deliver on his LNG promise to Europe. We tweeted [LINK] "*No surprise, #Biden didn't/couldn't really answer question can he really deliver on his promise to help EU with #LNG knowing LNG is more expensive and not available in the volumes that might be needed to replace RUS #NatGas. #OOTT*". Biden was asked "*Mr. President, I would like to ask you a question about LNG. Germany and Europe much more dependent on Russian gas than other regions of the world and you promised European allies to help with LNG. But this resource is more expensive. It's not available in the volumes that might be needed to replace Russian gas. And I would like to know from you* *how you would help Europeans in case of a conflict with Russia. Is this an empty promise or what can you really do, what can you offer".* Biden replied "*Now let me respond. First of all, we are looking at opportunities to make up for lost gas, LNG, from Russia. We're underway of trying to see what we can do to do that. And dealing with our friends around the world as well we think we could make up a significant portion of it that would be lost."* Biden then went on to talk about Russia needs to sell oil and gas for its budget. We give Biden credit as he is very likely making all the calls to ask but, unfortunately, we don't think his team really understands the fundamentals of oil, natural gas and LNG supply and contracts.

Natural Gas – Fortunate for Europe, Jan was warm in Asia and Europe

Europe was lucky it was warm

As Europe's natural gas situation remains tight, they were lucky that it was warm around the world in January so natural gas consumption was less. And that there was the ability for Europe to get more LNG that weren't needed in Asia. There were above average temperatures across Europe with Germany, eastern Europe, Scandinavia and the northern UK, all experiencing above the average temperature from 1991-2020, while colder than average conditions occurred in France, northern Spain and the Mediterranean. Temperatures were above average in parts of Asia and Russia while India noted below average temperatures over the course of the month. Below is the global surface temperature anomaly from the Copernicus website [LINK].

Figure 8: Surface air temperature anomaly for January 2022



Source: Copernicus

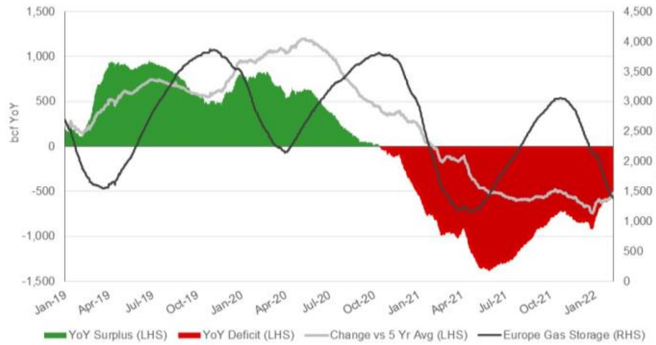
Natural Gas – Europe storage only 35.17% full vs last year of 47.15%

Europe storage down to 35.17% full

Europe has been lucky that it hasn't been cold because the combination of a warm December and January, the massive increase in US LNG to Europe, and higher winds in January is having an impact on Europe gas storage. The YoY Europe storage gap has narrowed this week since the start of the winter natural gas season. Europe gas storage started down 18.52% YoY and is now down 13.41% as Europe has been experiencing warmer than normal temperatures recently. 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 8 is still only at 35.17%, which is -11.98% less than last year levels of 47.15% and are -13.65% below the 5-year average of 48.82%. 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 9: Europe Gas Storage Level



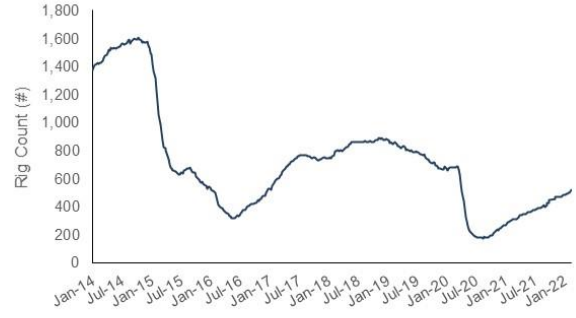
Source: Bloomberg

Oil – US oil rigs +19 WoW at 516 oil rigs at Feb 11

Baker Hughes released its weekly North American drilling activity data on Friday. There was large increase that really reflects some pent up demand that was held up with freezing conditions in Texas that delayed rig moves. The cold weather and snows in past weeks had affected drilling, particularly in the Permian and Bakken basins, but now that the inclement weather has mostly subsided, drilling has increased to prepare for summer demand. 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 +19 WoW at 516 oil rigs. Oil rigs are +344 off the bottom of 172 in Aug14/2020 week. There were big basin changes this week; Permian was up +7 at 301 rigs this week while Bakken was up +2 rigs at 33 rigs increasing for the consecutive week; Eagle Ford has a sizeable increase +5 WoW to 47 rigs. US oil rigs hit their 2020 peak at 683 on March 13 and have since fallen by 167 to 516 oil rigs (-16%). US Gas rigs were +2 WoW reflecting the heightened $4 HH. Below is our graph of US oil rigs since January 1, 2014.

US oil rigs +19 WoW

Figure 10: Baker Hughes Total US Oil Rigs



Source: Baker Hughes

Oil – US frac spreads +11 to 275 for week ended Feb 11

Mark Rossano (C6 Capital Holdings) held his weekly US frac spread recap for week ended Feb 11 on the Primary Vision network. YouTube video is at [LINK]. For the week ended Feb 11, US frac spreads at the high point in the week were +11 to 275. At 275, now above the peak for last year, and what he has been expecting. The increase was driven by the Permian (he doesn't give the numbers) but said he expects the Permian to be over 150 spreads by the end of the month. Also saw spread increases in the Uinta, western Gulf and Williston. The level of activity gives more confidence in his forecast for year-end 2022 US crude oil production target of 12.2 to 12.3 mmb/d, but he says it has to come with a DUC increase. He says there needs to be increases in both rigs and DUCs. He said expect to see a pause here in spreads, there is only so much that you can add given items like labour and other restraints

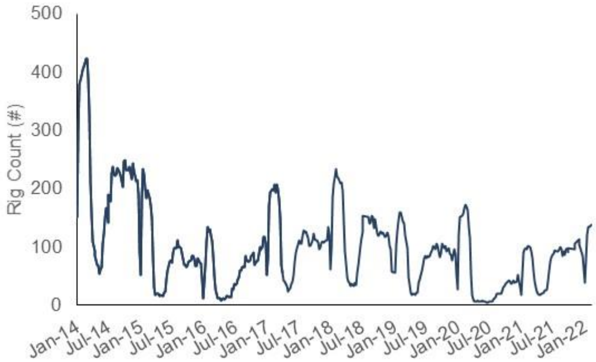
Frac spreads +11 to 275

Oil – Total Cdn rigs +1 to 219 total rigs, +43 rigs YoY

Total Cdn rigs were up +1 this week to 219 total rigs. Cdn oil rigs were +1 at 137 rigs. Cdn gas rigs were flat at 82 gas rigs; we expect the large post Christmas ramp up has come to an end and we have reached peak winter drilling levels and expect Cdn rigs to start to decrease with the approaching end to winter drilling. Total rigs are now +205 since the June 26, 2020 all-time low. Cdn drilling has recovered YoY, a year ago Cdn oil rigs were 101 and Cdn gas rigs were 75 for a total Cdn rigs of 176, meaning total Cdn rigs are +43 YoY and total rigs are -36 vs 2019.

Cdn rigs +1 WoW

Figure 11: Baker Hughes Total Canadian Oil Rigs



Source: Baker Hughes

Oil – US weekly oil production down +0.100 mmb/d at 11.6 mmb/d

As expected, it looks like cold, and snow likely had an impact on US oil production. Weekly production in the US was up +0.100 mmb/d this week at 11.6 mmb/d for the week ended Feb 4. Lower 48 production drove total production and was flat from last weeks level at 11.1 this week; US oil production is up YoY at +0.600 mmb/d and is still down significantly at -1.5 mmb/d since the 2020 peak of 13.1 mmb/d on March 13. The slight increase is mainly attributed to the cold weather subsiding in Texas allowing for increased production. Absent further weather impacts, we would expect US oil production to remain relatively flat if not inch up a little higher in Q1/22.

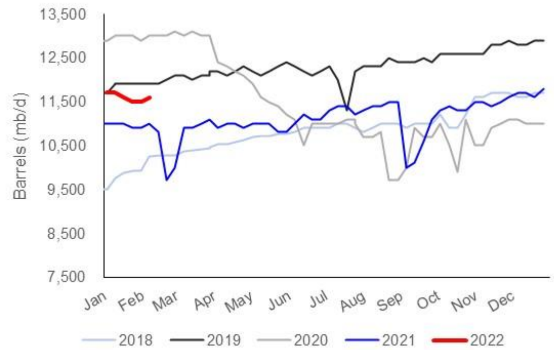
US oil production up WoW

Figure 12: EIA's Estimated Weekly US Oil Production

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

Source: EIA

Figure 13: 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. (i) There was no change to the historical 2019 oil production of 12.29 mmb/d and 2020 at 11.28 mmb/d, down 1.01 mmb/d YoY. i) The EIA did not adjust the 2020 forecasted production numbers, same as last month. (ii) The EIA forecast slightly raised its

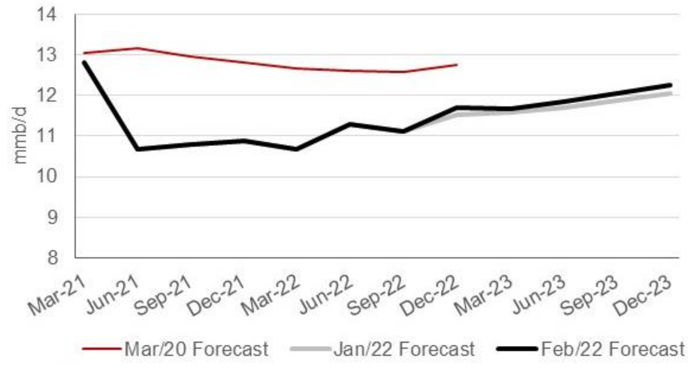
US crude expectations thru 2021, still not returning anywhere near the Q4/19 peak of 12.88 mmb/d, with Q4/21 US crude of 11.69 mmb/d (down 1.16 mmb/d from peak). Q4/21 of 11.69 mmb/d is +0.82 mmb/d YoY vs Q4/20. Full year 2020 US oil production is flat at 11.28 mmb/d and is down 1.01 mmb/d YoY from 12.29 mmb/d in 2019. (iii) Full year 2021 is increased by 0.04 mmb/d vs January STEO to 11.20 mmb/d, which is down -0.08 mmb/d YoY from 2020. (iv) The EIA forecasts a shift back to YoY growth in 2022 with production averaging 11.97 mmb/d, +0.77 mmb/d YoY (was 11.80 mmb/d previously), with Q4/22 production of 12.27 mmb/d, is still down 0.61 mmb/d from Q4/19. (v) The 2023 outlook was released and projects crude production to begin Q1/23 at 12.46 mmb/d and close the year in Q4/23 at 12.75 mmb/d for and average of 12.60 mmb/d in 2023. (vi) In the US oil production commentary, the EIA wrote *"U.S. crude oil production reached almost 11.8 million b/d in November 2021 (the most recent monthly historical data point), the most in any month since April 2020. We forecast that production will rise to an average of 12.0 million b/d in 2022 and 12.6 million b/d in 2023, which would be record-high production on an annual-average basis. The previous annual average record of 12.3 million b/d was set in 2019."*

Figure 14: Estimated US Crude Oil Production By Forecast Month

(million b/d)	Q1/20	Q2/20	Q3/20	Q4/20	2020	Q1/21	Q2/21	Q3/21	Q4/21	2021	Q1/22	Q2/22	Q3/22	Q4/22	2022	Q1/23	Q2/23	Q3/23	Q4/23	2023
Feb-2022	12.81	10.67	10.79	10.87	11.28	10.69	11.28	11.13	11.69	11.20	11.67	11.86	12.06	12.27	11.97	12.46	12.54	12.63	12.75	12.60
Jan-2022	12.81	10.67	10.79	10.87	11.28	10.69	11.28	11.12	11.54	11.16	11.58	11.7	11.88	12.05	11.8	12.26	12.33	12.46	12.58	12.41
Dec-2021	12.81	10.67	10.79	10.87	11.28	10.69	11.28	11.11	11.63	11.18	11.67	11.72	11.91	12.09	11.85					
Nov-2021	12.81	10.67	10.79	10.87	11.28	10.69	11.28	11.07	11.47	11.13	11.69	11.77	11.97	12.16	11.90					
Oct-2021	12.81	10.67	10.79	10.87	11.28	10.69	11.28	10.98	11.13	11.02	11.54	11.64	11.78	11.96	11.73					
Sept 2021	12.81	10.67	10.79	10.87	11.28	10.69	11.28	11.06	11.28	11.08	11.42	11.58	11.81	12.06	11.72					
Aug 2021	12.81	10.67	10.79	10.87	11.28	10.69	11.22	11.26	11.30	11.12	11.46	11.62	11.86	12.11	11.77					
July 2021	12.75	10.81	10.81	10.90	11.31	10.70	11.20	11.17	11.34	11.10	11.54	11.72	11.95	12.20	11.85					
June 2021	12.75	10.81	10.81	10.90	11.31	10.70	11.04	11.17	11.38	11.08	11.55	11.67	11.88	12.05	11.79					
May 2021	12.75	10.81	10.81	10.90	11.31	10.65	10.97	11.12	11.34	11.02	11.51	11.68	11.96	12.21	11.84					
Apr 2021	12.75	10.81	10.81	10.90	11.31	10.75	10.93	11.13	11.35	11.04	11.54	11.74	11.99	12.18	11.86					
Mar 2021	12.75	10.81	10.81	10.87	11.31	10.79	11.06	11.27	11.46	11.15	11.67	11.84	12.16	12.41	12.02					
Feb 2021	12.75	10.81	10.81	10.89	11.31	10.98	10.91	11.00	11.18	11.02	11.30	11.38	11.61	11.83	11.53					
Jan 2021	12.75	10.81	10.81	10.81	11.29	11.06	11.03	11.07	11.25	11.10	11.32	11.37	11.52	11.74	11.49					
Dec 2020	12.75	10.81	10.80	10.99	11.34	11.02	11.00	11.09	11.29	11.10										
Nov 2020	12.75	10.81	10.93	11.07	11.39	11.06	10.97	11.08	11.28	11.10										

Source: EIA STEO

Figure 15: Estimated US Crude Oil Production By Forecast Month



Source: EIA STEO

Oil – Biden "work like the devil to bring gas prices down"

Biden on gasoline prices

It seems like the messaging from the Biden administration on how they will work to lower gasoline prices is on strengthening the supply chain. But, as we have noted before, they really should be saying strengthening the supply chain excluding anything to do with domestic oil and natural gas production, Jones Act waivers to reduce the cost of shipping gasoline or crude within US ports to make it cheaper to deliver gasoline. Biden specifically mentioned getting port costs down, but doesn't mention Jones Act. We have also noted before how Biden can reduce federal excise taxes on gasoline and, at least now, there seems to be some Washington politicians suggesting so. The other areas that Biden has control of is sanctions on Venezuela and Iran and we continue to believe he has been soft on implementing these to allow more of their oil on the market. Rather Biden got the media coverage fore his "going to work like the devil to bring gas prices down". On Thursday, Biden said "*So there's more than one way for a family when it comes to raising their standard of living. I'm going to work like the devil to bring gas prices down, which I am going to -- working to make sure that we keep strengthening the supply chains that bring the cost of energy and everything else and the goods that come to America, down by helping the ports 24/7, by changing a whole range of things that -- you know, what's happened with COVID, COVID has caused significant increase in prices and the supply chain, cause when a factory shuts down in another part of the world and you need that particular product in order to finish the -- and build whatever you're working on, the price goes up exponentially, like for cars."*

Oil – Two Democrat senators bill to suspend federal gasoline excise tax until 01/01/23

Federal gasoline excise tax

It's now less than 8 months until the Nov 8 mid term elections. So the heat is being turned up on the Democrats up for election and for Biden to try to not lose control off the house and senate. And it seems like some of the Democrats have lost confidence in Biden's plan to work like the devil to reduce gas prices. On Wednesday, Democrat senators Kelly (Arizona) and Hassan (New Hampshire) [LINK] introduced the "*Gas Prices Relief Act*" "*to lower high gas prices by temporarily suspending the federal gas tax through the end of the year*". Both senators are up for election in the mid term and their proposal would give the excise tax relief past the mid terms. The reality check is that items like high gasoline prices, high electricity prices, high food prices, etc are items that impact all Americans and can dominate elections. Recall how former Ontario Premier Wynne got blown out by Premier Ford driven by the high electricity prices. In addition to suspending the 18.4 cents per gallon excise tax until Jan 1, 2023, their bill is "*Passing tax savings to Americans and not oil and gas companies by requiring the Secretary of the Treasury to monitor the program in order to ensure oil and gas companies pass along the savings at the pump to consumers*." And "*Maintaining the integrity of the Highway Trust Fund by requiring the Department of the Treasury to make general fund transfers to keep the Highway Trust Fund solvent."* Our Supplemental Documents package includes the Kelly release.

Cutting federal excise taxes on gasoline was never a Biden consideration

Our Nov 28, 2021 Energy Tidbits highlighted that week's Florida Gov DeSantis announcement of a $1 billion tax holiday on state gasoline excise taxes. In that memo, we also highlighted how cutting federal excise taxes on gasoline has never been a Biden consideration. Maybe he is saving that for the peak summer driving season. But for some reason, the Biden administration hasn't, at least publicly, considered a holiday on federal excise taxes on gasoline as one of their tools to impact gasoline prices. We still recall the famous November 8, 2021 comments from Energy Secretary Granholm that Biden only has limited tools to fight gasoline prices. In our November 14, 2021 Energy Tidbits, we wrote "*Granholm says Biden only has* *limited range of tools to impact gasoline prices. So much for the President of the US being the most powerful man in the world moniker. On Monday, Energy Secretary Granholm was on MSNBC Morning Joe. She had many comments catch our attention, but one was her saying "But he is looking at other tools that he may have and hopefully there will be an announcement or so this week, he is certainly looking at what options he has in the limited range of tools that a President might have to address the cost of gasoline at a pump because it is a global market." Granholm and the administration have talked about OPEC increasing supply, potentially releasing SPR reserves and having the FTC makes sure no price gouging. No question that the price of oil makes up the biggest portion of the cost of gasoline. We tweeted [LINK] "#Biden has "limited range of tools" to address the cost of #Gasoline says @SecGranholm. Why not #JonesAct waivers so any tanker can "export" US gasoline, distillates, etc to US ports & replace higher cost imports of gasoline? also how about federal excise tax reduction? #OOTT. Waiving the Jones Act would allow US oil to be cheaper than foreign oil. The EIA estimates federal excise taxes are $0.184 per gallon on gasoline and $0.244 per gallon on diesel. He could also do something on tax relief for refineries or shippers to reduce the refining/shipping component of gasoline prices*."

Oil – Western Cdn oil inventories only at ~36% of storage capacity

Low Cdn oil inventories

Its been a great week for WCS (Western Canadian Select) heavy oil prices hitting over $80 on Friday, before closing at US $79.81/b. This is huge for the Cdn heavy oil players. One of the support factors for the strong prices is low western Canadian oil inventories. On Tuesday, we tweeted [LINK] "*Crude #Oil stockpiles in West Can down >14 mmb since early Nov, to <25 mmb at end Jan, according to Wood Mackenzie data. At ~36% of storage capacity, lowest utilization observed by Wood Mackenzie during this time of year. Thx @roberttuttle & @WoodMackenzie Dylan White. #OOTT."* On Tuesday, Bloomberg reported "*Canadian crude inventories are dwindling as oil-sands producers prepare to shut some operations for maintenance, potentially adding to U.S. supply woes Crude stockpiles in Western Canada have fallen by more than 14 million barrels since early November, to less than 25 million at the end of January, according to Wood Mackenzie data. At about 36% of storage capacity, this marks the lowest utilization rate observed by Wood Mackenzie during this time of year, analyst Dylan White said by email."* Our Supplemental Documents package includes the Bloomberg report.

Oil – Teamsters conducting strike vote among CP rail locomotive engineers, etc

Teamsters strike vote at CP

An item to keep on the radar for March for Cdn heavy/medium oil is the potential for a strike at CP Rail. On Thursday, the Teamsters Canada Rail Conference announced [LINK] it is conducting a strike vote "*among its more than 3,000 Locomotive Engineers, Conductors, Trainpersons and Yardpersons. The strike vote results will be tabulated in late February*." Teamsters says the "*main issues at hand include wages, benefits and pensions."* It looks like a clear compensation issue, which is interesting as Teamsters didn't highlight any working or safety or other factors. Although they did say "main" issues. Teamsters also stated "*The Minister of Labour has appointed a conciliator/mediator to support the process. Representatives from the Teamsters Canada Rail Conference and CP Rail are currently meeting with the conciliator. A legal work stoppage can only take place 21 days after the* *conciliation process is complete."* Our Supplemental Documents package includes the Teamsters announcement.

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

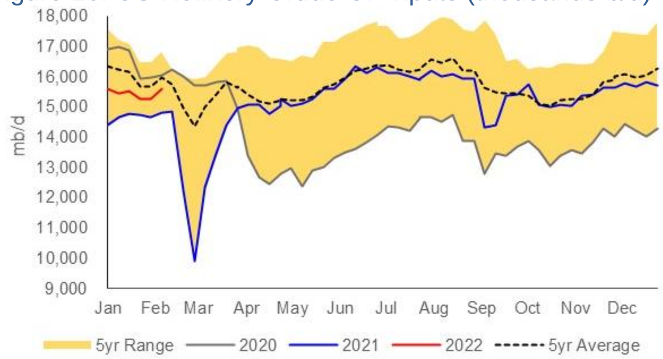
If there isn't success in the conciliation process, we should expect an actual strike because the Liberals haven't previously stepped in to enact back to work legislation to stop a rail strike. Our Dec 1, 2019 Energy Tidbits highlighted the end of the 8-day CN Rail strike. At that time we wrote "*Oil – 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] *reported 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 +0.429 mmb/d WoW at 15.577 mmb/d

Refinery inputs up WoW

The EIA crude oil input to refinery data is for the week ended Feb 4. There was the return of some of the outages at Gulf Coast refineries, which led to increasing crude oil inputs at refineries, up +0.429 mmb/d this week to 15.577 mmb/d and are +0.784 mmb/d YoY. The normal ramp up is to still produce winter fuels before refineries go into the turnaround in Q1 to switch to more summer fuels. Refinery utilization was down at 86.2%, which is still +3.2% YoY though is still below 5-year average utilization levels. Total products supplied (i.e., demand) increased WoW, up 0.47 mmb/d to 21.88 mmb/d. Motor gasoline was up +0.900 mmb/d at 9.126 mmb/d from 8.226 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 increased to 8.520 mmb/d, up from last year.

Figure 16: US Refinery Crude Oil Inputs (thousands b/d)



Source: EIA

Oil – US "net" oil imports down -1.420 mmb/d WoW at 3.280 mmb/d

US "net" oil down WoW

US "NET" imports were down -1.420 mmb/d to 3.280 mmb/d for the Feb 4 week. US imports were down +0.696 mmb/d to 6.389 mmb/d. US exports were up +0.724 mmb/d to 3.100 mmb/d. The WoW increase in US oil imports was driven by US's Top 10 imports by country were down 0.696 mmb/d from Top 10. Some items to note on the by country data. (i) Canada was down this week by -0.322 mmb/d to 3.631 mmb/d, which is now ~0.1 mmb/d above the average levels in Jan/Feb of 2020. (ii) Saudi Arabia was down 230,000 b/d to 0.383 mmb/d this week. (iii) Colombia was down -0.028 mmb/d to 0.258 mmb/d. (iv) Ecuador was down -0.135 mmb/d at 0.101 mmb/d. (v) Iraq was down -186,000 b/d to 226,000 b/d. (v) Venezuela remained at 0 due to US sanctions. (vi) Mexico was up by 575,000 b/d to 0.958 mmb/d.

Figure 17: US Weekly Preliminary Oil Imports by Major Countries

(thousand b/d)	Nov 26/21	Dec 3/21	Dec 10/21	Dec 17/21	Dec 24/21	Dec 31/21	Jan 7/22	Jan 14/22	Jan 21/22	Jan 28/22	Feb 4/22	WoW
Canada	3,773	3,869	3,879	3,147	4,032	3,803	3,340	3,556	3,752	3,953	3,631	-322
Saudi Arabia	475	393	463	384	609	418	294	381	596	613	383	-230
Venezuela	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	657	625	569	503	648	226	584	902	321	383	958	575
Colombia	214	71	232	146	184	64	241	193	143	286	258	-28
Iraq	221	248	29	359	268	226	317	434	133	412	226	-186
Ecuador	112	0	265	195	308	95	58	0	0	236	101	-135
Nigeria	4	175	217	128	58	53	0	0	43	9	144	135
Kuwait	0	0	0	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0	0	0	0
Top 10	5,456	5,381	5,654	4,862	6,107	4,885	4,834	5,466	4,988	5,892	5,701	-191
Others	1,148	1,118	817	1,332	652	779	1,235	1,279	1,248	1,193	688	-505
Total US	6,604	6,499	6,471	6,194	6,759	5,664	6,069	6,745	6,236	7,085	6,389	-696

Source: EIA, SAF

Oil – Venezuela oil production hit in Jan by storage bottlenecks

Venezuela oil bottlenecks

OPEC MOMR Secondary Sources estimated Venezuela oil production declined from 718,000 b/d in Dec to 668,000 b/d in Jan. There was no explanation in the MOMR. However, yesterday we saw a good explanation for why by VenezuelaAnalysis.com, which is a reminder that any increases in Venezuela oil production are going to be faced by issues caused by the lack of capital for the past decade. We tweeted [LINK] "*Bottlenecks cause VEN #Oil production down in Jan. Lack of available storage due to mounting inventory of hard to sell diluted crude oil (DCO). Also rejection of some "alleged lesser crude quality".*

Good report by @AChavezAlava @venanalysis #OOTT #OPEC." (i) Storage issues. Venezuela Analysis wrote "*The slip in oil output comes as PDVSA runs out of available storage due to mounting inventories of diluted crude oil (DCO), a less exportable grade due to its high sulfur and water content. According to Reuters, the country has 8.5 million barrels of DCO stored, limiting room for newly extracted crude and forcing the use of floating storage. In January, PDVSA booked its first shipment of diluted crude oil in nine months in an attempt to free storage space. However, internal documents showed that the vessel never set sail and it is unknown whether the purchase was canceled or rescheduled."* (ii) Quality issues. We probably shouldn't be surprised to see the reports that there may have been cargos rejected due to an "*alleged lesser crude quality*". Venezuela has been capital starved and surely that would include maintenance capital. They wrote "*The current inventory bottlenecks have been likewise aggravated by returned cargos with some buyers rejecting an alleged lesser crude quality. As a result, PDVSA's exports tumbled to 416,387 bpd in January, a 34 percent drop from December."* Our Supplemental Documents package includes the Venezuelaanalysis.com report. [LINK]

Oil – No real clarity from Biden/Putin call on Ukraine and Russian oil/natural gas

Biden/Putin call

We were watching the news yesterday waiting to see if the Biden/Putin call would lead to any clarity on what will or will not happen in the Ukraine. We have a 7am MT news cut off so are writing this section ahead of seeing the US cable shows that should feature some Biden officials. But, based on the readouts, it looks like that there is no clarity. Yesterday morning, we tweeted [LINK] *"#Biden/#Putin call readouts. No change to positions. #Biden "prepared to engage in diplomacy, in full coordination with our Allies and partners, we are equally prepared for other scenarios." #Putin keeps cards close to the chest #OOTT*." So, at least for now, there will continue to be some sort of risk premium in oil and Europe natural gas prices. Our Supplemental Documents includes the White House readout and the TASS reporting post call.

Oil – OPEC MOMR, no change to demand but oil stocks below 2015-2019 average

OPEC MOMR for Dec

OPEC released its Monthly Oil Market Report at 6am MT on Thurs morning. (i) The OPEC MOMR Feb is supportive of the oil prices even though there are really no change to the demand and supply forecasts. The reason is that that they continue to show inventories are well below the 2015-2019 average vs Oct inventories. The deficit vs 2015-2019 was a little lower for Dec but this should be expected given there are still seasonal demand factors. (ii) There was no revision to 2019 remaining at 100.10 mmb/d and an immaterial change to 2020 demand from 90.98 mmb/d in Jan to 90.97 this month. For 2021, full year average demand was revised up slightly to 96.65 mmb/d from 96.63 mmb/d last month. 2021 is now +5.67 mmb/d YoY. YoY demand growth is unchanged, on a rounded basis, at +5.67 mmb/d YoY from +5.66 mmb/d last month. 2021 remains down 3.45 mmb/d vs pre-covid 2019 of 100.10 mmb/d (iii) No change in oil demand growth in 2022 remaining at +4.15 mmb/d YoY. 2022 demand average was immaterially revised at 100.80 mmb/d form 100.79 mmb/d, up 0.70 mmb/d from pre-covid 2019 of 100.10 mmb/d. OPEC wrote *"As most world economies are expected to grow stronger, the near-term prospects for world oil demand are certainly on the bright side. The main contributors in 2022 world oil demand are gasoline and diesel, which are anticipated to account for around half of the forecasted world oil demand growth. Similarly, as global airline travel continues to be rejuvenated, particularly in the US, Europe, China and the Middle East, demand for jet kerosene will grow further and continue to* *recover."* (iii) OPEC Jan production per "secondary sources" was up +0.064 mmb/d to 27.981 mmb/d. Note that Dec was revised from the Jan report by +36,000 to 27,918 mmb/d from 27.882 mmb/d in Jan. Reminder that OPEC+ agreed to a +0.4 mmb/d MoM in Jan. OPEC's increase of +0.139 mmb/d rather than it's scheduled 0.254 mmb/d is still below the Jan quota. There were only small revisions to Dec. The biggest underperformers were Nigeria who produced 1.398 mmb/d vs a quota of 1.68 mmb/d, and Angola producing 1.155 mmb/d vs a quota of 1.406 mmb/d. We were surprised to see Saudi Arabia producing 9.999 mmb/d against their quota of 10.122 mmb/d, a consecutive month of production below the quota. Venezuela was up at 0.755 mmb/d over 0.5 mmb/d as was the case in all 2021; There were no revisions to the December report. (v) There was a minor decrease to non-OPEC supply growth for 2021, +0.61 mmb/d to 63.58 mmb/d from 63.36 mmb/d last month, and a minor change to 2022 from last month at 66.61 mmb/d du to the 2021 revision. Canada was revised down +0.019 mmb/d MoM after a flat from last month. Key non-OPEC supply growth areas for 2021 are Canada +0.31 mmb/d YoY, Russia +0.20 mmb/d YoY, China +0.14 mmb/d, and the US at +0.15 mmb/d YoY. Key YoY growth areas for 2022 are Russia at +0.98 mmb/d, US +1.03 mmb/d, Brazil +0.18 mmb/d, Canada +0.17 mmb/d and Kazakhstan at +0.15 mmb/d. (vi) The other big positive in the OPEC outlook is OECD commercial oil stocks for Dec estimates -202 mmb, -100 mmb below 2015-2019 average, a decline MoM. Our Supplemental Documents package includes the OPEC MOMR.

Oil – IEA OMR: "a significant upgrade to our demand estimates"

IEA Oil Market Report

The IEA released its monthly Oil Market Report for February at 2am MT Friday. They only release very limited public info, but Bloomberg provided tables and added color from the report. So big thanks, as usual, to the Bloomberg team. (i) There was a major oil positive from the OMR is the IEA revised their historical data for the past 15 years to find more demand. "*A reassessment of historical data has resulted in a significant upgrade to our demand estimates. While the revisions lift baseline demand – primarily for Saudi Arabia (in LPG use) and China (in the petrochemical sector) – by nearly 800 kb/d, growth rates are largely unchanged. World oil demand is set to expand by 3.2 mb/d this year, to reach 100.6 mb/d, as restrictions to contain the spread of Covid ease*." Bloomberg wrote "*Oil demand was higher than previously thought in each of the past 15 years, with estimates driven up by new assessments of consumption in Saudi Arabia and China, the IEA said in its latest monthly report. * As a result of the changes, the IEA has raised its estimates of global oil demand by 0.6m b/d in 2018, 0.8m in 2019, 0.9m in 2020, 1m in 2021 and increased its forecast for 2022 by 0.9m b/d * "Together, these revisions result in a tighter balance than previously reported, more aligned with available data for oil stocks and already reflected in the oil price and forward structure*". (ii) 2021 forecast increased to 97.4 mmb/d with 2022 significantly revised upwards at 100.6 mmb/d from 99.7 mmb/d last month. The IEA wrote "*"A reassessment of historical data has resulted in a significant upgrade to our demand estimates. While the revisions lift baseline demand – primarily for Saudi Arabia (in LPG use) and China (in the petrochemical sector) – by nearly 800 kb/d, growth rates are largely unchanged. World oil demand is set to expand by 3.2 mb/d this year, to reach 100.6 mb/d, as restrictions to contain the spread of Covid ease."* Global oil demand is now set to increase by 6.4 mmb/d in 2021 and by 3.2 mmb/d in 2022 when it returns to 100.6 mmb/d. (iii) Non-OPEC supply growth saw no changes to 2021 and a upward revision to 2022 of 0.1 mmb/d. Non-OPEC supply remained forecasted at 63.7 mmb/d in 2021 and 66.6 mmb/d in 2022 reflecting the upward revision. (iv) Global spare capacity is expected to decrease with a small cut to the IEA's

OPEC+ spare capacity. The Feb OMR is has spare capacity for OPEC+ down to 2.5 mmb/d from 2.6 mmb/d in Jan. The IEA wrote, *""Non-OPEC+ producers could add 2 mb/d of supply, and if OPEC+ cuts are fully unwound, the bloc could increase output by 4.3 mb/d. Of course, that would come at the expense of effective spare capacity, which could fall to 2.5 mb/d by the end of the year and end up held almost entirely by Saudi Arabia and, to a lesser extent, the UAE. Iran, if released from sanctions, could add another 1.3 mb/d."* (v) The IEA does not see any potential sanctions on Russian oil amidst the Ukraine crisis. Bloomberg wrote "*The potential for sanctions on Russia's oil exports amid the crisis over Ukraine "looks remote," the IEA said in its monthly report, citing "current high prices and the scale of the impact on markets." Yet an escalation of tensions could disrupt flows."* (vi) OPEC January production up +0.13 mmb/d MoM to 28.1 mmb/d. OPEC (Not OPEC+) Jan production was +0.13 mmb/d to 28.10 mmb/d from the slightly revised down 27.97 mmb/d in Dec (was originally estimated at 27.99). The biggest MoM changes were Nigeria +0.17 mmb/d to 1.38 mmb/d in Jan (vs 1.21), Saudi Arabia +0.09 mmb/d to 10.10 mmb/d in Jan (vs 10.01), and Venezuela -0.12 mmb/d to 0.68 mmb/d in Jan (vs 0.80), and Libya -0-.06 mmb/d to 0.99 mmb/d in Jan (vs 1.05). Iran was unchanged at 2.50 mmb/d in Jan. The IEA revised January production to 28.1. There were no major difference between countries in OMR at 28.1 vs OPEC MOMR at 27.981. (vii) On refined products draw the IEA wrote *"The global refining industry has underperformed relative to demand for the past six quarters and this is set to continue for most of 2022. The 3.8 mb/d forecast increase in throughputs this year lags behind demand growth even as 4Q22 runs are forecast to surpass pre-pandemic levels. Further upside is capped by closures and higher energy costs affecting refinery margins."* (viii) There was no detailed discussion on OECD stocks. The IEA saw industry stocks fall significantly in both November and December. The IEA wrote, *"That shortfall is expected to deepen as some OPEC+ members struggle with production constraints, exacerbating market tightness. OECD industry oil inventories plunged by a hefty 60 mb in December, to stand 255 mb below the five-year average and at their lowest level in seven years. Over the past 12 months, industry stocks have declined by 355 mb despite the release of more than 50 mb of oil from government reserves over the same period."* Our Supplemental documents package includes the IEA release and the Bloomberg report.

Figure 18: IEA Global Demand Forecast By OMR Report Month

mmb/d	2019	2020	20-19	Q1/21	Q2/21	Q3/21	Q4/21	2021	21-20	Q1/22	Q2/22	Q3/22	Q4/22	2022	22-21
Feb-22	99.7	91.0	-8.7	94.1	96.2	98.7	100.2	97.4	6.4	98.9	100.1	101.7	101.6	100.6	3.2
Jan-22	99.7	91.0	-8.7	93.3	95.4	97.8	99.0	96.4	5.4	97.8	99.3	100.9	100.8	99.7	3.3
Dec-21	99.7	91.0	-8.7	93.3	95.2	97.6	98.6	96.2	5.2	97.9	99.1	100.8	100.3	99.5	3.3
Nov-21	99.7	91.0	-8.7	93.3	95.2	97.7	98.9	96.3	5.3	98.5	99.2	100.6	100.3	99.7	3.4
Oct 21	99.7	91.0	-8.7	93.4	95.2	97.8	98.9	96.3	5.3	98.6	99.1	100.5	100.2	99.6	3.3
Sep 21	99.7	91.0	-8.7	93.4	95.1	97.2	98.8	96.2	5.2	98.2	98.9	100.3	100.7	99.5	3.3
Aug 21	99.7	91.0	-8.7	93.4	94.9	97.4	98.9	96.2	5.2	98.0	98.8	100.1	100.2	99.3	3.1
July 21	99.7	91.0	-8.7	93.6	94.7	98.1	99.4	96.4	5.4	98.2	98.7	100.3	100.6	99.5	3.1
June 21	99.7	91.0	-8.7	93.3	94.9	98.0	99.3	96.4	5.4	98.3	98.6	100.3	100.6	99.5	3.1
May 21	99.7	91.0	-8.7	93.1	94.6	98.3	99.6	96.4	5.4	-	-	-	-	-	-
Apr 21	99.7	91.0	-8.7	93.7	95.1	98.3	99.5	96.7	5.7	-	-	-	-	-	-
Mar 21	99.7	91.0	-8.7	93.9	95.0	97.8	99.2	96.5	5.5	-	-	-	-	-	-
Feb 21	99.6	91.0	-8.6	93.7	94.9	97.9	99.2	96.4	5.4	-	-	-	-	-	-

Source: IEA, SAF

Oil – Saudi's Abdulaziz says Saudi will increase capacity to 13.4 to 13.5 mmb/d

Saudi capacity to 13.4-13.5 mmb/d

Maybe we give too much credit to Saudi Energy Minister Abdulaziz, but we think he deserves credit for tending to be three steps ahead of others. Or as we like to say he is "seeing round the bend". On Wednesday, Time posted its interview with Abdulaziz. [LINK] "*Despite Saudi Arabia's Net-Zero Goals, Its Energy Minister Says It Will Pump More Oil" "And I would tell it simply: You know, with these low oil prices, production will be curtailed. Investment will be curtailed. And by us advancing our program of expansion, we stand a better chance of capturing that market. We are targeting our production capacity to become 13.4, 13.5 million barrels a day by 2027."* This is an increase from their stated target to reach 13 mmb/d by 2027. Here is why we think Abdulaziz is seeing round the bend. He tells the world, in particular the countries pushing Net Zero like US, the UK up until last week, etc, that they are going to add even more oil productive capacity. So it can feed into those countries that are assuming oil demand is going to start to decline. If they see oil demand declining and Saudi increasing oil capacity, then these countries can keep their squeeze in the 2020s on their own production and keep their increasing ESG push to discourage companies from investing in oil because demand is going down and there is oil capacity around the world. And when oil demand doesn't go down, even if it only goes up a little bit, then Saudi or anyone else who can do this like UAE will be the big winner. Our Supplemental Documents package includes the Time interview.

On Oct 4, 2021, Aramco announced capacity to reach 13 mmb/d by 2027
Our October 10, 2021 Energy Tidbits wrote "*Oil – Saudi Aramco announces oil production to reach 13 mmb/d by 2027. No one can doubt that Saudi Arabia is positioning itself to be the big winner if oil demand hasn't peaked. At a time when western supermajors and E&P are being driven by capital markets to spend less on oil capex, Saudi Aramco is going ahead with major oil production capacity expansion plans. On Monday, Saudi Armco announced their intentions to increase production capacity to 12.55 mmb/d by 2025 and reach 13 mmb/d by 2027. The increase in production comes as Aramco continues to expect an increase in oil demand. Aramco CEO Amin Nassar noted the switch from gas to oil added due to high gas prices added 0.5 mmb/d to the global demand for oil. He also reminded that investment in upstream production requires time, especially when there is a lack of investment present in the market. Aramco also noted they are working to develop its gas capacity; the first phase of the Jafurah unconventional natural gas project is slated to begin production in 2025. The project is expected to have an initial production capacity of 200-300 mmcf/d with the potential to grow. Aramco did not disclose how much capital will be needed to get to 200-300 mmb/d in 2025. However, we believe this gas increase is insignificant to world natural gas supply, And the reality is that a natural gas producer like Tourmaline could 200-300 mmcf/d in one year if they wanted to do so."*

Oil – Saudi King tells Biden OPEC+ is managing oil markets just fine

Saudi King & Biden discuss oil markets

There was a good reminder this week to look at two leaders separately report on one conversation. On Wednesday, Biden called Saudi King Salman and one of the topics was oil and Saudi Arabia's ability to help Biden in his move to get more oil in the market. The White House wrote [LINK] "*Both leaders further reiterated the United States' and Saudi Arabia's commitment to ensuring the stability of global energy supplies."* It was interesting to see that most of the western media made it sound like Saudi was going to work with Biden. But that isn't what the Saudis said. King Salman basically told Biden OPEC+ is doing the right thing with their agreement ie. thanks but no thanks. This is why we tweeted [LINK] "*Note*

@WhiteHouse didn't mention #KingSalman "stressed the importance of maintaining balance and stability in the oil markets, highlighting the role of the historic #OPEC+ agreement in this regard, and the importance of maintaining the agreement" to #Biden on #Oil. #OOTT. The Saudi Press Agency (official news from Saudi Arabia) wrote [LINK] "*Regarding energy and oil markets, the Custodian of the Two Holy Mosques stressed the importance of maintaining balance and stability in the oil markets, highlighting the role of the historic OPEC Plus agreement in this regard, and the importance of maintaining the agreement*." Our Supplemental Documents package includes the White House and SPA reports.

Oil – Reminder Houthis long range missiles can reach all of Saudi Arabia & UAE

Houthis long range missile capability

It's hard to believe the Saudi coalition war against the Houthis will be reaching the 7-year anniversary next month especially as every time there is a Houthi missile that is launched at targets inside Saudi Arabia or the UAE, the coalition hits backs with dozens and dozens air strikes in retaliation. On Wednesday, Al Jazeera posted its "*Yemen's war explained in maps and charts".* [LINK] We don't know where there are official numbers, but we expect the Al Jazeera numbers are reasonable. One of their graphics is "*Air raids on Yemen. The Saudi-led coalition has carried out over 24,000 air raids since 2015*." There was another good reminder from the Al Jazeera graphics, one that reminds that Houthi long range missiles have the capability to reach every major city, oilfield, infrastructure and loading terminal in Saudi Arabia and the UAE. The Houthis can hit everything. Yesterday, we tweeted [LINK] "*good reminder from @AJEnglish that #Houthi long range missiles have ability to reach all major Saudi Arabia & UAE cities, oilfields, oil infrastructure including loading terminals. #OOTT https://twitter.com/AJEnglish/status/1492441025725571072".* It was interesting that within minutes of that tweet, a Twitter message came up This Tweet is unavailable referencing the Al Jazeera tweet that included the below graphic. We then retweeted [LINK] "
"*Here is the @AJEnglish map that was in the tweet. shows reported range of #Houthi missiles. just checked and Feb 9 report is still on their website https://www.aljazeera.com/news/2022/2/9/yemens-war-explained-in-maps-and-charts-interactive #OOTT*." Our Supplemental Documents package includes the Al Jazeera report.

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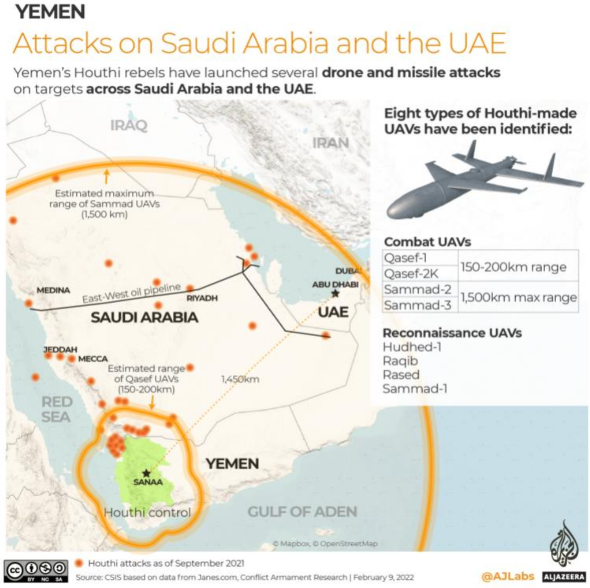
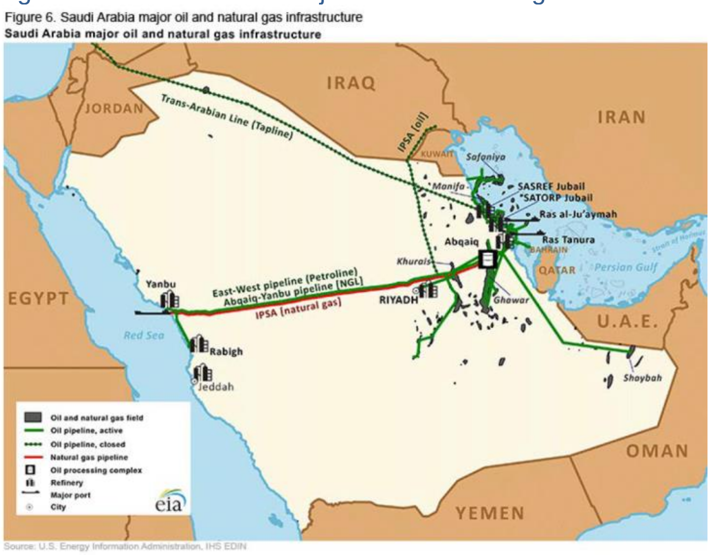
Figure 19: Houthi missile attacks on Saudi Arabia and UAE



Source: Al Jazeera

Figure 20: Saudi Arabia major oil and natural gas infrastructure



Source: EIA

Oil – JCPOA, expectations for a deal or no deal still in Feb

The chatter was less this week, but is all pointing to the JCPOA talks coming down to the end of talks and there is either a deal or no deal in February. Perhaps the best or at least the

JCPOA coming down to crunch time

most interesting report pointing to this time frame were yesterday's reporting, such as the Jerusalem Post's [LINK] "*Wang Qun, China's ambassador to the UN in Vienna, said on Saturday that the negotiators "all agree that we have reached the concluding stage, especially I think after our Iranian colleagues have come up with their final package."* China has been extremely quiet throughout the JCPOA process so we think it's a good indicator that the end is near.

JCPOA, did Russia/China last week provide a reason to think a deal is soon?
We have always looked at government leaders and big company leaders as wanting to hint on what may be to come and that these hints are often what they deliberately don't say. We had a great example of that in the massive joint China/Russia statement on the eve of the Beijing Olympics. The media pick up was on how this joint statement contained criticism over criticism on the US for everything under the sun. We suspect that most didn't read the statement and reported on the reporting. But it jumped out on us from the statement that Russia and China may have given a hint on the JCPOA. Last week's (Feb 6, 2022) Energy Tidbits memo highlighted that China and India may have provided a hint that a JCPOA deal was near. Last week, we wrote "*We think there is another reason to think that a JCPOA deal may be soon after reading the 9-pg single spaced "Joint Statement of the Russian Federation and the People's Republic of China on the International Relations Entering a New Era and the Global Sustainable Development." [LINK] This lengthy joint statement covers almost everything you could think of where they agree or support the other. The headlines are on the shots taken at the US. and there are a lot of them. Russia and China made a point of taking shots at the US directly and indirectly. We always look for what seems off or what isn't in a statement. This is a 9-pg single spaced statement that has one of its key focuses to dump on the US. But, the interesting part of this 9-pg statement was what Russia and China did not dump on the US. There was one thing not in this and that was any specific mention of Iran or JCPOA. We read it twice and did a word search and could not see any reference. The question is why not in such a lengthy joint statement. We would have thought that, with all the slamming of the US in this joint statement, they would have included JCPOA. Russia has been critical of the US in pulling out of the JCPOA. Our assumption is that the logical reason is that there is a deal soon. The closest reference was "The sides note that the denunciation by the United States of a number of important international arms control agreements has an extremely negative impact on international and regional security and stability". Our Supplemental Documents package includes the Russia/China joint statement.*

Oil – Iran new Kheibar Shekan missile with 1,450 km range

Iran long range missile

The US, Saudi Arabia and Israel wouldn't have been in a good mood this week when Iran rubbed their noses in their ground with the announcement of their claim of a new long range missiles "Kheibar Shekan" with 1,450 km range, enough range to hit Israel. Biden's original stated plan was that any JCPOA would include more than the original JCPOA nuclear restrictions but also be expanded to include Iran's missile capability. That has expansion has long since gone. And with the potential of new JCPOA in the coming weeks, Iran chose to unveil a new long range missile. Our Supplemental Documents package includes the IRNA report. [LINK]

Figure 21: Iran's New Kheibar Shekan missile with 1,450 km range

Source: IRNA

Oil – Risk premium should be returning to Libya oil production/exports

Libya risk premium?

We believe that markets should be looking at increasing risk for Libya oil production and exports to be interrupted. We, like many others, were worried that the indefinite postponement of the Dec 24, 2021 presidential election could be a catalyst to take Libya off the path to a unified Libya. Its been 7 weeks and there is no firm indication when it will be held. There have been smaller unsettling events since then, but, this week, there were more serious events. And it looks like the next couple weeks will be critical to see if Libya can get back on the path to a unified Libya. On Monday, Reuters [LINK] reported Libya's eastern based parliament (not the UN backed Government of National Unity) said there would be no elections this year and that the would choose an interim PM ie. setting in motion the return of an eastern government separate from the internationally recognized GNU. This would be back to where they were. On Thursday, there were many reports that interim Libya PM Dbeibah escaped an assassination attempt of gunfire on his car. This follows his speech that he would only hand over power after an election.

Oil – Vitol OPEC+ spare capacity will reach levels that are considered alarming

Vitol's bullish comments on oil

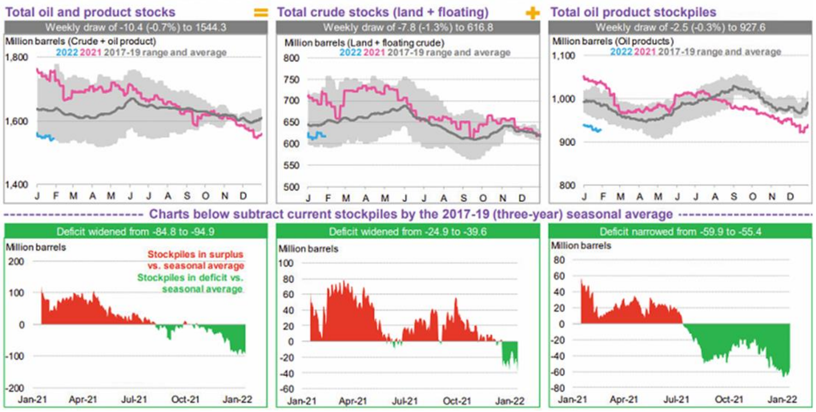
We are repeating an item that hit the news last Sunday morning. Early Feb 6, we tweeted a thread of 3 tweets on a few of the many oil and gas insights from Mike Muller, Vitol Head Asia, on the Gulf Intelligence podcast "Daily Energy Markets – Feb 6th" [LINK]. We only tweeted a few of the key statements from his opening statement alone. He had many other good comments in the podcast that are definitely worth a listen. (i) Our 1st tweet [LINK] was *"1/3. what an opening statement from @michaelwmuller to @sean_evers "market is telling you be careful, don't be short because we are one disruption, one refinery wobble away from markets getting even stronger. #OOTT".* (ii) Our 2nd tweet [LINK] was "*2/3. "inventories continue to sit at levels that are worrisome. spare capacity in OPEC+ is really down to 2 ½ or 3 members now & month after the month the 400,000 barrels per day that is being put on the market is actually, in effect, a much much smaller number than that" #OOTT*". (iii) Our 3rd tweet [LINK] was "*3/3. "we can debate whether it's the 2nd half of this year or sometime next year, #OPEC spare capacity reaches levels that are considered alarming""debate has now swung to how soon we need Iranian supply to help alleviate the situation". that's opening statement only. #OOTT "*. (iv) Earlier, we noted Muller's comments on ConocoPhillips forecast of US oil growth. (v) Muller was asked by Gulf Intelligence Sean Evers "*Mike, what* *are your thoughts coming from many that this is a year of two halves. The first half will be tight, the second half will ease off."* Muller replied "*so, Yes, I don't subscribe to the view that you have two halves, the second half being weak."* (vi) a good reminder that most of the Iranian floating oil in storage is actually condensate. Muller said "*Except, everybody is building into their balances for the second half, the return of Iranian crude. And it's really a question of when. Administratively, even if there were to be a reconciliation and an agreement to drop sanctions, the return of Iranian crude is not foreseeable in Q2, even under an express outcome. So one has to assume this is a second half event. And then it's a question of what sort of rate of ramp up and I think most observers will be aware that there is a floating inventory of unsold oil on ships that have been commonly referred to as the floating flotilla of South Pars condensate largely. That would obviously all get released into the market somewhat quicker and then the rate of ramp up will also be reasonably quick. But the fact that this is in people's balances already and has been. Without exception, every investment bank, every advisory consultant, every oil major, they all have a view that Iranian oil will be out later this year tells you the world needs this oil."* (vii) There were more from Muller in the podcast including on how he sees China coming back into the oil market post new years. Our Supplemental Documents package includes the transcript of what we only had time to do this morning – Muller's first two comments.

Oil – Bloomberg: global oil & products stocks deficit widened from 84.8 to 94.9 mmb

Bloomberg's Oil Price Indicators

For those with a Bloomberg terminal we recommend flipping thru BloombergNEF's "Oil Price Indicators" weekly that comes out on Mondays as it provides good charts depicting near-term global oil demand and supply indicators. The key data this week is the outlook for global oil and products stocks which delivers a bullish outlook at the widening of the deficit. Note this 84.8 to 94.9 million barrel deficit is compared to the 2017-2019 average. For the week ended Jan 28, land crude oil storage in tracked regions fell by 1.2% WoW to 516.4 mmb. The stockpile deficit against the 5 yr average (2015-2019) widened from 56.1 mmb to 66.3 mmb. Total crude inventories decreased by 1.3% to 616.8 mmb, including global floating crude stockpiles, with the deficit widening from 24.9 mmb to 39.6 mmb. Product stocks were up 2.1% WoW with the stockpile deficit against the 3-year average narrowing from 7.4 mmb to 1.9 mmb. Gas oil and middle distillate stocks have widened against their three-year average deficit (2017-2019) of 38.6 mmb to 42.7 mmb. Jet fuel consumption by international departures was down 53,800 b/d WoW while consumption by domestic passenger departures fell by 19,800 b/d. Global mobility indices were rose over the past week. The high frequency oil and product stockpile deficit against the three-year seasonal average (2017-2019) suggests the stockpile deficit has widened to near the post pandemic record set two weeks ago. Below is a snapshot of aggregate global stockpiles. Our Supplemental Documents package includes excerpts from the Bloomberg report.

Figure 22: Aggregate Global Oil and Product Stockpiles



Source: Bloomberg

Oil – Vortexa est 101.51 mmb at Feb 11, -7.64 mmb WoW

Vortexa floating storage

Note that we are referencing the Vortexa global crude oil floating storage data posted on the Bloomberg terminal as of noon MT yesterday and 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 Feb 4 estimates posted on Mon Feb 7 at 5am MT. Recall that we did not have a Vortexa comment last week as Bloomberg did not post the Feb 4 estimates until sometime after 9pm MT on Feb 6. (i) Vortexa crude oil floating storage estimated is 101.51 mmb for Feb 11, which is -7.64 mmb WoW vs 109.15 mmb as of Feb 4. There was only a small revision to Feb 4, which was originally posted at 108.29 mmb. Floating oil storage has been holding +/- 100 mmb for the past several weeks, which is positive considering increasing OPEC+ production, normal seasonal declines and still Covid impacts. (ii) There were minor revisions to the prior two weeks week's data from those estimated as of 5am MT on Mon Feb 7. Yesterday's Feb 4 estimate of 109.15 mmb vs 108.29 mm estimated as of Feb 7 at 5am. Yesterday's Jan 28 estimate of 101.60 mmb vs 100.39 mmb estimated as of Feb 7 at 5am. (iii) Feb 11 estimate of 101.51 mmb is down 122.36 mmb from the June 26, 2020 peak of 223.87 mmb. (iv) Feb 11 estimate of 101.51 mmb is +43.58 mmb vs pre-Covid Feb 10, 2020 of 57.95 mmb. Below is the Bloomberg posted Vortexa crude oil floating storage data for the past two years as was posted yesterday at noon MT.

Figure 23: Vortexa Floating Storage Feb 11 Posted on Bloomberg Noon MT Sat

Source: Bloomberg, Vortexa

Figure 23: Vortexa Estimates Feb 12 Noon MT, Feb 7 5am MT and Jan 29 3pm MT

Feb 12 Noon MT estimate

FZWWFST VTXA Inde — 02/10/2020 - 02/11/2022

	Date	FZWWFST V... Mid Px
Fr	02/11/2022	101.514k
Fr	02/04/2022	109.153k
Fr	01/28/2022	101.597k
Fr	01/21/2022	103.983k
Fr	01/14/2022	90920
Fr	01/07/2022	99166
Fr	12/31/2021	100.133k
Fr	12/24/2021	102.646k
Fr	12/17/2021	100.084k
Fr	12/10/2021	95330
Fr	12/03/2021	93699

Feb 7. 5am MT Estimate

FZWWFST VTXA Inde — 02/03/2020 - 02/04/2022

	Date	FZWWFST VT... Mid Px
Fr	02/04/2022	108.29k
Fr	01/28/2022	100.389k
Fr	01/21/2022	102.233k
Fr	01/14/2022	90348
Fr	01/07/2022	98349
Fr	12/31/2021	99732
Fr	12/24/2021	102.167k
Fr	12/17/2021	99777
Fr	12/10/2021	95780
Fr	12/03/2021	92225
Fr	11/26/2021	100.026k

Jan 29, 3pm MT Estimate

FZWWFST VTXA Inde — 01/27/2020 - 01/28/2022

	Date	FZWWFST VT... Mid Px
Fr	01/28/2022	80280
Fr	01/21/2022	106.046k
Fr	01/14/2022	94949
Fr	01/07/2022	100.626k
Fr	12/31/2021	100.49k
Fr	12/24/2021	102.329k
Fr	12/17/2021	100.961k
Fr	12/10/2021	94808
Fr	12/03/2021	92470
Fr	11/26/2021	100.775k
Fr	11/19/2021	113.997k

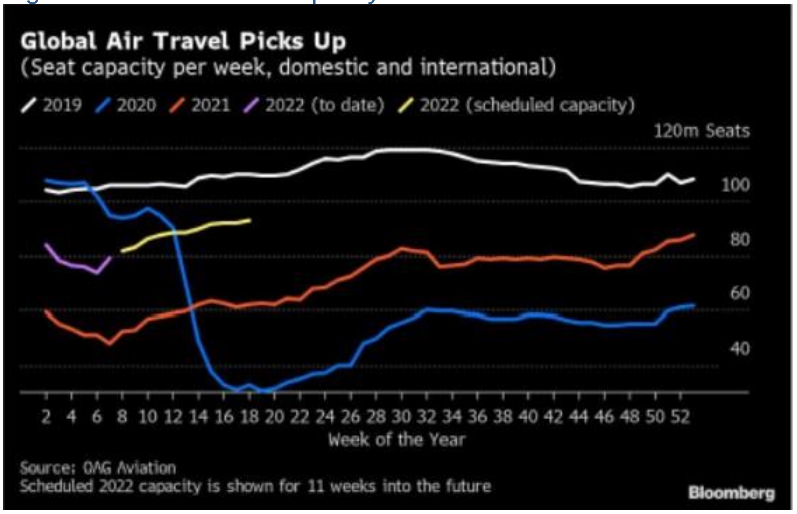
Source: Bloomberg, Vortexa

Oil – Bloomberg Oil Demand Monitor, Congestion recovers in New York and London

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. Airline seat capacity increased for the first time so far this year which may signal the end of low demand for jet fuel, as it has endured waves of coronavirus infections. Domestic air travel still lags behind 2019 rates by ~11%, with international air travel still significantly below 2019 levels by nearly 50%; nor and southeast Asia has seen the most reduced international travel while domestically, Europe, South Africa and the Southwest Pacific have the most reduced capacity. European flight data shows early signs of the deficit from 2019 narrowing; arrival and departure numbers across 41 European nations sank from 22,700 flights before Christmas to 13,800 on Jan 25. In a normal year like 2019, the number of commercial flights would trend upward from about 100,000 a day in January to a peak of 125,000 in August. The rolling average was about 82,000 on Sunday. Congestion was up in 10 of the 13 monitored cities this week though London and New York were the only two cities that exceeded 2019 congestion levels, up 19% and 6% respectively. Paris was the next closest, down just 4% from 2019 while Mexico City showed a decline in congestion, though is likely attributed to the public holiday on Monday. The CEO of Shell Plc and the oil minister for Kuwait indicated that demand for oil and gas is recovering steadily; both are currently benefiting from unexpectedly high oil prices, with Shell last week reporting an adjusted quarterly net income in excess of $6 billion, the highest since 2014. There has been an increase in battery powered truck sales that threaten the more resistant to change diesel truck segment of petroleum-based transportation. Bloomberg reported that heavy trucks with battery fuel cells rose rapidly in the second half of 2021, though still represents just 1% of total heavy truck sales. Refinery utilization for the week ended Jan 28 was 86.7%, down 3.4% from 2019; US East refineries remain significantly above 2019 levels at +!9%. Our Supplemental Documents package includes the Bloomberg Oil Demand Monitor.

Figure 24: Global Seat Capacity Per Week



Source: Bloomberg

Oil & Natural Gas – sector/play/market insights from Q4 calls

This is our favorite time each time of each quarter as it is quarterly reporting and this is when we get the best insights into a range of oil and gas themes/trends, sectors and plays. As a reminder, our Energy Tidbits memo does not get into the quarterly results, forecasts, or valuation. Rather the purpose of highlighting a company is to note themes/trends and plays that will help shape a reader's investment thesis to the energy sector. In the conference calls, we also tend to find the best insights from the Q&A portion as opposed to the prepared remarks. Plus, we tend to get the best E&P sector insights from services, pipelines, refineries, and utilities

Sector insights from Q4 calls

BP – CEO says "*energy transition could actually result in higher [oil] prices*"

One of the best comments from the BP Q4 call on Tuesday was CEO Looney's comments in the Q&A on oil prices and how the energy transition could actually result in higher oil prices. Looney replied "*Martin, about the transition question is that*

An accelerating transition doesn't always lead to a lower oil press. It depends on investment patterns not just demand. So you could argue, you could see a world, where because of lack of investment even though the energy transition is accelerating oil prices are much much higher, which is sort of counterintuitive to how some people would think about it, I think because the kind of general sense is that accelerating transition means lower prices. That need not be the case because as we know it relies not just on a demand side of the equation but also a supplied side and of course, what people sometimes forget is that oil fields decline and therefore they need investment. So that's a long story short to say the energy transition could actually result actually result in higher prices, even if it's accelerating as well as all the result in lower prices."

Equinor – Low Europe gas injection will lead to higher prices next winter

Equinor held their Q4 call on Wednesday. (i) Equinor has raised their view on mid term oil and gas prices running their base Brent case on $65/bbl and $7/mmbtu vs using $60/bbl and $6/mmbtu in June. For their Brent $80 case, they use $18/mmbtu gas in 2023 and $12/mmbtu in 2024. (ii) Equinor currently holds more gas than they can deliver to Europe stating in the Q&A period *"we are producing at very high level of gas. We are producing at max capacity. It's now about making sure that we have high production efficiency, keeping the production up and we have developed the Troll Phase 3, which gives us a lot of flexibility to ensure that we can keep the production stable for a long time."* (iii) Their expectation for Europe natural gas prices is that they will not reach full levels by the end of the injection season and predict another bullish year for natural gas prices should it not be another warm winter. Management stated that Europe will need to inject 10 bcf/d from April 1 to October 31, which it feels is unlikely to happen. "*So when you look at the storage just today, they are 34-ish percent of normal levels, which means that we need to inject 80 VCM approximately in the summer. That's twice our production actually. So it's a big number. So that will keep up prices over the summer and well into the winter, and probably also into the 2023".* (iv) Later in the memo, we note Equinor's comments on offshore wind bidding and renewable returns. (v) For oil and gas development projects at the $65/bbl and $7/mmbtu case, mgt expects to have an IRR of 30% over 2.5 years. Mgt noted *"With flexibility in production and our low cost of supply below $2 per MMBTU, we are positioned to create significant value. Our strong pipeline of development projects coming on stream by 2030 provides a solid outlook to deliver around 6.5 billion barrels of oil equivalents net to Equinor with low breakevens at below $35 per barrel, high returns of around 30% internal rate of return, fast paybacks of two and a half years on average".* (vi) Mgt notes that CCUS must be done as a part of the energy transition; from the call, "*They don't really have alternatives other than carbon capture and storage as of the day. The other customers we're seeing are power plants. I think the whole energy crunch we've seen in Europe these days means that we need more dispatchable power and CCGTs with carbon capture and storage is coming up as the savior in this picture."* Our Supplemental Documents package includes excerpts from the Equinor call.

NOV – "most constrained & inflationary environment" in at least a generation

We recommend reading the big words of caution from the NOV Q4 call last Friday that supply chain and higher cost issues and the lack of skilled labor impacting the oil and gas services sector (that flow thru to E&P) are not going away in 2022. And there is a huge quality issue. Mgmt's prepared remarks were the most blunt warnings we have seen anywhere. It's definitely worth a read. A few examples are "*As we enter 2022, we are operating in the most constrained and inflationary environment the world has seen in at least a generation, where labor and materials are tight and the money supply has ballooned across major economies due to COVID relief efforts*." "*First, the tightening labor market we face in the United States was exacerbated by COVID outbreaks in certain plants during the fourth quarter, as skilled workers recuperated safely at home, their work was performed by less experienced, less efficient crews or by other skilled workers working overtime. Labor shortage has led to higher product costs and scheduling headaches." "Second, our manufacturing scheduling headaches were compounded by component and raw material shortages and late deliveries from our vendors, who are facing the same sorts of challenges that we are, late deliveries and short shipments of raw materials and subassemblies led to further and efficiencies under absorption and higher product costs in certain areas as our creative work for scrambled to make do with the raw materials and components that they had on hand."* There is a lot more blunt talk about these challenges. Our Supplemental Documents package includes excerpts from the NOV Q4 call transcript.

TotalEnergies – oil prices will remain high

TotalEnergies CEO Pouyanne warned that oil prices will remain high. On Wednesday, Reuters [LINK] reported on Pouyanne's comments to RTL radio saying ""*I've no good news to deliver, oil prices will remain high*". Pouyanne noted this oil view on the Q4 call saying "*For oil the current micro is likely to persist, because demand is expected to grow, as we continue to emerge from the pandemic. And there is no significant influx of new supply on the horizon. OpEx has been very disciplined in quells of quarters, but does not appear to have a lot of spare capacity. Years of under investments. I would say since 2015, should lead tension and supply and xxxx reports prices."*

Energy Transition – BlackRock net zero investing is positive for oil and gas

BlackRock's net zero investing

Our January 23, 2022 Energy Tidbits featured the BlackRock CEO Larry Fink letter to CEOs and his interview on CNBC thereon that included his line "*we will not survive with the society we are accustomed without hydrocarbons right now, we need to rapidly admit that*." So no one should be surprised to have seen BlackRock come out last week with positive comments on oil and gas in their "*A Framework for our clients: How to invest in the net zero transition*". [LINK] We tweeted [LINK] "*1/3. $BLK "how to invest in the #NetZero transition". "Increased demand for #FossilFuels in the restart of economic activity & impaired supply have driven up the price & use of #NatGas, #Oil & #Coal .. will be periods like this when traditional energy performs well... #OOTT*", [LINK] "*2/3 ... periods that should not be seen as counter to the transition, but as part of it. The speed and shape of the transition are deeply uncertain, and it will take decades to play out." #OOTT #NatGas."* And [LINK] *"3/3. "We believe an underappreciated opportunity for investors seeking to drive the transition lies in identifying* *carbon-intensive companies that are positioning themselves to lead decarbonization within their industries". Bullish for #Oil #NatGas stocks. #OOTT*." BlackRock's how to invest in the net zero transition is positive for oil and gas stocks. Our Supplemental Documents package includes BlackRock's how to invest in the net zero transition. [LINK]

Energy Transition – Vestas reminds wind will take longer and cost more

Wind delays and higher costs

Vestas Wind Systems reported Q4 and held its Q4 call on Thursday and it seems clear that the roll out of wind will take longer and cost a lot more than expected prior to 2021. We tweeted [LINK] "*Global #Wind rollout will be $$$ & take longer. Note #Vestas factors that "severely impacted visability & profitability". 05/05 tweet, @IEA warned on critical minerals, shortage not going back 2019 cost/availability. #NatGas isn't a transition fuel, its critical fuel. #OOTT #LNG".* Mgmt had some very negative comments on how tough they were being hit on costs in their release and echoed in the Q4 call. A couple examples were "*Together with rising energy prices, the supply chain disruptions and accelerated cost inflation from raw materials, transport, and turbine components, continued to amplify costs throughout the year, which severely impacted profitability." "With supply chain disruptions expected to continue throughout the year, 2022 will be challenging for the industry."* This wasn't a situation of a modest hit to costs, this was costs being hit that severely impacted profitability and expected to continue throughout 2022. And a 2 year or more hit to costs has to be causing a delay in the roll out of wind in many places. Our Supplemental Documents package includes excerpts from the Vestas QA release, slides and call.

Energy Transition – Why didn't UK warn oil/gas essential to protect protect livelihoods

UK says oil and gas is essential

We recognize the energy transition is going to happen, but we feel badly for broad western populations who jumped on board the politician's energy transition train without knowing it would have a significant impact on their livelihoods. No one ever heard Boris Johnson, or Joe Biden or Justin Trudeau or other western energy transition leaders say just keep in mind this is going to make the cost of energy and all goods more expensive. As we are seeing play out in 2021/2022, higher energy costs flow thru to higher costs of everything. It's why, on Wednesday, we tweeted [LINK] "*Why didn't @BorisJohnson, @POTUS or @JustinTrudeau warn jobs and livelihoods would be at risk by squeezing supply of #Oil #NatGas in #EnergyTransition? At least UK is having a #MacronMoment & realizing #Oil #NatGas is needed for longer. #OOTT*. Our tweet included the Reuters report "*UK says support for oil and gas essential for net zero transition*". [LINK]. Reuters wrote "*Britain must continue to support the oil and gas sector to meet its net zero commitments whilst protecting jobs, business department minister Greg Hands said on Wednesday. "Continued support for Britain's oil and gas sector is not just compatible with our net zero goals, it is essential if we're to meet the ambitious targets we set for ourselves while protecting jobs and livelihoods," he told parliament.*"

2022 Prediction #1, leaders admit energy transition isn't working

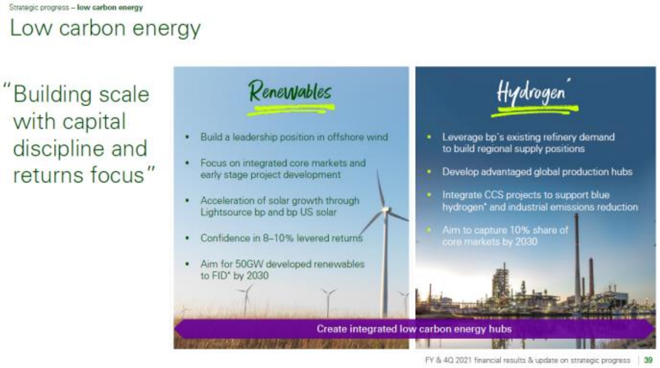
The UK now warning of the risk to jobs and livelihood without oil and gas fits to our expectation for 2022. In our Dec 12, 2021 Energy Tidbits, we noted what we called our 2022 Prediction #1. At that time we wrote "*Its December and so analysts will soon be coming out with 2022 predictions, so we thought 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 – BP confidence in 8-10% levered returns in renewable

BP 8-10% levered renewable returns

BP Q4 call was on Tuesday and reiterated its views for expected returns from its renewables, which are primarily, at this time, driven by wind. In the Q4 call, BP said "*and we remain confident in achieving 8% to 10% returns that are levered*" and that was echoed in the slide deck "confidence in 8-10% levered returns" for renewables. We tweeted [LINK] "*Renewables - confidence in 8-10% levered returns" @bp_plc Q4. CEO Looney explained 09/14/20 explained take 5-6% competitive wind bidding & almost double thru adding leverage, farming down, trading & operations/project mgmt. Good thing they have #Oil #LNG for returns. #OOTT."* Our tweet included our Sept 14, 2020 tweet [LINK] "*Many good #Oil #NatGas #EnergyTransition insights $BP Day 1 ie. can get 8-10% #Renewable returns by adding value thru applying our processes, integrate with rest of BP like trading. 8-10% is good, but thought these would be upside items and not part of how to get to base return*". And we attached the transcript from the Sept BP Day 1 explanation. Our Supplemental Documents package include the Looney Sept 2020 explanation.

Figure 25: BP Low Carbon Energy from Q4/21 slide deck



Source: BP

Energy Transition – Equinor sees 4-8% real base returns for offshore wind

Equinor's offshore wind returns

Equinor held its Q4 call on Wednesday. (i) There was no change from their June 2021 Capital Markets Day for their expected returns of its offshore wind for a 4-8% real base project return, which excludes the effects from farm downs and project financing. This more or less in line with BP's expected renewable returns profile. (ii) But in the Q4 call, mgmt noted that others are bidding at much lower expected returns. In the mgmt prepared statements, they said "*The competition in the renewable industry has increased over the last years. We remain value-driven and maintain our expectation of real base project returns of 4% to 8%.*" Then in the Q&A, an interesting question that suggests winning bids for offshore wind is bidding much more aggressively than the 4-8%. An analyst says was surprised the Equinor wasn't successful in the recent big Scottish offshore wind rights sale. Mgmt then replies "*Yeah. So to your question, I think the competition was confirming something that we have already seen in quite a few auctions recently and I think more than 70 companies were actually competing for ScotWind. So, yes, obviously I was -- I don't like losing. So I was a bit disappointed that we didn't follow through. I think our people delivered a really good bit, but it doesn't really change the pathway that we're on. We are saying today that we have access to around two-thirds of the pipeline that we need to deliver on the ambition. And I think we can actually -- we have a pipeline now that I think gives us the privilege of being quite disciplined and if we can actually afford to be disciplined. But we are going to compete fiercely going forward. We haven't got a formal debrief from the Scottish authorities yet and we would like to see that to understand why we didn't -- why we were not successful in that round and then use that with the aim to improve*"

Energy Transition – Germany, hydrogen is biggest industrial modernization in 100 yrs

Hydrogen to be huge for Germany

There was a significant overlooked energy transition item from the Biden/Scholz meeting and press conference on Monday. The big media focus was on Nord Stream 2 and Ukraine. However, German Chancellor Scholz also highlighted the huge role hydrogen will play in Germany. We tweeted [LINK] ""*biggest industrial modernization in DE in 100 yrs" ".. use of #Hydrogen, which is a central element for us to change our industrial processes that are using #Oil & #NatGas right now" says @OlafScholz. will take decades, add big $$$ to energy costs & add reliability risk #OOTT."* This is a big boost for hydrogen and brings up a wide range of questions like blue vs green hydrogen, the potential need for CCS and, of course, the massive capital that will be needed for a new infrastructure system to support hydrogen. It will be interesting to watch Germany in 2022 if take these "far reaching decisions" to kick start this massive push for hydrogen and the key question blue vs green hydrogen. Scholz said "*So this year we will continue to take far reaching decisions that will help us to use more wind energy, offshore wind energy, onshore wind energy and solar energy and expand the capacities, expand the grids and have a strategy for Germany but also worldwide on the use of hydrogen which is a central element for us to change our industrial processes that are using oil and gas right now. The industry is willing to be on board. We're doing this together with them but it will probably be the biggest industrial modernization project in Germany in 100 years with very good prospects that we'll develop new technologies that other partners in the world can use as well and this will help us fight climate change.:*

Energy Transition - Macron announces nuclear "renaissance" to end fossil fuel use

France to have rebirth of nuclear

We have been highlighting French President Macron since we saw him, just prior to COP, flip to the reality that the energy transition, as planned, would lead to higher energy prices. He realized a change was needed to the plan. This week, he noted another reality check – if France is to increase its renewables, it must have a "rebirth" of its nuclear power to provide more 24/7 reliable power in the face of increasing intermittent renewable. Nuclear power is seen as France's solution to meet its emissions reduction goals in its quest to be carbon neutral by 2050. On Thursday, The Guardian reported on Macron's speech in Belfort of [LINK] announcing a nuclear renaissance that will end France's reliance on fossil fuels as the nation pursues its energy transition. Surging energy prices and concerns about Europe's reliance on imported Russian gas have also persuaded French officials of the region's need for more energy independence. The Guardian reported that France intends to construct as many as 14 power plants by 2050. Macron announced the construction of at least 6 new reactors by EDF by 2050, with an option on another 8. Atomic energy currently provides ~70% of France's energy and has been a mainstay of the economy since the 1970s. Recent attempts to construct new generation reactors have suffered countless delays and cost overruns. The expansion of France's nuclear power program has been a point of debate between right and left parties concerning environmental, cost and complexity concerns. Macron stated, "*What our country needs ... is the rebirth of France's nuclear industry,"* and went on to claim the France's nuclear regulators were "unequalled" in their standards. His recent focus on nuclear power marks a shift in policy since the beginning of his tenure as president in which he promised a reduction in France's share of the energy mix. Our Supplemental Documents package includes the Guardian report.

Energy Transition – RBN blog highlights CO2 and carbon capture projects

CO2 and carbon capture projects

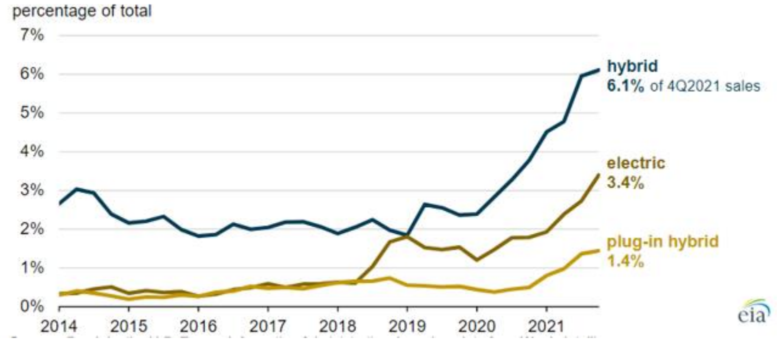
On Wednesday RBN posted a good blog titled *"Way Down In The Hole - Everything You Need To Know About CO2 And Carbon Capture"* [LINK] that highlights CO2 and carbon capture options for emitters CO2 has been the central concern for not just the energy industry but for society as a whole. The energy transition has bolstered a demand for companies to implement carbon capture and sequestration, which presents many opportunities for companies to profit from in the enhanced oil recovery (EOR). While not the most potent greenhouse gas, it is the most present in the atmosphere, driving many climate policy goals to reduce its concentration in the atmosphere. Carbon storage has moved to the forefront of CO2 emission reduction solutions. When CO2 is captured and stored, the process is called carbon capture and sequestration (CCS) which utilizes Class VI injection wells for long-term storage in saline formations. If the CO2 is used for some other process before it's stored via a Class II well, it is called carbon capture, use, and sequestration (CCUS) — the most common example being EOR. Class II wells can be used for the disposal of other gases and liquids, including produced water that comes from the surface during oil and gas production. The CO2 value chain starts in one of three places: CO2 derived from naturally occurring underground sources; CO2 that is obtained through direct air capture, or DAC; and CO2 that is recovered from industrial processes, also known as anthropogenic CO2 (A-CO2). CO2 sourced from natural wells is most commonly used in EOR; CO2 is tapped to bring huge volumes to the surface. Direct air capture is considered an inefficient way to recover CO2 in which it aims to pull CO2 directly from the atmosphere. A-CO2 is led to capture the emissions from industrial processes and separate out to be utilized on other applications. Some A-CO2 generators are situated next to affiliated facilities that utilize some or all of the captured CO2 with excess CO2 being transported where it may be useful via pipeline or rail. Determining whether or not it makes economic sense to capture these emissions depends on the market price for CO2 and incentives through the 45Q Tax Credit. 45Q is a federal tax credit for disposing CO2 in secure geological storage or for use in specific purposes. To claim the credit, emissions must be measured at both the point of capture and disposal or other use; each credit is earned by capturing or sequestering 1 MT of CO2 and the amount of the credit is determined by when the qualifying capture equipment is placed into service. the 45Q tax credit for CCS projects jumped to $37.85/MT in 2022, which is below the breakeven point for most carbon capture projects. The credit for CCS is scheduled to reach $50/MT by 2026 and increase with inflation thereafter. There have been several attempts to enhance 45Q within the Build Back Better legislation, through is likely to require separate legislation to ultimately be enhanced. Our Supplemental Documents package includes the RBN blog.

Energy Transition – EV and hybrid sales surpass 10% of US light-duty vehicles sales

No one can deny that hybrid and EVs are on the early part of the high growth curve for US auto sales. Hybrid and electric vehicle sales continue to capture a greater share of the US new car sales in the last quarter of 2021. The EIA released their today in Energy blog on Wednesday [LINK], which highlights that hybrid and electric vehicle (EV) sales have increased as traditional internal combustion engine (ICE) vehicle sales have decreased. Q4 2021 saw EV and hybrid sales account for 11% of light heavy vehicle sales in the US according to Wards Intelligence data. This follows a trend throughout 2021 however, the sales increase typically come from new manufacturer offerings across different market segments. Manufacturers added 49 new non-hybrid ICE models in 2021 vs 126 new hybrid and EV models. The new models were mostly crossover vehicles which hybrid and EV markets traditionally have had a very limited selection. Below is a graphic depicting the Light-duty vehicle model sales in Q4 2021. Our Supplemental Documents package includes the EIA Today in Energy blog.

EV and hybrid sales increased in 2021

Figure 26: US Quarterly Light Vehicle Sales



Source: EIA

Can EVs penetrate below higher income buyers?
The data is clear – EVs are rapidly increasing their share of new car sales, albeit from a very low base. We believe the next few years will be the critical period to determine the rate of growth for EVs thru the 2020s. EVs are more expensive to buy and the key determinant on growth for the 2020s will be their ability to expand beyond higher income people. Our Dec 12, 2021 Energy Tidbits noted this, when we wrote "*The reality is that EVs are the most visible component to reducing emissions and the assumption is that EVs will move from something higher income people own to a broad adoption from middle and even lower income groups. On Friday, we asked the question via a tweet [LINK] "Would there be any new car #EV purchases by <$50k or <$75k income if there weren't purchase incentives? what will it take and how long will it take to get these groups to increase new EV purchases and not new ICE purchases and used car puchases? #OOTT." Our tweet included the recent Hedge & Company "New Car Buyer Demographics 2022 (Updated)" data [LINK]. This is the challenge, there are economic incentives to buy EVs in all states, yet its hard for new EV sales to penetrate less than $100,000 income groups. Hedges & Company estimates 60% of the new EV buyers have household income >$100,000. There is going to have be increased regulatory/economic incentives for EVs to penetrate other income groups if EV penetration is going to grow as quickly as NetZero aspirations. And the other reality is that there will be increasing regulatory/economic costs assigned to ICE vehicles. Our Supplemental Documents package includes the Hedge & Company update*. "

Figure 27: New Battery Electric Vehicle Buyers by Household Income

Under $50,000	20%
$50,000 to $74,999	16%
$75,000 to $99,000	4%
$100,000 and up	60%

Source: Hedges & Company

Demographics– Canadian large urban centres continue to grow and spread

2021 saw more Canadians take to large urban centres than in previous years. Statistics Canada released a report on Wednesday [LINK] highlighting that 73.7% of Canadians lived in one of Canada's large urban centres which is up from 73.2% five years earlier. These large centres are characterized as census metropolis areas (CMAs) and have a population of +100,000 residents. There were 6 more CMAs in 2021 compared with the previous census data. Downtown populations continue to growth the fastest at a rate of +10.9% compared with urban centres at +6.1%. Suburb growth farthest from downtown grew at a faster pace than the urban fringe regions closer to downtown areas at a rate of +8.8% and +3.7% respectively. In the spring of 2021, 3.5% of Canadians (1,281,474 people) were living in the downtowns of one of the 41 large urban centres of the country. The most populated downtowns were Toronto (275,931 people), Vancouver (121,932 people), Montréal (109,509 people), Ottawa (67,169 people) and Edmonton (55,387 people). Urban spread also occurred in the intermediate suburbs (20 to 30 minutes from downtown) in Edmonton (+23.4%), Calgary (+23.3%) and Ottawa (+21.4%). The growth in these intermediate suburbs largely surpassed that of their respective downtowns, urban fringes and near suburbs.

Urban spread increased in Canadian cities

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

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

@Energy_Tidbits on Twitter

LinkedIn – Look for quick energy items from me on LinkedIn

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

Look for energy items on LinkedIn

Misc Facts and Figures.

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

Will the Bengals win their first ever Super Bowl?

The Los Angeles Rams (then known as the St. Louis Rams) won their first Super Bowl XXXIV Jan 30, 2000. They were known as the Greatest Show on Turf led by QB Kurt Warner and beat the Tennessee Titans 23-16. The Cincinnati Bengals are 0-2 in the Super Bowl and are one of 12 franchises that have never won a Super Bowl. Eight of the 12 have played and lost including the Minnesota Vikings (4 losses), Buffalo Bills (4 losses), Bengals (2 losses, Carolina Panthers (2 losses), Atlanta Falcons (2 losses), Los Angeles Chargers (1 loss), Tennessee Titans (1 loss) and Arizona Cardinals (1 loss). Four franchises have never played in a Super Bowl including Cleveland Browns, Detroit Lions, Houston Texans and Jacksonville Jaguars.

Bengals last Super Bowl appearance also featured John Candy

The last Bengals Super Bowl appearance was int eh 1989 Super Bowl, when they lost to the San Francisco 49ers 26-21. The 49ers won on a Joe Montana led final drive 92 yards for the game winning TD with 34 seconds left in the game. The 49ers are down with 3:20 to go and the ball on their own 8 yard line. Joe Montana was known for being cool under pressure. They are in the huddle waiting to get the whistle to get going, and Joe Montana looks up to the stands and says to tackle Harris Barton "Isn't that John Candy?". Then leads the team for the game winning TD. Joe Montana tells the story to Rich Eisen at [LINK]

Great Andrew Whitworth Walter Payton Man of the Year speech

We have had the opportunity to know a number of pro athletes in different sports over the decades and so think athletes don't get the credit they deserve for what they do for their communities. Rather they tend to get a broad brush rap from the few bad characters. Los Angeles Rams left tackle Andrew Whitworth won the Walter Payton Man of the Year award and his 11 min speech is a good listen. [LINK] "*It's called an investment. You can apply those three things to any charity or cause you have a passion for – you can invest your time, you can invest your finances or you can invest your voice, It doesn't matter which"*. Then at the end, he says "*But one experience bought it all together for me this year and it happened on a football field. In our game against the Detroit Lions, I had a young player from the Lions run up to me as soon as the final horn went off. And I saw him sprinted over and I didn't know what was going on like we'd know each other forever. I couldn't' place him. it made me so nervous. Have I played long enough that a coach's son or player's son is playing against me. He stopped that, he said "hey man, you're not going to remember me. I'm Derek Barnes. You spent time with me when you were a young player in Cincinnati at the boys and girls club. And it meant the world to me. you used to sit with me and talk about life and I was just a little kid. I wanted you to know how much it meant to me. Man, he goes you know the main thing I wanted to say Whit is I made it. I made it to the NFL, Big Whit" WoW".*

Hope you already bought your chicken wings for Super Bowl

Given all we have hard in the past months on the shortage of chicken and chicken wings, we were surprised to see the National Chicken Council's forecast [LINK] that Americans will eat 1.42 billion chicken wings today. The NCC did not say this, but this would be the same as their forecast for last year's Super Bowl. We were a little surprised to see the NCC say ""*There will be no wing shortage," said NCC spokesperson Tom Super. "Like almost anything else you buy right now, wings might be a little more expensive, but they'll be stocked. I just wouldn't wait until kickoff to be in line or order online."* The NCC also noted that chicken wings sales are up during the playoffs for Cincinnati and Los Angeles. The NCC wrote "*Bengals and Rams fans have not only rallied around their teams, they've rallied around the chicken wing. Wing sales in Cincinnati have seen a 27.6 percent growth during the NFL playoffs* *and Los Angeles a 37.3 percent increase compared to the same period last year (Source: IRI, 4 weeks ending 1/23/22)."* As usual, the NCC provides some trivia on 1.42 billion chicken wings such as "*Assuming Molly Schuyler, the world record holder for eating 501 wings in 30 minutes, could keep this pace up – it would take her 162 years to eat 1.42 billion wings. If 1.42 billion wings were split between all the TikTok, Instagram and Spotify downloads in 2021, each individual could get 1 wing per download. 1.42 billion wings could circle the circumference of the Earth 3 times."*

Titans all pro Byard "*you either get better or you get worse*"

We always think we, in business, can get great leadership thoughts from athletes, in particular in team sports. On Thursday, we tweeted [LINK] on comments from Tennessee Titans all pro safety Kevin Byard on Good Morning Football. Byard is one of the leaders of the Titans, who had the best record in the AFC but lost to the Bengals in the playoffs. Byard made his second all pro team recognition this year. But Byard's comments reminded of some of what we see in great business leaders. We tweeted "*Don't you find the best CEOs always strive to get better & it catches on to their team. Just like sports leaders. @heykayadams @gmfb to @Titans @KevinByard after 2nd all pro, what more can you do? his reply "you either get better or you get worse, you can never stay the same".*

World's greatest sushi craftsman, Jiro Ono, on the secret of success

We haven't seen any signs that he has retired and that would have been huge news. So we assume Jiro Ono is still running his world famous 10-seat sushi restaurant in the Ginza in Tokyo. He is 96 years old and his plan had been to retire after the Tokyo Olympics, but we couldn't see that he did so. His restaurant, Sukiyabashi Jiro lost its Michelin star in 2019 because it didn't take reservations from the general public, rather reservations had to be made thru hotel concierges. Sukiyabashi Jiro was the first ever sushi restaurant to receive a Michelin 3 star rating. We remember trying to get in during the 90s and being laughed at for the act of futility. Just happened to see the 2011 documentary "*Jiro Dreams of Sushi*" on Netflix. We always look at what makes someone the best and Jiro Ono is generally regarded as the world's best sushi craftsman. And inevitably, the traits that make someone great or an amazing leader in one profession are often the same traits seen in business in CEOs running firms or in the best fund managers. There is a reason why these people separate themselves from the pack. And the fund managers don't complain about their work, they just complain about the market missing what they know. Early in the documentary, Jiro Ono gives his secret for success. Ono said ""*Once you decide on your occupation, you must immerse yourself in your work. You have to fall in love with your work. Never complain about your job. You must dedicate your life to mastering your skill. That's the secret of success and is the key to being regarded honorably*," There are many articles on Jiro Ono and most of them talk about Ono and "shokunin". One typical report [LINK] was "*In short, shokunin means 'mastery of ones profession'. One that is devoted to his or her craft. Jiro, along with many Japanese professionals, share this mentality, this craftsmen's spirit, that drives their work ethic and discipline. No matter what the profession, if one acts with such devotion and takes pride in their work, they are able to achieve shokunin*."

Jiro Ono "little word" or expectations on how to eat sushi

Sukiyabashi Jiro posts a "little word", which is really them telling customers how they expect them to dress and eat sushi. They say there is no special dress code but then say collarless shirts, shorts and sandals may be refused entry. They also say "*please refrain from using perfume*". Then they lay out 12 expectations on how to eat or not eat sushi. The first is useful to many non-Japanese who don't realize people in Japan pick up sushi with their hands and not chopsticks. But then they get in mostly here is what not to do like the classic "*do not soak in soy sauce*". If you want to get the dirty look from the sushi chef, take the sushi and put it in soy sauce. The sushi chefs take price in preparing the sushi with the proper flavors to eat as served. For anyone travelling to Japan on business, the expectations are good to know to impress your Japanese associates or not annoy the sushi chefs when sitting in front of them at the sushi bar, especially do not soak sushi in soy sauce. Our Supplemental Documents package includes the Sukiyabashi Jiro 12 suggestions on eating sushi. [LINK]

Shiba Inu mousepad

Its pretty amazing how the Japanese Shiba Inu dog has become one of the most recognized dog breeds in North America due to crypto. Up until the last few years, it was really only known in Japan, where it is one of, if not the most, popular house dog in Japan. If Shiba Inu's weren't so popular, we probably wouldn't have posted this image that was sent by a friend of a mousepad offered on ebay. The Shiba Inu in this mousepad picture is the classic red Shiba Inu. For those that don't know them, they are very smart, tough small dogs weighing about 20 pounds that were originally hunting dogs in Japan at one time.

Figure 27: Shiba Inu mousepad

Source: ebay

Trump reportedly returns Sharpiegate Hurricane Dorian forecast map

We recognize that there were many more politically significant items reportedly in the boxes of White House logged items that Trump reportedly returned last week. But the boxes reportedly included the Sharpiegate Hurricane Dorian forecast map. This was from the Trump Sept 4, 2019 discussion with the press from the Oval Office that followed his tweet that Alabama was “most likely to be hit harder than anticipated” from Dorian. The National Weather Service tweeted “Alabama will NOT see any impacts from #Dorian”. Trump then defended himself with the press showing the National Hurricane Center’s projected Hurricane Dorian path that included this mysterious sharpie extension of the path to include Dorian. When he was asked if the NHC’s hurricane map had been altered to included the black extension, Trump’s said “I don’t know, I don’t know”.

Figure 28: Sharpiegate Hurricane Dorian forecast map

Source: BBC