

Energy Tidbits

May 16, 2021

Produced by: Dan Tsubouchi

Will We See “The Signal” This Week That A Return to JCPOA Is Going To Happen?

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. Does Gov Whitmer’s op-ed point to Michigan not expecting to win the legal battle to shut down Line 5? ([Click Here](#))
2. Seems China believes in higher for longer oil prices, Raymond James highlights oil stocks corrected to normal except China as a big outlier. ([Click Here](#))
3. Food for thought, Raymond James sees all global oil supply capacity gone by end of 2022. ([Click Here](#))
4. Hard to see a smooth Energy Transition when John Kerry reiterates still have to figure out new technologies to take care of 50% of emissions reduction targets. ([Click Here](#))
5. Coincidentally both Blinken and Zarif are in Europe this week, will we see “The Signal” this week that a return to the JCPOA is going to happen? ([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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Shout out to Optimal Planning Solutions software used for NFL scheduling 42

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Natural Gas – Natural gas injection of 71 bcf, storage now -378 bcf YoY deficit

The EIA reported a 71 bcf injection (vs 76 bcf injection expectations) for the May 7 week, which was below the 5-yr average injection of 82 bcf, and well below last year's injection of 102 bcf. Storage is 2.029 tcf as of May 7, increasing the YoY deficit to 378 bcf from 345 bcf last week and storage is now 72 bcf below the 5 year average vs 61 bcf below last week. The significant YoY deficit along with the forecasted hot summer will help support natural gas prices during the injection season. Below is the EIA's storage table from its Weekly Natural Gas Storage Report. [\[LINK\]](#)

YoY storage at -378 bcf YoY deficit

Figure 1: US Natural Gas Storage

Region	Stocks billion cubic feet (Bcf)				Historical Comparisons			
	05/07/21	04/30/21	net change	implied flow	Year ago (05/07/20)		5-year average (2016-20)	
					Bcf	% change	Bcf	% change
East	347	332	15	15	448	-22.5	369	-6.0
Midwest	458	442	16	16	551	-16.9	448	2.2
Mountain	131	124	7	7	116	12.9	122	7.4
Pacific	235	224	11	11	238	-1.3	227	3.5
South Central	857 C	836	21	25 C	1,054	-18.7	934	-8.2
Salt	269	264	5	5	339	-20.6	297	-9.4
Nonsalt	588 C	572	16	20 C	716	-17.9	637	-7.7
Total	2,029 C	1,958	71	75 C	2,407	-15.7	2,101	-3.4

C=Reclassification
Reclassifications from working gas to base gas resulted in decreased working gas stocks of 4 Bcf in the South Central nonsalt region for the week ending May 7, 2021. The implied flow for the week is an increase of 75 Bcf to working gas stocks. (See Notes and Definitions for more information on "implied flow.")

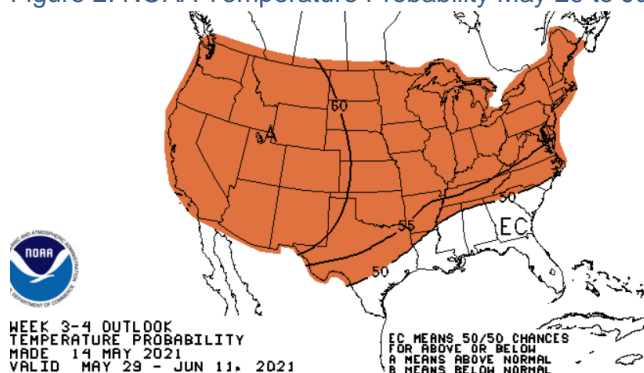
Source: EIA

Natural Gas – A warm Memorial Day and start to June

HH gas prices have hung in just below \$3 and it is primarily being driven by lower YoY US natural gas production and strong US LNG imports. Weather isn't a strong factor for demand in April/early May as its shoulder season and warmer than normal April normally means good weather to leave the windows open. But we should see support for natural gas demand as we move into summer. On Friday NOAA issued its Week 3-4 Outlooks, which is its temperature probability for May 29 to June 11. [\[LINK\]](#) NOAA is forecasting warmer than normal temperatures for this period, which includes Memorial Day on May 31. Below is the NOAA temperature probability map for May 29 to June 11.

A warm start to US temperatures in June

Figure 2: NOAA Temperature Probability May 29 to June 11



Source: NOAA

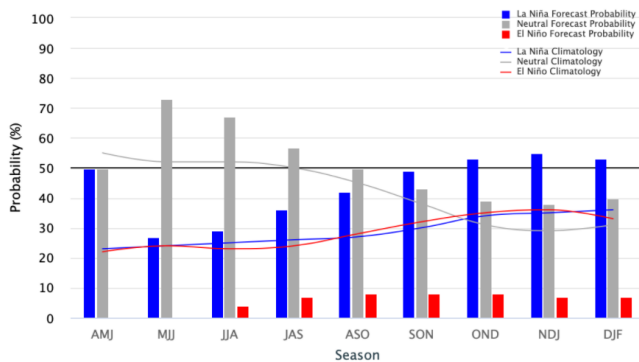
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Natural Gas – 92% probability for La Nina/Neutral in key hurricane ASO season

The CPC/IRI released its updated monthly El Nino/La Nina outlook is issued on the 2nd Thurs of every month [\[LINK\]](#). The winter focus is essentially over, and is no longer a transition from La Nina, rather its now “*La Niña has ended, with ENSO-neutral likely to continue through the Northern Hemisphere summer (67% chance in June-August 2021)*”. The trends are mostly unchanged but with an even lesser chance of El Nino conditions in the key Aug/Sept/Oct, which is the peak of Atlantic hurricane season. They call for 8% chance of El Nino conditions, was 13% last month. The forecast for ASO is 50% Neutral (no change), 42% La Nina (was 37%) and only 8% El Nino (was 13%) conditions. 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.

La Nina/El Nino focus to turn to summer

Figure 3: Early-May NOAA El Nino/La Nina Outlook



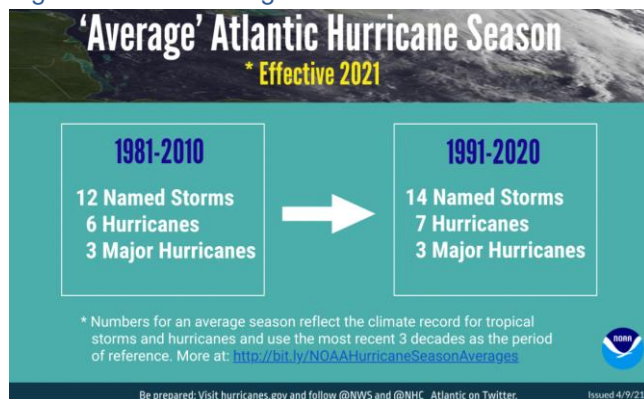
Source: CPC/IRI

Natural Gas – A new 30-yr norm for comparing hurricane seasons

Every decade, NOAA updates its 30-yr norm for comparison of temperatures, precipitation, hurricanes, etc. NOAA describes its new 30-yr norm for hurricanes [\[LINK\]](#) “*Beginning with this year’s hurricane season outlooks, NOAA’s Climate Prediction Center (CPC) will use 1991-2020 as the new 30-year period of record. The updated averages for the Atlantic hurricane season have increased with 14 named storms and 7 hurricanes. The average for major hurricanes (Category 3, 4 or 5) remains unchanged at 3. The previous Atlantic storm averages, based on the period from 1981 to 2010, were 12 named storms, 6 hurricanes, and 3 major hurricanes.*”

New 30-yr normal for weather

Figure 4: New “Average” 30 Year Atlantic Hurricane Season



Source: NOAA

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Natural Gas – EIA forecasts US gas production to return to growth in 2022

The EIA released its monthly Short Term Energy Outlook May 2021 [LINK](#) on Tues. (i) The EIA forecast continues to show US natural gas not returning anywhere near the Q4/19 peak of 96.58 bcf/d, with Q4/22 US natural gas of 94.36 bcf/d (down 2.22 bcf/d from peak). (ii) For 2021, the EIA made downward revisions all quarters, mainly weighted in Q1/21 due to the freeze off. EIA decreased its Q1/21 estimate by -0.73 bcf/d to 90.09 bcf/d, Q2/21 by -0.15 bcf/d to 90.75, Q3/21 by -0.25 bcf/d to 91.34, and Q4/21 by -0.28 bcf/d to 92.03 bcf/d. 2021 US natural gas production is forecast to average 91.06 bcf/d (down from 91.41 bcf/d previously). (iv) US natural gas production is expected to average 93.12 bcf/d in 2022 (93.29 bcf/d previously), up 2.06 bcf/d YoY. (v) On production, the EIA wrote “We estimate production increased to 91.3 Bcf/d in March. We expect relatively flat dry natural gas production in May ahead of production beginning to rise in mid-2021. We forecast dry natural gas production will reach 92.0 Bcf/d in the fourth quarter of 2021 and average 93.1 Bcf/d in 2022. The increase in production reflects sustained higher forecast prices for natural gas and crude oil compared with 2020”. (vi) On consumption the EIA notes that sustained higher gas prices YoY in 2021 will encourage gas to coal switching, the EIA Wrote “We expect that U.S. consumption of natural gas will average 82.6 billion cubic feet per day (Bcf/d) in 2021, down 0.7% from 2020. U.S. natural gas consumption declines in the forecast, in part, because electric power generators switch to coal from natural as a result of rising natural gas prices”. Our Supplemental Documents package includes excerpts from the EIA STEO.

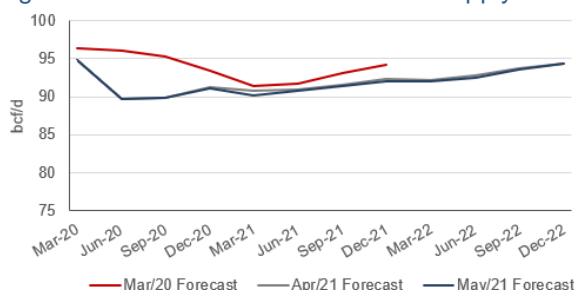
EIA forecasts US gas production +2.06 bcf/d YoY in 2022

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

bcf/d	Q1/19	Q2/19	Q3/19	Q4/19	2019	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
May 2021	90.01	91.57	94.01	96.58	93.04	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	90.01	91.57	94.00	96.58	93.04	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	90.01	91.57	94.00	96.58	93.04	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	90.01	91.57	94.00	96.58	93.04	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	90.01	91.57	94.00	96.58	93.04	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	90.01	91.57	94.00	96.58	93.04	94.79	89.67	89.72	89.36	90.88	87.65	87.25	88.13	88.61	87.91					
Nov 2020	90.01	91.57	94.00	96.58	93.06	94.85	89.73	90.14	89.29	90.99	87.50	87.10	88.16	88.86	87.91					
Oct 2020	90.01	91.57	94.00	96.58	93.06	94.48	89.44	89.81	88.86	90.64	86.56	86.02	87.04	87.58	86.81					
Sept 2020	89.32	90.50	92.98	95.97	92.21	94.48	89.50	88.44	87.14	89.88	85.67	85.87	87.07	87.73	86.59					
Aug 2020	89.32	90.50	92.98	95.97	92.21	94.48	89.20	86.27	84.73	88.65	83.21	82.93	84.35	85.55	84.02					
July 2020	89.32	90.50	92.89	95.97	92.21	94.50	89.91	87.27	85.37	89.24	83.48	83.25	84.53	85.63	84.23					
June 2020	89.32	90.50	92.98	95.97	92.21	94.47	90.60	87.95	85.66	89.65	83.96	84.44	85.75	87.34	85.39					
May 2020	89.32	90.50	92.98	95.97	92.21	94.28	91.08	88.03	86.05	89.84	84.21	84.09	85.03	86.22	84.89					

Source: EIA, SAF

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



Source: EIA, SAF

Natural Gas – Hot weather continues in May, still above normal for June in Japan

The Japan Meteorological Association issued its forecast weather forecast for May 15 – June 14 on Thursday [LINK](#). May has been hot so far, which gave some support for natural gas, although not a huge amount as daytime highs have only exceeded 25 degrees on a few

Hot start to May in Japan

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occasions. But expectations are for more above normal temperatures in balance of May. Below is the current JMA forecast for the remainder of May and the first half of June.

Figure 7: May 15 – June 14 JMA Forecast



Source: Japan Meteorological Agency

Natural Gas – Japan will want to keep LNG tanks topped up this summer

There should be some positive support for LNG prices this summer from Japan especially if it’s a hot summer. The low electricity reserve margin (way lower than in the US) means that Japan will be doing all they can to ensure there is max available electricity, which we believe will include LNG. On Tuesday, we tweeted [LINK](#) “Japan will want to keep #LNG tanks topped up until worst is over. Japan summer peak power reserve only 3.7-3.8%. Positive for LNG & US LNG, less cargos redirected to refill EU storage. Imagine the AC bill if they had 0.5 mm visitors for olympics. Thx @SStapczynski #NatGas #OOTT.” The tweet was driven by the Bloomberg report that “Japan’s power supply is expected to be the tightest in “several years” this summer amid an outlook for warmer-than-normal weather and lower electricity output as some thermal facilities are shut, Minister of Economy, Trade and Industry Hiroshi Kajiyama said to press on Friday”, and “Japan’s nationwide peak power reserve rate, excluding Okinawa and Hokkaido, is expected to be 3.7%-3.8% this summer, according to NHK, citing the Organization for Cross-regional Coordination of Transmission Operators ** NOTE: The minimum level required by the Japanese government during peak demand times is 3%.” After our tweet, we saw the Platts report [LINK](#) on the METI press comments that reinforced our LNG comment writing “Among possible measures, METI intends to request Japanese utilities to report their LNG as well as other fuel procurement plans for summer in June to scrutinize them, a METI source told S&P Global Platts.” Note that if any US areas have reserve margins below 10%, its generally considered some sort of critical situation. As we put in our tweet, it just means that Japan is likely to be having more LNG imports this summer to keep their LNG tanks full. Our Supplemental Documents package includes the Bloomberg @TheTerminal and Platts reports.

Japan will want LNG this summer

Figure 8: Japan LNG Imports

bcf/d	2015	2016	2017	2018	2019	19/18	2020	20/19	2021	21/20
Jan	13.06	11.22	12.85	12.79	11.69	-8.7%	11.63	-0.5%	12.48	7.3%
Feb	13.26	12.30	13.36	14.23	12.61	-11.4%	10.99	-12.8%	13.84	25.9%
Mar	12.60	12.62	12.61	12.28	11.30	-8.1%	11.16	-1.2%	11.04	-1.1%
Apr	10.56	10.21	10.52	8.97	9.00	0.3%	8.31	-7.7%		
May	8.91	8.55	9.66	9.92	8.62	-13.1%	7.09	-17.7%		
June	10.61	10.02	9.90	8.88	8.32	-6.3%	8.42	1.2%		
July	10.77	10.19	10.19	10.55	10.56	0.1%	9.35	-11.5%		
Aug	10.93	11.96	11.24	11.73	9.45	-19.5%	9.04	-4.3%		
Sept	11.06	10.67	9.31	10.04	10.30	2.6%	10.41	1.0%		
Oct	9.38	9.73	9.50	10.12	9.75	-3.6%	9.20	-5.7%		
Nov	10.71	12.07	10.26	10.15	10.03	-1.2%	9.63	-4.0%		
Dec	12.51	11.69	12.31	11.23	10.54	-6.2%	11.96	13.4%		

Source: Japan Ministry of Finance

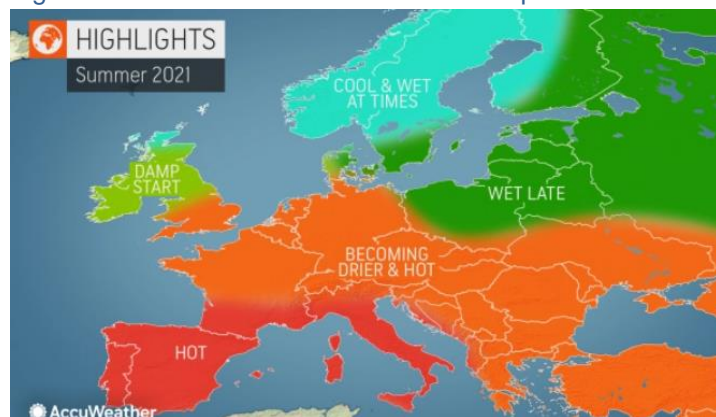
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Natural Gas – AccuWeather forecasts a warm summer for Europe

Weather is never 100% accurate but, at least for now, the weather forecasts for Europe summer weather should be supportive of continues solid summer Europe gas prices, which is positive for US LNG exports. AccuWeather posted its 2021 Europe summer forecast [\[LINK\]](#), which calls for very hot weather in “Portugal, Spain, southern France and much of Italy as heat from northern Africa spreads north into southern Europe.” AccuWeather calls for warm, but not hot, temperatures across most of the rest of Europe for the summer. Below is the AccuWeather temperature forecast map.

Warm summer in Europe

Figure 9: AccuWeather 2021 Summer Europe Forecast



Source: AccuWeather

Natural Gas – Russia reminds of direct competition with Nord Stream 2 and US LNG

On Friday, the TASS Russian site released an article on comments from the Russian Energy Minister Nikolai Shulginov on the competition for Russian gas expected to flow in Nord Stream 2 [\[LINK\]](#). Shulginov noted that the additional capacity from Nord Stream 2 would not be in direct competition with Russian LNG, TASS wrote “*The competition between Russian pipeline gas and LNG is rather far-fetched. Not all European countries are connected to our gas pipelines, so it is good that, for example, Spain has the opportunity to purchase Russian liquefied gas*”. As we have noted in the past, Russian pipeline gas flowing on Nord Stream 2 will be the biggest competitor for LNG imports from the US and had significant potential to take European market share away from US LNG exporters. Shulginov reminded of this in his comments this week, TASS wrote “*First of all, this is the competition between Russian gas and LNG of the United States and Qatar. When the pipeline has been functioning for a long time and gas supplies are stable, this in itself becomes a competitive advantage,*” *the minister said*”. We still believe the probability is that US sanctions on Nord Stream 2 get resolved, as in relaxed, in the lead up to the expected Biden/Putin summit. And that means Nord Stream 2 gas could start to flow to Germany before the winter 2021/2022 natural gas season. Our Supplemental Documents package includes the TASS report.

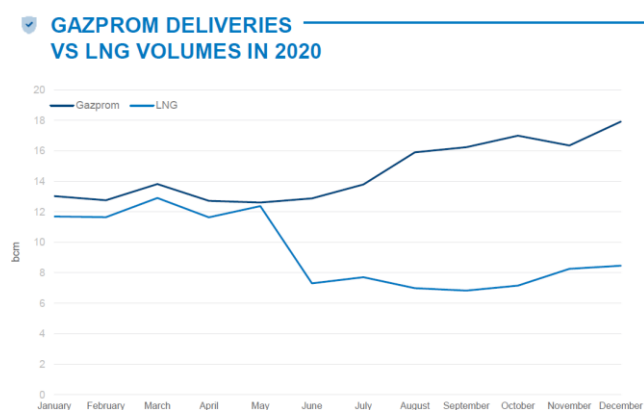
Nord Stream 2 to compete with US and Qatar LNG

Shulgiinov’s Russia’s gas is “stable” means less price sensitive before shut-in

Above, we note how Shulginov highlights Russian pipeline gas is “*stable, this in itself becomes a competitive advantage*”. We believe this his reminder that US LNG is price sensitive and will be easily shut in without the right price. This advantage vs US LNG was highlighted in the Gazprom investor day two weeks ago that included the below graph. When we see this graph, it is a reminder that LNG markets are self correcting and self correcting in shorter cycles than oil and this is especially so with

US LNG now over 10 bcf/d. But as seen in 2020 when LNG markets were oversupplied once Covid hit, US LNG is, to the most part, the marginal supply to Europe. When LNG prices crashed post the warm winter and Covid, it immediately led to the shut in of US LNG. It went from 7.9 bcf/d in March to 3.6 in June, 2.7 in July, 3.6 in Aug and 5.0 in Sept. It just wasn't worth it for US LNG to be exported to the most part.

Figure 10: Gazprom Deliveries vs LNG Volumes in 2020

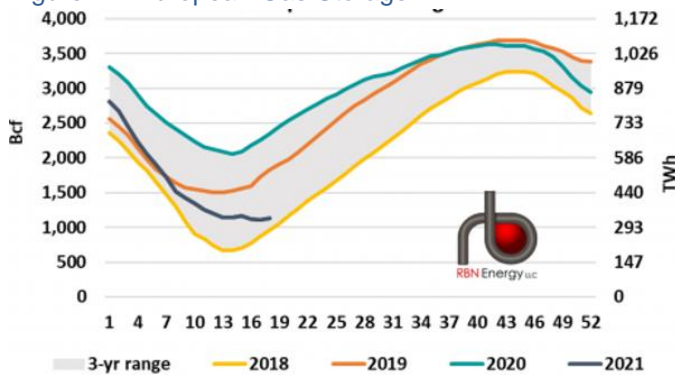


Natural Gas – RBN highlights the role of Europe gas storage in global LNG markets

Its really only been the last year or so that there has been a big focus on the role of Europe gas storage as an indicator to the near term global LNG markets. On Tuesday, RBN posted a good blog reviewing US LNG feedgas market dynamics over the past year along with their outlook for the upcoming summer [LINK](#) and it prominently featured Europe gas storage. Global LNG pricing and demand has recovered excellently from last summer when low prices and demand destruction from the initial wave of covid had caused mass cargo cancellations in the summer months as deliveries were far from economic. LNG prices then began to recover in late summer/early fall partly due to disruptions caused by a record active Atlantic hurricane season along with various other issues at liquefaction facilities in Australia and Norway and extended delivery times with heavy traffic at the Panama Canal. Heading into inter colder than average temperatures in Asia and Europe had also helped to rally prices. The colder than average winter in Europe is particularly important in the current LNG market as this had flipped European gas storage levels from a surplus vs 2019 to a significant deficit. The cooler temperatures sticking around for longer has also resulted in a record withdrawal season. This helps to add price support for US LNG during the refill season, along with winter contract support as storage is likely will not reach a new peak prior to next winter. Asia demand ex-India is also at a very strong point, with cargos being redirected from India being easily absorbed by other demand centers in Asia. This strong demand environment has resulted in US feedgas flows running near what RBN estimates as needed for full capacity utilization at 11 bcf/d, with April flows averaging 10.77 bcf/d. Spring maintenance will be causing short periodic drops in feedgas flows, but should recover quickly to meet the strong demand. Our Supplemental Documents package includes the RBN blog.

RBN reminds of Europe storage importance

Figure 11: European Gas Storage



Source: RBN

Natural Gas – Reminder why Europe gas storage is the key indicator for LNG markets

Europe gas storage continues to play out as the key indicator for global LNG markets. Long term readers know we have used it as our primary global LNG market indicator since Sept 2017 as we believe Europe gas storage utilization is the best indicator for the strength and near term direction for LNG markets. We first highlighted this key concept almost 4 years ago. On Sept 20, 2017, we posted two related blogs. The first blog was “Shell: “Every LNG Cargo That Could Technically Be Produced In This World Has Been Produced And Has Found A Well Paying Customer”, and the second linked blog was “China’s Plan To Increase Natural Gas To 10% Of Its Energy Mix Is A Global Game Changer Including For BC LNG”. The concept of the blogs was that the market was understating the fall LNG 2017 market strength, China being serious about increasing natural gas, and the surprising market strength would lead to a BC LNG FID in 2018 ie. LNG Canada. The reason for our believing LNG markets in summer 2017 was due to Shell’s LNG head, Martin Wetselaar) explaining the concept of Europe gas storage. As soon as we heard it, we knew it made sense. And when you look at the Europe gas storage utilization for this winter, it fits to the thesis Wetselaar first outlined in Aug 2017. Long term readers of Energy Tidbits know we think the best insights from companies comes from Q&A, not the slide decks, and that was particularly so in this case. Here is what we wrote in Sept 20, 2017 blog “The key data support to Wetselaar is that NW Europe storage is not seeing surplus LNG cargos looking for a home. In the Q&A, Wetselaar said the data support for his comment that the market is absorbing all of the new LNG supply is to look at NW Europe storage. Wetselaar did not use the description dumping ground, but it is the right term. Webster’s defines “dumping ground” as “a place to which unwanted people or things are sent”. He noted that if LNG was in oversupply, there would be surplus LNG cargos looking for a home and these surplus LNG cargos would find their way to NW Europe storage. Shell is not seeing any YoY increase in NW Europe storage. Hence, he is firm in his view that demand was absorbing all the new LNG supply in 2017. We pasted the NW Europe storage data into the below graph and it shows exactly what Wetselaar said – the monthly YoY changes in storage do not show increases in the net storage withdraw/injections, which implies that there isn’t any dumping of surplus LNG cargos in NW Europe storage. We have not been following NW Europe natural gas storage, but now have it on our regular data check list because of Wetselaar’s comments.” Our Supplemental Documents package includes our Sept 20, 2017 Shell blog.

Europe gas storage is key LNG indicator

Natural Gas – Europe storage 32.17% full vs 5 year average of 45.29%

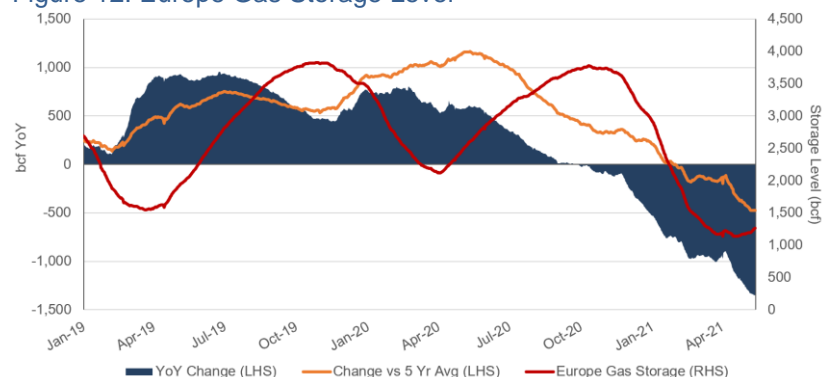
We continue to see the set up for strong summer LNG price, which should support strong US LNG exports to Europe. It was cold through March and into April which had delayed the refill

Europe gas storage 32.17% full

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push in Europe and this is setting up support for summer prices. There was a big draw in Europe gas storage this winter so no surprise it was a good winter for LNG prices. Additionally, the significant YoY deficit in Europe gas storage at the end of winter indicates that there will be strong demand for European LNG imports during the refill push especially since Russia looks like it only plans to ship contract volumes via Ukraine ie. not sending above contract levels. This is a big positive indicator for US LNG exports this summer. Europe gas storage started the winter (Nov 1) at basically full levels at 94.66% and had dropped by 65.77% to be 28.89% at Apr 1. This 65.77% decline since Nov 1 compares to the 5 yr average that would be down 53.99% in the same period or to last winter that was only down 43.29% in the same period. So massive draw vs last year and the last 5 years. Storage at Apr 1 of 28.90% had looked to be the bottom for withdrawal season as the storage level subsequently increased 2.06% to 30.96% on April 6. However, cold weather continuing into the second half of April had further delayed the refill push as flows switch from injections between April 1-6, to draws once again. This has resulted in the longest withdrawals season in history, supporting Europe LNG cargo prices. We are now seeing storage starting to slightly build, with storage as of May 13 being up 11.3% since April 19, which looks to be the bottom. Storage as of May 13 is 32.17%, 34.89% less than last year of 67.06% and 13.12% below the 5 yr average of 45.29%. Europe storage levels this summer will be the key item to watch for indications on LNG markets going into the winter. Below is our graph of YoY change in net LNG flows to NW Europe.

Figure 12: Europe Gas Storage Level



Source: Bloomberg

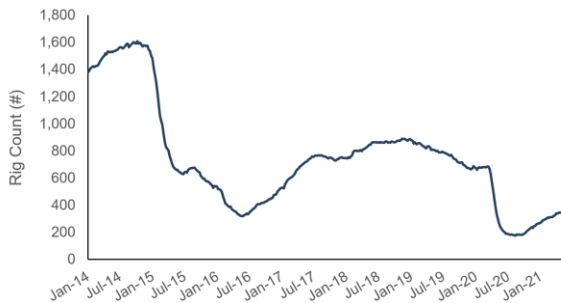
Oil – US oil rigs up 8 to 352 oil rigs

Baker Hughes reported its weekly rig data on Friday. We have been expecting to see modest increases to US oil drilling with the strong oil prices. US oil rigs were up by 8 rigs to 352 oil rigs as of May 14. The Permian was up by 2 to 229 rigs and is showing signs of ramping back up. There were no decreases this week, and increases from Cana Woodford (+1), Permian (+2), Bakken (+1), and Others (+4). Note that Others being up +4 corresponds to minor basins that are controlled generally by privates and small companies so this additional drilling is due to the increased price of oil. Oil rigs have been on a strong recovery path and are +180 off the bottom of 172 in the Aug 14 week. US oil rigs hit their 2020 peak at 683 on March 13 and have since fallen by 331 to 352 oil rigs (-48.5%). Below is our graph of Baker Hughes US oil rigs.

US oil rigs +8 this week

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Figure 13: Baker Hughes Total US Oil Rigs



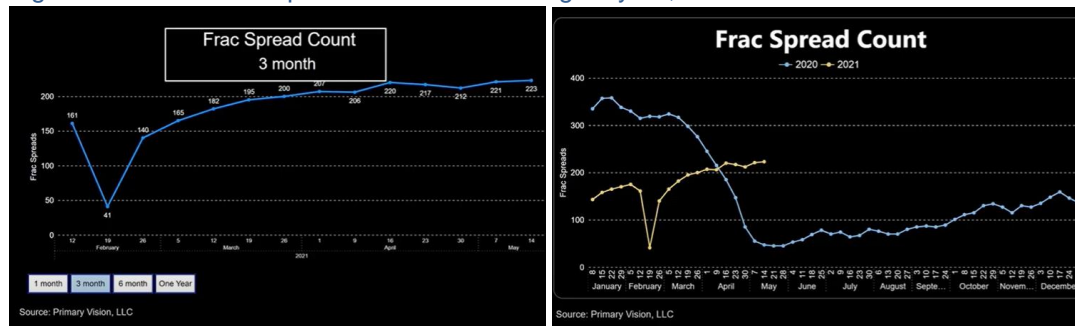
Source: Baker Hughes

Oil – Frac spreads +2 to 223 for week ending May 14

Every week, Mark Rossano (C6 Capital Holdings) posts a YouTube recap of frac spreads for the week on the Primary Vision Network [\[LINK\]](#). US frac spreads were +2 to 223 for the week ending May 14. He noted that Permian is back up, its more of a question of what is active, and numbers change based on frac spreads that are moving to other locations. Also that Bakken oil production was +20,000 b/d in March, but don't see production growth, rather some decline at current frac spreads. He reminds that the Permian is going to be the one to watch for national US oil growth, but some of that uplift will come from the Bakken and Eagle Ford. No change to his view that frac spreads would be hanging around 220 thru the end of May and then see acceleration in June. Rossano had an excellent reminder looking forward that there was a record number of permits last month, a 2 year high, which means that rigs are coming back to replenish the DUC count. He also reminded of the theme that labor is becoming a bigger and bigger issue. Below are his two key frac spread graphs.

Frac spreads +2 to 223

Figure 14 Active Frac Spreads for Week Ending May 14, 2021



Source: Primary Vision

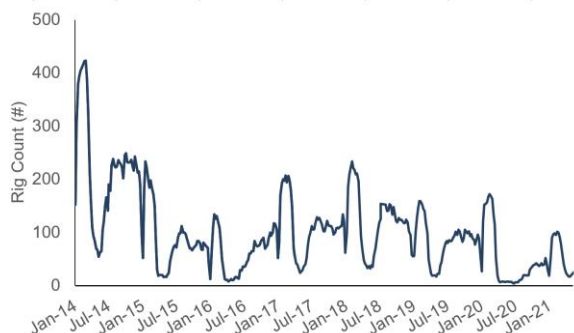
Oil – Total Cdn rigs up 4 to 59 total rigs and up 36 YoY

Once again it looks like the first week of May was the trough for Cdn rigs during spring break up. Baker Hughes reported total Cdn rigs were up 4 this week to 59 total rigs. The increase reinforces Canada coming out of the spring trough, and rig counts should start to increase at a faster rate now. Cdn oil rigs were up 3 at 25 rigs. Cdn gas rigs were up 1 to 34 gas rigs this week. Total rigs are now +46 since the June 26 all-time low. Cdn drilling has recovered YoY, a year ago Cdn oil rigs were 7 and Cdn gas rigs were 16 for a total Cdn rigs of 23, meaning total Cdn rigs are +36 YoY and total rigs are down 4 vs 2019. Below is our graph of Baker Hughes Cdn oil rigs.

Cdn rigs +4 this week

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Figure 15: Baker Hughes Total Canadian Oil Rigs



Source: Baker Hughes

Oil – US weekly oil production up 0.1 mmb/d to 11.0 mmb/d

US oil production was up 0.1 mmb/d to 11.0 mmb/d for the May 7 week. Lower 48 up 0.10 mmb/d to 10.5 mmb/d. This puts US oil production down 0.6 mmb/d YoY, and is down 2.1 mmb/d since the 2020 peak of 13.1 mmb/d on March 13. The EIA May STEO revised down US oil production for the remainder of 2021 and is still not returning anywhere near the Q4/19 peak of 12.78 mmb/d, with Q4/21 US crude of 11.34 mmb/d (down 1.44 mmb/d from peak). YoY growth returns in 2022 with production averaging 11.84 mmb/d, +0.82 mmb/d YoY (was 11.86 mmb/d previously), with Q4/22 production of 12.21 mmb/d, ie still down 0.57 mmb/d from Q4/19. In the US oil production commentary, the EIA wrote “*We estimate that production outages were generally limited to February and that U.S. crude oil production rose to 10.9 million b/d in March and to almost 11.0 million b/d in April. Because the average price of West Texas Intermediate crude oil remains above \$55/b in our forecast, we expect producers will drill and complete enough wells in the coming months to offset declines at existing wells*”. The EIA DPR has the expectation of slight MoM increases in April and May. The EIA forecasts May at 7.612 mmb/d which is +12,000 b/d MoM. The EIA Form 914 actuals for February came in 563,000 b/d lower than the EIA weekly estimates for February, which was due to the brutal cold and snow of February dropping production abruptly.

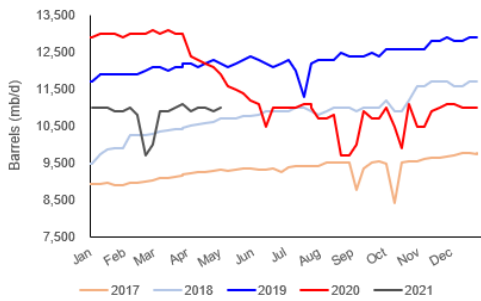
**US oil
production +0.1
mmb/d**

Figure 16: EIA's Estimated Weekly US Oil Production

Year-Month	Week 1		Week 2		Week 3		Week 4		Week 5	
	End Date	Value	End Date	Value	End Date	Value	End Date	Value	End Date	Value
2019-Jan	01/04	11,700	01/11	11,900	01/18	11,900	01/25	11,900		
2019-Feb	02/01	11,900	02/08	11,900	02/15	12,000	02/22	12,100		
2019-Mar	03/01	12,100	03/08	12,000	03/15	12,100	03/22	12,100	03/29	12,200
2019-Apr	04/05	12,200	04/12	12,100	04/19	12,200	04/26	12,300		
2019-May	05/03	12,200	05/10	12,100	05/17	12,200	05/24	12,300	05/31	12,400
2019-Jun	06/07	12,300	06/14	12,200	06/21	12,100	06/28	12,200		
2019-Jul	07/05	12,300	07/12	12,000	07/19	11,300	07/26	12,200		
2019-Aug	08/02	12,300	08/09	12,300	08/16	12,300	08/23	12,500	08/30	12,400
2019-Sep	09/06	12,400	09/13	12,400	09/20	12,500	09/27	12,400		
2019-Oct	10/04	12,600	10/11	12,600	10/18	12,600	10/25	12,600		
2019-Nov	11/01	12,600	11/08	12,800	11/15	12,800	11/22	12,900	11/29	12,900
2019-Dec	12/06	12,800	12/13	12,800	12/20	12,900	12/27	12,900		
2020-Jan	01/03	12,900	01/10	13,000	01/17	13,000	01/24	13,000	01/31	12,900
2020-Feb	02/07	13,000	02/14	13,000	02/21	13,000	02/28	13,100		
2020-Mar	03/06	13,000	03/13	13,100	03/20	13,000	03/27	13,000		
2020-Apr	04/03	12,400	04/10	12,300	04/17	12,200	04/24	12,100		
2020-May	05/01	11,900	05/08	11,600	05/15	11,500	05/22	11,400	05/29	11,200
2020-Jun	06/05	11,100	06/12	10,500	06/19	11,000	06/26	11,000		
2020-Jul	07/03	11,000	07/10	11,000	07/17	11,100	07/24	11,100	07/31	11,000
2020-Aug	08/07	10,700	08/14	10,700	08/21	10,800	08/28	9,700		
2020-Sep	09/04	10,000	09/11	10,900	09/18	10,700	09/25	10,700		
2020-Oct	10/02	11,000	10/09	10,500	10/16	9,900	10/23	11,100	10/30	10,500
2020-Nov	11/06	10,500	11/13	10,900	11/20	11,000	11/27	11,100		
2020-Dec	12/04	11,100	12/11	11,000	12/18	11,000	12/25	11,000		
2021-Jan	01/01	11,000	01/08	11,000	01/15	11,000	01/22	10,900	01/29	10,900
2021-Feb	02/05	11,000	02/12	10,800	02/19	9,700	02/26	10,000		
2021-Mar	03/05	10,900	03/12	10,900	03/19	11,000	03/26	11,100		
2021-Apr	04/02	10,900	04/09	11,000	04/16	11,000	04/23	10,900	04/30	10,900
2021-May	05/07	11,000								

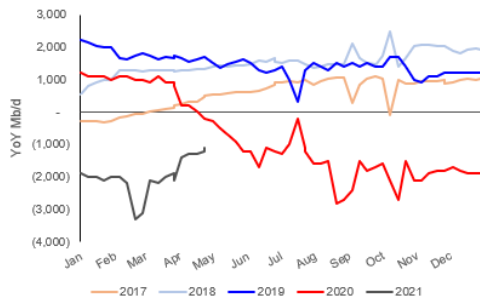
Source: EIA

Figure 17: US Weekly Oil Production



Source: EIA, SAF

Figure 18: YoY Change in US Weekly Oil Production



Source: EIA, SAF

Oil – Did high oil price return shut in wells to push North Dakota Mar oil production up
 We recognize that this is not being said by anyone but we think there is a key factor being overlooked in the commentary on North Dakota oil production data released on Friday. And

**North Dakota
 March oil
 production up
 MoM**

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that North Dakota oil production was likely down small instead of up small MoM. For some reason, no one is commenting on the what is logically the return of marginal shut in oil wells due to high oil prices. On Friday, the North Dakota Industrial Commission posted its Director's Cut, which includes March oil and natural gas production data [\[LINK\]](#). North Dakota March oil production was up 2.3% MoM to 1.108 mmb/d from 1.083 mmb/d in Feb and is down 22.5% YoY. The MoM production increase was expected given Feb production had been hit with extreme weather, however March production was still ~39,000 b/d below production in Jan meaning there still was not a full recovery. But there is a much more significant reason and no one seems to be talking about that drove the MoM oil production increase – high oil prices brought on shut in wells. There was a big uptick in the # of producing oil wells in March vs Feb and only 10% of the new producing wells can be attributed to wells being completed. Rather it must be high oil prices bringing back the marginal shut in wells. The Director's Cut preliminary estimate for producing wells in March is 16,207 producing wells, which is +429 producing wells vs 15,778 in Feb. There were only 43 well completion in March, which leaves 396 other additional wells on production. If these wells averaged 50 b/d of oil, it would have made the +20,000 b/d MoM flat, or -20,000 b/d if the wells averaged 100 b/d. For comparison, last month's (April) Director's Cut preliminary estimate for producing wells in Feb was 15,773 producing wells, which was -88 producing wells vs 15,861 producing wells in Jan. Rigs in North Dakota currently sit at 18, up 3 from March at 15. March completions increased 11 MoM to 43, but the preliminary estimate for April shows a decline to 31. Our Supplemental Documents package includes excerpts from the NDIC Director's Cut.

Figure 19: North Dakota Oil Production By Month

(b/d)	2016	2017	2018	2019	2020	2020/2019	2021	2021/2020
Jan	1,122,462	981,380	1,179,564	1,403,808	1,430,511	1.9%	1,147,377	-19.8%
Feb	1,119,092	1,034,248	1,175,316	1,335,591	1,451,681	8.7%	1,083,554	-25.4%
Mar	1,111,421	1,025,690	1,162,134	1,391,760	1,430,107	2.8%	1,108,441	-22.5%
Apr	1,041,981	1,050,476	1,225,391	1,392,485	1,221,019	-12.3%		
May	1,047,003	1,040,995	1,246,355	1,394,648	859,362	-38.4%		
June	1,027,131	1,032,873	1,227,320	1,425,230	893,591	-37.3%		
July	1,029,734	1,048,099	1,269,290	1,445,934	1,042,081	-27.9%		
Aug	982,011	1,089,318	1,292,505	1,480,475	1,165,371	-21.3%		
Sept	971,760	1,107,345	1,359,282	1,443,980	1,223,107	-15.3%		
Oct	1,043,693	1,183,810	1,392,369	1,517,936	1,231,048	-18.9%		
Nov	1,034,484	1,194,920	1,375,803	1,519,037	1,227,138	-19.2%		
Dec	942,322	1,182,836	1,402,741	1,476,777	1,191,429	-19.3%		

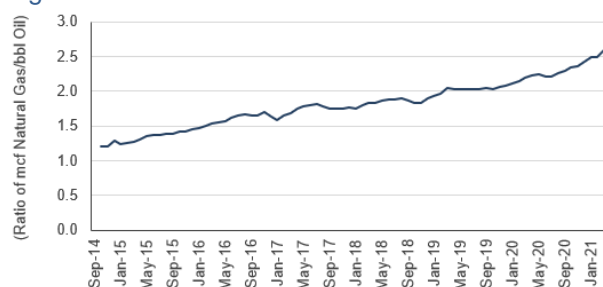
Source: NDIC, NDPA

North Dakota gas-oil ratio increases as Bakken matures

One of the long term trends that we have been highlighting for all of the US tight/shale oil plays that produce associated natural gas and NGLs is that, over time, the percentage of natural gas increases in the production. We see this clearly in North Dakota where the gas-oil ratio continues to increase having slowing down in 2017-2019 when natural gas flaring increased. But now with North Dakota reducing gas flaring, we are seeing the ramp up in gas-oil ratio. North Dakota natural gas production has held in much better YoY than oil production and increased at a faster pace MoM in March with production being +6.2% MoM to 2.879 bcf/d, down 8.0% YoY. It makes sense that North Dakota natural gas production was down less YoY as less gas was flared and Bakken oil wells produce associated natural gas and the natural gas % of boe production increase as Bakken oil wells mature. The Gas to oil ratio hit 2.60 in Mar, up from 2.50 in Feb 2021. We will continue to see the gas to oil ratio increase as the Bakken matures. A year ago it was 2.19 and two years ago 2.04. Below is our running graph of North Dakota gas-oil ratio updated for the new NDIC January production data.

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Figure 20: North Dakota Gas-Oil Ratio



Source: NDIC, NDPA

NDIC expecting North Dakota production to continue to increase thru summer

Every month, we look to the Bismarck Tribune's monthly story on the press conference releasing the Director's Cut as there is always extra color or insight from quotes from NDIC Director Lynn Helms. This month's story was titled "North Dakota's daily oil output rose in March; growth expected to continue" [LINK](#).

(i) We don't know all he said at the press conference, but we wish we had seen Helms' comments on the big MoM increase in March vs Feb and how that impacted the MoM growth in oil and natural gas production. (ii) Helms noted the impact of producers facing DUCs in the MoM production increase. Two additional frack crews had started working in March, with the current number at nine crews. (iii) The resources director is expecting MoM increases to continue, the Tribune wrote "We're inching up in rig count. We're inching up in frack crews," Helms told reporters Friday during his monthly press briefing. "We're hoping to see a 35,000 to 55,000 barrel per day back-to-back increase through the summer months". However, growth in Bakken production for the remainder of 2021 is questionable, given the NDPA's lower than expected estimate for DUCs. Meaning rigs will have to materially step up to replenish inventory. (iv) Consistent with the expectation we have for any significant uptick in capex budgets and production to come in 2022, the Tribune wrote "Oil leaders convened in Bismarck this week for the Williston Basin Petroleum Conference, and Helms said they signaled to him any potentially significant production increases would come next year". Our Supplemental Documents package includes the Bismarck Tribune Story.

Oil – Bakken rigs better ramp up soon, there are less economic DUCs than expected

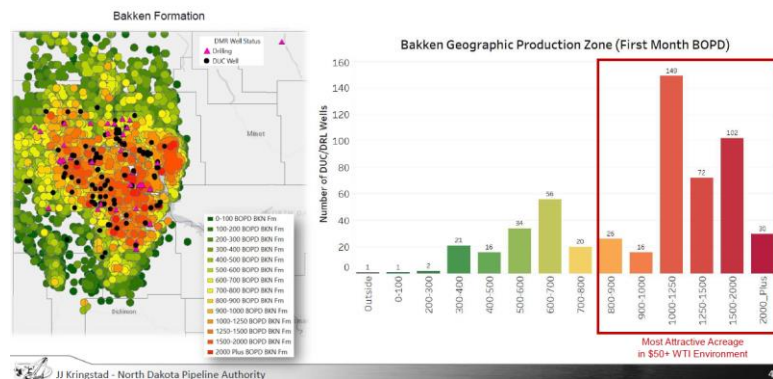
As noted above NDIC's Helms highlighted the increasing number of Bakken wells being completed should lead to monthly increases in production thru the summer. Our comment is that Bakken drilling rigs better ramp up quickly because there much less economic Bakken DUCs than expected. This isn't from our view, rather this is from another North Dakota oil agency -the North Dakota Pipeline Authority. On Wed, the NDPA presented at the annual Williston Basin Petroleum Conference [LINK](#) and there was a slide that caught our attention on an overlooked item about Bakken DUCs – many of the DUCs aren't economic to complete ie. the expected well rates will be too low to justify the completion capital. Kringstad divided Bakken DUCs into two broad categories. He didn't call it economic and uneconomic. Rather called it "most attractive acreage in WTI\$50+" and rest of DUCs. This means there are less economic Bakken DUCs than expected. Its why we tweeted [LINK](#) on the NDPA graph. The NDPA used WTI\$50 for the economic cutoff so their will be more of the uneconomic wells at \$50 become economic. But, using the NDPA \$50 divider, it means that Bakken DUCs are >25% lower if you take out uneconomic DUCs. This means there are way less DUCs to

**Not all Bakken
DUCs are
economic**

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count on and this means the urgency to start drilling is even more. We have to believe that unless there is also a quick pick up in Bakken rigs, any near term increases in Bakken oil from an acceleration in completing DUCs will be short bursts. The big wildcard is always how many DUCs won't ever be completed because they were drilled in so so zones and unlikely to have enough production/reserves to make it economic to frac and complete. The NDPA presentation includes the below slide that uses WTI \$50 or above as the cut off for "most attractive acreage" and only puts wells with expected IP30 rates of at least 800-900 bopd. I guess they didn't want to call the others uneconomic. We put together the below table based on the NDPA graph. It shows 151 or 27.7% of the DUCs didn't make the cut at WTI \$50. didn't make the cut off. That would mean 395 economic DUCs vs the latest EIA DUC estimate of 548 Bakken DUCs at March 31. If we move the cut off to 600 b/d, it would mean the uneconomic DUCs are 75 or 14% of total Bakken DUCs, and this economic DUCs total of 471 economic DUCs. The EIA will posting its April 30 DUC estimate on Mon May 17. Our Supplemental Documents package includes excerpts from the NDPA slides..

Figure 21: North Dakota Wells Waiting on Completion – April 2021
 North Dakota Wells Waiting on Completion – April 2021



Source: North Dakota Pipeline Authority

Figure 22: North Dakota Wells Waiting on Completion – April 2021

Bakken Geographic Production Zone (First Month BOPD)	# wells	% of Total
Most Attractive Acreage in WTI\$50+		
2,000	30	5.5%
1,500-2,000	102	18.7%
1,250-1,500	72	13.2%
1,000-1,250	149	27.3%
900-1,000	16	2.9%
800-900	26	4.8%
Subtotal	395	72.3%
Other		
700-800	20	3.7%
600-700	56	10.3%
500-600	34	6.2%
400-500	16	2.9%
300-400	21	3.8%
200-300	2	0.4%
0-200	1	0.2%
Outside	1	0.2%
Subtotal	151	27.7%
Total All North Dakota	546	100.0%

Source: North Dakota Pipeline Authority

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Oil – North Dakota crude by rail up MoM in March to ~200,000 b/d

The North Dakota Pipeline Authority also posted its monthly update “March 2021 Production & Transportation” [\[LINK\]](#). Please note that we always go to the backup excel sheets from the North Dakota Pipeline Authority for more detailed numbers of crude by rail out of North Dakota. The NDPA Monthly Update (graph below) report only provides rounded numbers, and these rounded numbers are not accurate enough to match the graphs. In the backup excel, the NDPA estimates crude by rail in March was a low of 185,432 b/d to a high of 215,432 b/d for an average of ~200,432 b/d. This is up from Feb low of 141,095 b/d to high of 171,095 b/d for an average of ~156,095 b/d. The MoM increase in CBR volumes is likely due to the CBR share of total transportation increasing 4% MoM to 16% of total volumes in March from 12% in February along with the increased MoM production as Feb production had been reduced by the cold weather and pushback from shut refineries in the USGC. Below is a chart from the NDPA monthly update showing the crude by rail volumes since 2013. Our Supplemental Documents package includes the NDPA monthly update.

North Dakota CBR up in March

Figure 23: Estimated North Dakota Rail Export Volumes



Source: North Dakota Pipeline Authority

Oil – EIA STEO expecting sustained production growth to Q4/22

The EIA STEO had immaterial revisions to US oil production for 2021 and 2022 with assumed prices also staying relatively flat vs last month's STEO. (i) The EIA forecast slightly lowered its US crude expectations for 2021, mainly due to a Q1/21 revision, and still not returning anywhere near the Q4/19 peak of 12.78 mmb/d, with Q4/21 US crude of 11.34 mmb/d (down 1.44 mmb/d from peak). Q4/21 of 11.35 mmb/d is +0.44 mmb/d YoY vs Q4/20. Full year 2020 US oil production was kept flat at 11.31 mmb/d and is down 0.94 mmb/d YoY from 12.25 mmb/d in 2019. (ii) Full year 2021 is decreased by 0.02 mmb/d vs Apr STEO to 11.02 mmb/d, which is down 0.29 mmb/d YoY from 2020. (iv) The EIA forecasts a shift back to YoY growth in 2022 with production averaging 11.84 mmb/d, +0.82 mmb/d YoY (was 11.86 mmb/d previously), with Q4/22 production of 12.21 mmb/d, ie still down 0.57 mmb/d from Q4/19. (v) The EIA noted that at the current oil price level, they expect activity levels to offset declines, the EIA wrote “Because the average price of West Texas Intermediate crude oil remains above \$55/b in our forecast, we expect producers will drill and complete enough wells in the coming months to offset declines at existing wells. In addition, new projects in the Federal Offshore Gulf of Mexico contribute to rising production in the forecast”. Note the EIA does not provide any views on how it views each play ie. Bakken vs Permian vs Eagle Ford.

EIA forecasts US oil exit in 2022 at 12.21 mmb/d

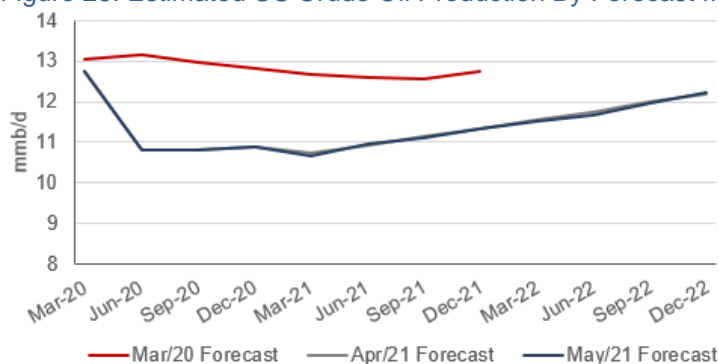
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Figure 24: Estimated US Crude Oil Production By Forecast Month

(million b/d)	Q1/19	Q2/19	Q3/19	Q4/19	2019	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
May 2021	11.83	12.13	12.24	12.78	12.25	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	11.83	12.13	12.24	12.78	12.25	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	11.83	12.13	12.24	12.78	12.25	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	11.83	12.13	12.24	12.78	12.25	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	11.83	12.13	12.24	12.78	12.25	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	11.83	12.13	12.24	12.78	12.25	12.75	10.81	10.80	10.99	11.34	11.02	11.00	11.09	11.29	11.10					
Nov 2020	11.83	12.13	12.24	12.78	12.25	12.75	10.81	10.93	11.07	11.39	11.06	10.97	11.08	11.28	11.10					
Oct 2020	11.83	12.13	12.24	12.78	12.25	12.75	10.82	11.02	11.22	11.45	11.07	11.00	11.05	11.22	11.09					
Sept 2020	11.83	12.13	12.24	12.78	12.25	12.75	10.81	10.91	11.08	11.38	10.96	10.97	11.08	11.32	11.08					
Aug 2020	11.83	12.13	12.24	12.78	12.25	12.75	10.57	10.79	10.96	11.26	11.00	10.99	11.16	11.40	11.14					
July 2020	11.81	12.1	12.23	12.78	12.23	12.74	11.41	11.29	11.10	11.63	11.02	10.93	10.97	11.13	11.01					
June 2020	11.81	12.10	12.23	12.78	12.23	12.74	11.65	11.13	10.74	11.56	10.71	10.83	10.80	11.02	10.84					
May 2020	11.81	12.10	12.23	12.78	12.23	12.81	11.78	11.23	10.93	11.69	10.81	10.89	10.83	11.07	10.90					
Apr 2020	11.81	12.10	12.23	12.78	12.23	12.73	11.98	11.29	11.04	11.76	10.96	11.08	11.00	11.08	11.03					

Source: EIA, SAF

Figure 25: Estimated US Crude Oil Production By Forecast Month



Source: EIA, SAF

Oil –DAPL still waiting on judge’s ruling

We are still waiting to hear what the US District Court Judge decides on DAPL, but the expectation remains that a ruling should come down in May. This remains the critical decision for DAPL especially following the Thursday ruling at the US Appeals court level that rejected the DAPL request to put on hold its case while it would seek a US Supreme Court review. So the key remains with the US District Court ruling. Last week’s (May 9, 2021) Energy Tidbits memo noted the mgmt comments from Energy Transfer Q1 call Q&A that “*Yeah, this is Tom. Mason, we made a filing to kind of put us in line to go to Supreme Court, if we need to, we don’t really anticipate that will need to go that route just [ph]Burg is going to rule on the motion for injunction sometime in the near future, we expect a favorable results from that. And if that happens, then we continued to end of environmental impact statement preparation process that the core is working through and we just kind of business as usual, we’ll continued to operate the pipeline in continue to work through the EIS process. I don’t. The Supreme Court route is probably not something that’s top of our list.*” DAPL has a 570,000 b/d capacity.

Still waiting on judge’s DAPL ruling

Oil – Colonial says normal operations but still several days for supply chain normal

The reports were consistent that Colonial Pipeline paid ~\$5mm in crypto to be able to unlock the cyber attack, which allowed them to restart pipeline operations on Wed. Yesterday, morning, Colonial tweeted [\[LINK\]](#) “*As we previously reported, Colonial Pipeline initiated the restart of pipeline operations at approximately 5 p.m. ET on Wednesday, May 12. Since that time, we have returned the system to normal operations, delivering millions of gallons per hour to the markets we serve.*” The headlines have been consistent, especially from the politicians that want to put this behind them that Colonial is back to normal operations. We understand there is political messaging to reassure the public, but it doesn’t tell the story. Its

Colonial 2.5 mmb/d pipeline

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why we tweeted [\[LINK\]](#) “Reminder normal means two things. #ColonialPipeline says system is back to normal operations. But will take several days for the product delivery supply chain to return to normal, and intermittent service interruptions during this period. #OOTT #Gasoline”. Colonial’s Sat morning tweet had an attachment that said “following this restart, it will take several days for the product delivery supply chain to return to normal. Some markets served by Colonial Pipeline may experience or continue to experience intermittent service interruptions during this start up period.” We will see how long the impact lasts until everything is truly back to normal. On the cyber, we [\[LINK\]](#) “Here’s why #ColonialPipeline knew they could make a Wed decision on moving to full restart. @Bloomberg reports paid nearly \$5mm in ransom. Recognize it now adds risk for more pipeline attacks, but @Colpipe caught between a rock and a hard place #OOTT” Our Supplemental Documents includes Colonial’s Sat morning tweet.

Figure 26: Colonial Pipeline System Map



Source: Colonial Pipeline

Takes 18-21 days for gasoline to get from Houston to New Jersey

As a reminder, it takes time for gasoline to transit from Pasadena (right beside Houston) to Linden, New Jersey. Last week’s (May 9, 2021) Energy Tidbits noted Colonial Pipeline’s estimate for how long it takes so we decided to tweet [\[LINK\]](#) “#ColonialPipeline 101 “When a gallon of gasoline is injected into Line 1 in Pasadena, it takes about 18 – 21 days traveling at a rate of four miles per hour to reach Linden, New Jersey.” Need to hear what they say about bpd’s to where and when. #OOTT”.

Oil – Bad time for an already shortage of US gasoline tank truck drivers

It was interesting to see how one of the main solutions to move gasoline after the Colonial Pipeline shut down was to just crank up the number of gasoline tank trucks on the road to move the gasoline. It sounded simple but there was a major capacity constraint. Its why we

Not enough tank truck drivers

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tweeted [\[LINK\]](#) “#ColonialPipeline. Challenge to get #Gasoline to needed areas - shortage of #Gasoline tank truck drivers. Prior to Colonial shut down, #SAFGroup's May 2 Energy Tidbits Memo highlighted #CNN @chrisidore report. #OOTT” Coincidentally, our May 2, 2021 Energy Tidbits highlighted this very shortage and how that was already putting out the risks for gasoline shortages this summer. Or as Energy Secretary Granholm calls it to make it sound better for those without gasoline, its not a gasoline shortage, it's a supply crunch. In our May 2 memo, we wrote “Potential US gasoline shortages in areas as US faces tank truck driver shortage. An aging pool of truck drivers is an issue facing all heavy duty trucking including oil and gas. It is not a new issue. Rather, our Apr 12, 2020 Energy Tidbits noted the issue that the Canadian truck drivers employment pool is aging significantly and that the upper age range makes up a significant portion of drivers. The aging truck driver pool issue has been exacerbated by Covid, as the older truck drivers see more significant risks associated with covid. This week we saw a good example of the lack of truck drivers in the US with CNN reporting on data from the National Tank Truck Carriers which estimates that 20-25% of tank trucks are sitting idle due to lack of drivers vs 10% in same time in 2019. Which could result in a gasoline shortage for filling stations across the US. CNN wrote ““We've been dealing with a driver shortage for a while, but the pandemic took that issue and metastasized it,” said Ryan Strebrow, the executive vice president of the NTTCC. “It certainly has grown exponentially”. The main reasons should not be a surprise, with many leaving as gasoline demand plummeted along with older drivers but there were some other contributing factors. One included the lack of new drivers coming into the space as driving schools were shutdown during the lockdowns in addition to a new federal clearinghouse that began in Jan 2020 “to identify truck drivers with prior drug or alcohol violations or failed drug tests, which knocked about 40,000 to 60,000 total drivers out of the national employment pool”. This driver shortage will result in higher pay for the drivers, increasing overall trucking costs. Our Supplemental Documents package includes the CNN report. [\[LINK\]](#)”

Oil – Barging oil & products on Mississippi halted on Tues, reopened on Friday

On Tuesday, the Tennessee Department of Transportation (TDOT) that the Interstate 40 Hernando DeSoto bridge over the Mississippi River would require immediate shut down as a crack was found in the bottom side of the bridge truss [\[LINK\]](#). The bridge was shut down for road traffic, along with any river traffic. The initial shut down release did not have any ETA for a reopening to river traffic. The Associated Press had also reported on this on Thursday and wrote “River traffic was also shut down in the Memphis area until further notice, the Tennessee Department of Transportation said. The U.S. Coast Guard said 16 tug boats hauling more than 220 barges were waiting in line Wednesday. At least four tugs attached to barges sat idle Wednesday near a boat ramp at Meeman-Shelby Forest State Park, about 20 miles (32 kilometers) north of the bridge”. Initial comments from the chief engineer of TDOT indicated that marine traffic would not be able to resume until it was determined if the bridge could hold its own weight. AP wrote “Pinpointing those factors could take days, and the repairs could last much longer, Degges said. “Certainly, it's plausible that this could be months rather than weeks,” Degges said during a news conference”. Early Friday, Bloomberg reported that the traffic jam of barges reached 771 on Thursday as the river traffic remained shut. Bloomberg wrote “At the spot where the river is closed, 26 vessels with 430 barges are waiting to pass north and 21 vessels with 341 barges are in the queue to go south”. Up from 411 barges on Wednesday with the backup containing barges carrying crude, crops and other materials. But later Friday morning, the TDOT announced [\[LINK\]](#) that the US Coast Gurad opened the River to traffic passing under the bridge at 9 AM CDT upon completing analysis which showed no indication the bridge was continuing to deteriorate. The bridge remains closed to vehicle traffic. For context, according to the EIA [\[LINK\]](#) a typical river barge can hold up to 30,000 barrels and usually two or three are tied together in

Mississippi river traffic restarted on Friday

a single tow carrying 20,000 to 90,000 barrels. On Thursday, we tweeted [\[LINK\]](#) on US PADD 3 (Gulf Coast) receipts of petroleum products and crude oil (majority of volume being petroleum products) from PADD 2 by tanker/barge has been averaging ~100,000 b/d [\[LINK\]](#).

Oil – Kansas City Southern to accept CN’s \$33.6bn “superior proposal”

On Thursday, round two in the battle for Kansas City Southern ended up with CN winning when KCS announced [\[LINK\]](#) “Kansas City Southern Receives Revised Proposal from Canadian National Railway That Board of Directors Determines is a “Company Superior Proposal”. This effectively tops the original offer (see our March 21, 2021 Energy Tidbits) for a CP Rail/KCS merger, at least for now. There are still 3 more days for CP to increase their offer. The KCS release said “KCS has notified CP that it intends to terminate KCS’s merger agreement with CP and enter into the definitive agreement with CN, subject to CP’s right to negotiate amendments to the merger agreement for at least five business days and the KCS board’s further determination as to whether any such amendments would cause the CN proposal no longer to constitute a “Company Superior Proposal.” Yesterday morning, we were checking the KCS website for any updates (there were none and none this morning as of our 7am MT news cut off). And it was interesting to see the KCS website note the release of the CN proposal but still more prominently feature the CP/KCS merger. So we tweeted [\[LINK\]](#) “#KansasCitySouthern may have accepted #CNRail superior bid on Thurs but, based on their their home page <https://kcsouthern.com/en-us/>, feels like some there hope #CPRail comes back in over the top to ultimately win the day. #OTT”. Below is a map of the original CP/KCS combination route and a map of the proposed KCS/CN combination.

KCS accepts CN’s superior proposal

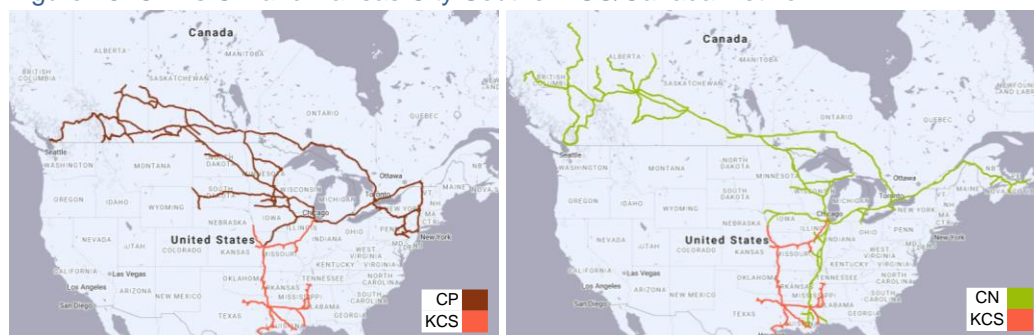
Figure 27: CP and Kansas City Southern Rail Networks



Source: CP

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Figure 28: CP vs CN and Kansas City Southern US/Canada Network



Source: North American Crude by Rail Map

Oil – Did Whitmer’s op-ed signal setting the stage for a Line 5 loss?

The Michigan ordered 180-day period to cease pumping oil thru its Line 5 came and went on Wed May 12 with oil, propane and other products continuing to flow. (i) On Wed, Enbridge said “Enbridge will continue to deliver via Line 5 safe, reliable and affordable energy to fuel the region’s economies.” This was not a surprise. Last week’s (May 9, 2021) Energy Tidbits noted Enbridge’s Q1 call comments “And just to reiterate, we intend to continue to operate the line and certainly we’re in compliance with the easement and the law. Cinza has validated the safety of the line and both the court and the state have agreed with that as recently as last year. Courts are reviewing the state’s challenge to the pipeline and that’s going to take a while. So no decisions in our view are imminent.” (ii) Recall that this all started with when Michigan filed a lawsuit that it was revoking and terminating the 1953 easement for Line 5. At that time, Gov Whitmer’s office released stated “Moreover, the state is terminating the easement based on Enbridge’s persistent and incurable violations of the easement’s terms and conditions.” (iii) On Tues, Gov Whitmer’s letter to Enbridge warned that the continued operation of Line 5 “constitutes an intentional trespass” and “If the state prevails in the underlying litigation, Enbridge will face the prospect of having to disgorge to the state all profits it derives from its wrongful use of the easement lands following that date.” (iv) On Friday, Whitmer wrote an op-ed in the Washington Post “Why I’m trying to shut down an underwater oil pipeline that threatens the Great Lakes” [\[LINK\]](#). The tone and message was as expected. But there were two items that we didn’t expect and we have to wonder if Whitmer setting the stage for a loss in shutting down Line 5. Its why we tweeted [\[LINK\]](#) “#GretchenWhitmer op-ed why trying to shut down #Line5. Hmmm, didn’t mention MI key claim of “persistent and incurable violations of the easement’s terms and conditions” but did say #Enbridge “may end up running a new pipeline elsewhere”. #OOTT #Oil.” We would have thought her op-ed would have linked to the lawsuit as to why they were revoking the easement – their view of persistent and incurable violations of the easement. Enbridge repeatedly said they weren’t in violation of the easement. And we were surprised that she included the comment that Enbridge may end up running a new pipeline elsewhere and then followed on that it would take a few years and that Enbridge was investigating a tunnel. These two surprises, at least to us, in this op-ed seemed like it was setting the stage for a loss. Our Supplemental Documents package includes the Whitmer op-ed

**Is Whitmer
expecting to
lose on Line 5?**

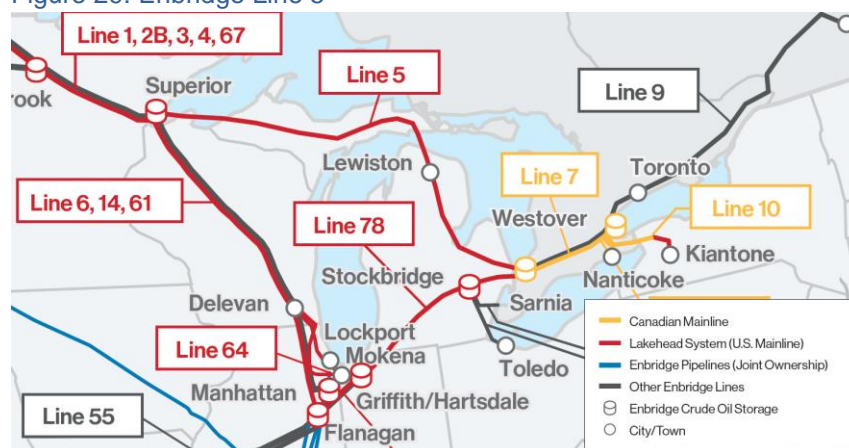
Who, Where, What gets impacted by a Line 5 shut down

For the past 11 months, we have included the reminder on who gets hit by a Line 5 shut down. We first tweeted on June 19, 2020 [\[LINK\]](#) on the impact “A weekend must read, Enbridge “impact of a Line 5 shutdown” is excellent recap of who, where, what

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gets hit by Line 5 shut down.” It includes tidbits such as “Line 5 supplies 65% of propane demand in Michigan’s Upper Peninsula, and 55% of Michigan’s statewide propane needs.” There would also be a big impact on refineries to the east “Refineries served by Enbridge in Michigan, Ohio, Pennsylvania, Ontario and Quebec would receive approximately 45% less crude from Enbridge than their current demand.” There was a good map that shows how Line 5 fits into other Enbridge pipelines delivering oil to places like Imperial’s Sarnia and Nanticoke refineries in Ontario. Our Supplemental Documents package includes the “impact of a line 5 shutdown” brief. [\[LINK\]](#)

Figure 29: Enbridge Line 5



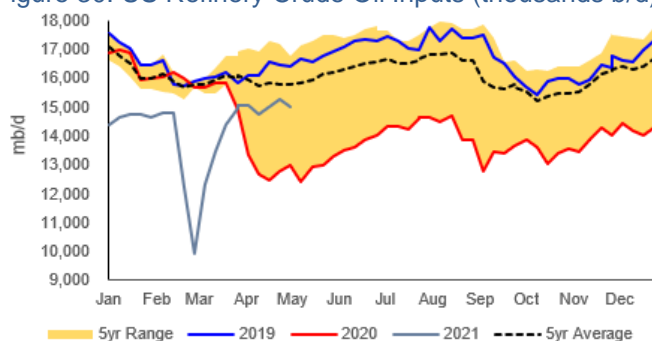
Source: Enbridge

Oil – Refinery inputs -0.223 mmb/d YoY to 15.020 mmb/d

Please note that there will be some unpredictable refinery data next week due to the Colonial Pipeline shut down. Colonial Pipeline moves gasoline, jet fuel and other products from Pasadena (Texas) to the eastern US. Crude inputs to refineries were down this week and were -0.223 mmb/d to 15.020 mmb/d, and are +2.637 mmb/d YoY. Refinery utilization was down 0.4% this week, being 86.1%, which is +18.2% YoY. Gulf refiners processed less oil this week most likely due to some outages, including Marathon Garyville, which took 180,000 b/d offline on May 5. Total products supplied (ie. demand) decreased this week, with a 2.208 mmb/d decrease to 17.483 mmb/d, and motor gasoline supplied was down slightly being -0.064 mmb/d to 8.800 mmb/d. Gasoline consumption in the US is expected to rise, with the EIA writing in their 2021 Summer Fuels Outlook [\[LINK\]](#) “We forecast that gasoline consumption in 2021 will peak in August at 9.1 million b/d, which is up from 8.5 million b/d in August 2020 but down from the 9.8 million b/d in August 2019. We forecast that 2021 summertime gasoline consumption will average almost 8.8 million b/d, a 1.0 million b/d (13%) increase from 2020 but a 0.7 million b/d (7%) decrease from summer 2019”. Below is our graph of crude inputs to US refineries and our graph of US motor gasoline supplied.

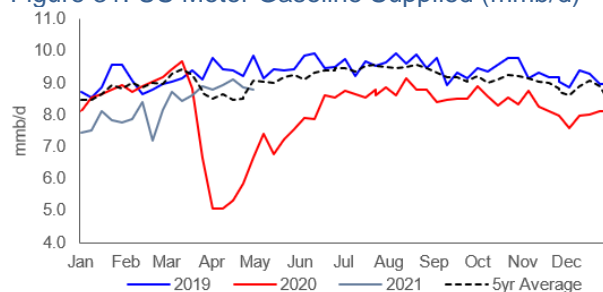
Refinery crude oil input still below 5 yr avg

Figure 30: US Refinery Crude Oil Inputs (thousands b/d)



Source: EIA, SAF

Figure 31: US Motor Gasoline Supplied (mmb/d)



Source: EIA, SAF

Oil – Hopefully Covid outbreaks at oil sands has peaked

We are hopeful that the Covid outbreaks to hit the oil sands may have peaked this week. We have been highlighting how Covid has hit the oil sands and it was leading to delayed and extended turnarounds this spring from limited workforces especially during turnarounds that brings trades from across Canada. Fort McMurray, where all major oil sands facilities are situated around has been one of the hotspots in Alberta and Canada. And basically all of the major Fort McMurray oil sands properties have been hit by Covid outbreaks. The Regional Municipality of Wood Buffalo (including Fort McMurray) posts a Covid update twice a week. And the reports this week keep adding new outbreak areas within the oil sands. The May 10 update added three more oil sands lodges, Civeo Beaver River Lodge, Wapasu Creek Lodge and Civeo Athabasca. The update on Thursday, May 13 did not include any additional outbreaks at oil sands facilities and removed Civeo Beaver River Lodge. That's the first decline we have seen of late and is why we tweeted [\[LINK\]](#) "Finally, a decline in #OilSands facilities hit by Covid. its only one less, but Civeo Beaver River Lodge was removed from outbreak list. Hopefully its a sign that the peak has passed. #OTT" The Wood Buffalo May 13 Covid update is attached. [\[LINK\]](#).

Oil sands hit hard by covid outbreaks

Oil – Regina's Co-op refinery also hit by covid outbreak during turnarounds

This week, we saw another Cdn refinery turnaround hit by a Covid outbreak. On Thursday, CBC reported [\[LINK\]](#) that Regina's Co-op Refinery is dealing with a COVID-19 outbreak amidst their yearly maintenance. According to a spokesperson, there have been a total of 20 cases since the end of March half of which were not considered worker-worker transmission. The covid cases have not yet been reported to have effected operations of the complex. The most recent outbreak was isolated to 2 on-site contractor companies. The turnaround is

Covid outbreak at Co-op Refinery Complex

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~80% done, and the number of on site workers is beginning to wind down as the process nears completion. The reality is that an outbreak will cause delays and lead to an extended turnaround but, it shouldn't be too bad a hit as the turnaround is almost completed. Our Supplemental Documents includes the CBC report.

Oil – US “net” oil imports up 1.662 mmb/d to 0.322 mmb/d

US “NET” imports were up 1.662 mmb/d to 0.322 mmb/d for the May 7 week. US imports were up 0.037 mmb/d to 5.488 mmb/d. US exports were down big, being -2.326 mmb/d to 1.796 mmb/d. Crude exports are down big this week and are the lowest since 2018, and that decline was the largest on record. One thing to note is gasoline exports are at a 1.5 yr high, at just under 1.0 mmb/d. The flow has been supported by increasing demand in Mexico. The WoW increase in US oil imports was driven by increases from Iraq and Others. Some items to note on the by country data. (i) Canada was down this week, and was -0.308 mmb/d to 2.924 mmb/d for the May 7 week, which is now ~0.780 mmb/d below the average levels in Jan/Feb of 2020. Also note that PADD 2 imports were also down, being -0.170 mmb/d and Canada is almost all of this market. (ii) Saudi Arabia was up 46,000 b/d to 0.224 mmb/d this week. (iii) Colombia down 29,000 b/d to 0.278 mmb/d this week. (iv) Ecuador was down 61,000 b/d to 257,000 b/d. (v) Iraq was up 194,000 b/d to 235,000 b/d. (v) Venezuela remained at 0 due to US sanctions. (vi) Mexico decreased 33,000 b/d to 0.434 mmb/d.

**US “net” oil imports
+1.662 mmb/d
WoW**

Figure 32: US Weekly Preliminary Oil Imports By Major Countries

	Mar 12/21	Mar 19/21	Mar 26/21	Apr 02/21	Apr 09/21	Apr 16/21	Apr 23/21	Apr 30/21	May 07/21	WoW
Canada	3,448	3,418	3,666	3,414	3,367	2,901	3,492	3,232	2,924	-308
Saudi Arabia	308	280	345	258	181	358	480	178	224	46
Venezuela	0	0	0	0	0	0	0	0	0	0
Mexico	278	618	494	635	739	451	608	467	434	-33
Colombia	0	92	122	258	209	111	294	307	278	-29
Iraq	165	105	88	245	223	34	270	41	235	194
Ecuador	127	132	247	284	295	172	225	318	257	-61
Nigeria	44	161	86	161	129	71	119	95	157	62
Kuwait	0	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0	0
Top 10	4,370	4,806	5,048	5,255	5,143	4,098	5,488	4,638	4,509	-129
Others	953	816	1,097	1,009	709	1,307	1,128	813	979	166
Total US	5,323	5,622	6,145	6,264	5,852	5,405	6,616	5,451	5,488	37

Source: EIA, SAF

Oil – Pemex shuts down 1 of 2 single buoy moorings at Dos Bocas export terminal

The Enbridge Line 5 May 12 deadline day dominated Cdn oil markets focus this week and that meant a story with positive implications to Cdn heavy and medium oil was overlooked. Its why, on Wednesday, we tweeted [\[LINK\]](#) “Positive for Cdn heavy/medium #Oil this summer. @lkassai reports 1 of 2 single buoy moorings at #Pemex oil export terminal Dos Bocas shut May 4 for repairs for ~4 mths, has to have some impact on exports. Dos Bocas was top export offshore terminal at 38% of 2020 exports. #OOTT.” Less Mexico loading capacity should reduce Mexico oil exports, which should provide positive support for Cdn heavy and medium oil. On Wednesday, Bloomberg report that Pemex has shut down 1 out of their 2 single buoy moorings at the Dos Bocas oil-exporting terminal for repairs. The single buoy mooring is expected to be offline for 4 months, with repairs finishing by September. This shutdown will likely be noticeable in Mexico export numbers as Dos Bocas is the top oil exporting offshore terminal in Mexico and accounted for 38% of Mexico's crude exports in 2020. Our Supplemental Documents package includes the Bloomberg report.

Pemex shuts down 1/2 single buoy moorings at Dos Bocas oil-exporting terminal

Oil – Pemex reminds of increasing refinery throughput

Pemex released their first investor presentation, aside from Q1 reporting, since Jan on Wednesday [LINK](#). It is a 47-page deck, but we were surprised that Pemex did not include any updates or progress on their 2021 forecasts. However, they did highlight a key item – increasing crude throughput in refineries. Refinery Throughput reached 0.823 mmb/d in March and is up 120,000 b/d since Jan 2021 of 0.703 mmb/d and average 0.747 for Q1/21. While this is quite a rapid MoM improvement, it is still quite far off Pemex's forecast for refinery throughput to average 1.114 mmb/d in 2021. This is AMLO's key priority to process more Mexico crude and cut out imports of gasoline and diesel. If successful, it also means cutting out Mexico oil exports. A big positive for Cdn heavy crude producers. Pemex also included a split of throughput volumes for light and heavy crude with heavy crude processing averaging 0.355 mmb/d in Q1/21. Pemex had also noted that their production has declined 51% since the peak of 3.383 mb/d in 2004 to an average of 1.725 mmb/d in 2020. And with Pemex crude production still near historic lows and little opportunities to meaningfully increase production, that means that any incremental refinery throughput volumes, even if not up to the forecasted pace, will be taking out export volumes.

New Pemex investor deck

Figure 33: Pemex Crude Inputs To Refineries

(Thousand b/d)	2012	2013	2014	2015	2016	2017	2018	2019	19/18	2020	20/19	2021	21/20
Jan	1,217	1,253	1,194	1,022	1,079	916	594	507	-14.7%	558	10.0%	703	26.0%
Feb	1,214	1,234	1,102	1,054	1,068	930	544	601	10.5%	464	-22.8%	710	53.0%
Mar	1,154	1,222	1,194	1,096	1,096	995	652	572	-12.2%	599	4.7%	823	37.4%
Apr	1,258	1,295	1,232	1,063	1,037	978	767	570	-25.6%	670	17.4%		
May	1,252	1,300	1,168	1,068	1,008	916	685	570	-16.8%	640	12.3%		
June	1,245	1,298	1,197	1,043	1,018	820	662	645	-2.6%	584	-9.5%		
July	1,215	1,270	1,208	1,068	929	667	646	657	1.7%	520	-20.8%		
Aug	1,187	1,233	1,147	1,057	849	734	670	659	-1.6%	616	-6.4%		
Sept	1,096	1,085	1,180	1,058	766	537	604	654	8.2%	680	4.0%		
Oct	1,102	1,070	1,086	1,061	802	544	485	511	5.3%	589	15.2%		
Nov	1,174	1,197	1,079	1,057	780	610	519	590	13.7%	509	-13.7%		
Dec	1,277	1,231	1,073	1,124	769	569	511	571	11.8%	653	14.3%		

Source: Pemex - May 12 Investor Presentation

Oil – OPEC MOMR increases to H2/21 demand, decreased H1/21 demand

OPEC released its Monthly Oil Market Report on Tues. The overall takeaway of the new May MOMR is basically neutral. The demand recovery was pushed back and OPEC assumes a bigger catch up later in 2021. Demand for 2021 is unchanged, but the increase is more H2/21 oriented and OECD stocks are a little higher with the lower Q1 demand. (i) OPEC's May demand forecast vs April forecast in brackets. There was no change to 2020 lookback of 90.51 mmb/d. For 2021, there was no change to demand growth of +5.95 mmb/d. OPEC decreased Q1/21 by -0.14 mmb/d and Q2/21 by -0.30 mmb/d. The Q1/21 demand revision was driven by Americas down 0.30 mmb/d including US down 0.20 mmb/d. But OPEC sees stronger economic rebound than assumed last month for H2/21 with Q3/21 revised up +0.15 mmb/d and Q4/21 +0.29 mmb/d. QoQ ramp up remains strong with Q3/21 +3.11 mmb/d QoQ (+2.66) and Q4/21 +1.84 mmb/d (+1.70). Note Q4/21 of 99.45 mmb/d is still below Q4/19 of 100.79 mmb/d. (ii) OPEC Apr production per "secondary sources" in total was up 26,000 b/d to 25.083 mmb/d, which is below the Bloomberg survey which showed production of 25.270 mmb/d and a MoM decrease. As expected Iran continues to increase at +73,000 b/d to 2.393 mmb/d. No surprise that Venezuela was -81,000 b/d MoM to 445,000 b/d given reports that Venezuela was shifting limited diluent to refineries for gasoline rather than blending for more heavy oil production. (iii) No change to non-OPEC supply for 2020 of 62.89 mmb/d, -2.52 mmb/d YoY. For 2021, growth was revised down -230,000 b/d for YoY growth of 700,000 b/d to average 63.60 mmb/d (was 63.83 previously). The US was revised down -0.23 mmb/d to 17.55 mmb/d, down 0.07 mmb/d YoY, reflecting the effect for the Feb freeze off. Immaterial revision to Brazil for 2021, only down 14,000 b/d vs Apr. This revision was due to mandated health procedures on platforms. OPEC forecasts Brazil +0.13 mmb/d

Flat 2021 OPEC demand forecast

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YoY to 3.81 mmb/d. (iv) On stocks, Mar stocks were higher than Feb. March OECD stocks were +10.0 mmb MoM to 2.973 mmb vs Feb of 2.963. This build increases the YoY surplus vs 5 yr average to +37.8 mmb vs 29.0 mmb last month and +73.0 mmb vs 2015-2019 average (was +57 mmb). Feb stocks were revised down 0.015 mmb from 2.978 mmb reported last month. (v) Call on OPEC was unchanged for 2020 at 22.5 mmb/d and -6.8 mmb/d YoY. The call on OPEC for 2021 was revised upwards +0.2 mmb/d to 27.7 mmb/d, +5.2 mmb/d YoY. Our Supplemental Documents package includes excerpts from the OPEC MOMR.

Oil – IEA OMR, expecting a flip to undersupply in global market in June

The IEA released its monthly Oil Market Report for May on Wed. They only release very limited public info and Bloomberg only provided tables and reporting on some items rather than their normal detailed report. (i) The IEA's main messaging point for the May OMR is that they are positive on an oil market correction beginning in June, with an expectation for the market to flip from oversupplied in May to undersupplied in June. The IEA wrote *"Under the current OPEC+ production scenario, supplies won't rise fast enough to keep pace with the expected demand recovery. As vaccination rates rise and mobility restrictions ease, global oil demand is set to soar from 93.1 mb/d in 1Q21 to 99.6 mb/d by year-end"*. (ii) 2021 oil demand growth forecast was revised down 270,000 b/d to +5.4 mmb/d YoY to average 96.4 mmb/d. Like others, the IEA revised down Q1/21 demand with Europe -320,000 b/d, OECD Americas -515,000 b/d with overall Q1/21 dropping 0.6 mmb/d to 93.1 mmb/d. Revised down India Q2/21 demand by -630,000 b/d including May down 825,000 b/d MoM. IEA assumes adverse impact on India demand are over in Q2, which seems a bit optimistic. Global Q2/21 was revised down 500,000 b/d, Q3 was kept flat, and Q4 up 100,000 b/d. Oil demand doesn't get back to pre-covid levels during forecast period, Q4/21 forecast is 99.6 mmb/d, vs Q4/19 of 100.7 mmb/d. (iii) OPEC April production was down 0.70 mmb/d to 25.04 mmb/d. March was revised up 60,000 b/d, mainly due to a +50,000 b/d upward revision for Iran. Note it wasn't in this month's public IEA release or Bloomberg's reports but the April OMR noted the IEA view that the IEA saw 1.5 mmb/d of additional Iran barrels that could come on the market with a return to the JCPOA. (iv) Immaterial changes to their non-OPEC supply forecasts, IEA increased non-OPEC supply 2021 by 0.1 mmb/d to an average of 63.9 mmb/d, but Q4/21 was revised +0.2 mmb/d to 64.9 mmb/d. For Canada, the IEA wrote *"Canada leads non-OPEC+ with growth of 340 kb/d while the US is set to contract by a further 160 kb/d"*. Not a lot specific on Brazil, but still see growth. (v) Slight downgrade to refinery throughput with lower demand, but the IEA still sees a healthy ramp-up in volumes *"Global refinery throughput in 2021 has been revised lower on demand downgrades, newly announced temporary and permanent shutdowns and in anticipation of a strong hurricane season in the US. As downward revisions mostly affected 2Q21, we maintain our forecast of a strong ramp-up in refining activity in the next four months, with refinery runs expected to peak in August"*. (vi) For global stocks, the IEA wrote *"After nearly a year of robust supply restraint from OPEC+, bloated world oil inventories that built up during last year's Covid-19 demand shock have returned to more normal levels. During March, OECD industry oil stocks drew by 25 mb to 2 951 mb, reducing the overhang versus the five-year average to only 1.7 mb (and 36.9 mb above 2015-19). Stocks continued to fall in April"*. (vii) Special thanks to the Bloomberg team for their IEA OMR wrap stories. Our Supplemental Documents package includes the IEA release and Bloomberg terminal IEA wrap.

IEA sees undersupplied market beginning in June

Figure 34: IEA OMR Global Demand Forecast

mmb/d	2019	Q1/20	Q2/20	Q3/20	Q4/20	2020	20-19	Q1/21	Q2/21	Q3/21	Q4/21	2021	21-20
May 21	99.7	93.8	82.9	92.7	94.7	91.0	-8.7	93.1	94.6	98.3	99.6	96.4	5.4
Apr 21	99.7	93.7	82.9	92.6	94.7	91.0	-8.7	93.7	95.1	98.3	99.5	96.7	5.7
Mar 21	99.7	93.8	82.9	92.7	94.7	91.0	-8.7	93.9	95.0	97.8	99.2	96.5	5.5
Feb 21	99.6	93.8	82.9	92.7	94.7	91.0	-8.6	93.7	94.9	97.9	99.2	96.4	5.4
Jan 21	99.9	94.1	83.1	93.0	94.5	91.2	-8.7	94.1	95.2	98.1	99.0	96.6	5.4
Dec 20	99.9	94.1	83.1	93.0	94.7	91.2	-8.7	94.7	95.4	98.0	99.2	96.9	5.7
Nov 20	99.9	94.0	83.0	93.2	94.9	91.3	-8.6	94.9	95.8	98.4	99.1	97.1	5.8
Oct 20	99.9	94.1	83.0	93.6	96.1	91.7	-8.2	95.6	96.1	98.2	98.8	97.2	5.5
Sept 20	99.9	93.9	83.0	93.7	96.0	91.7	-8.2	95.6	95.8	98.2	98.9	97.1	5.4
Aug 20	99.9	94.1	83.2	93.8	96.7	91.9	-8.0	95.4	95.8	98.6	98.7	97.1	5.2
July 20	99.9	94.0	82.9	94.3	97.1	92.1	-7.8	95.5	96.2	99.0	98.9	97.4	5.3
June 20	99.9	93.9	81.4	94.6	96.9	91.7	-8.2	95.6	96.6	98.7	98.7	97.4	5.7
May 20	99.9	93.5	79.3	95.1	96.9	91.2	-8.7	-	-	-	-	-	-

Source: IEA, Bloomberg, Updated May 12, 2021

Source: IEA, SAF

Oil – JCPOA, will we get “the signal” this week for a deal or no deal?

Up until the last couple days, we have been thinking this week will be the week for “the signal” that a JCPOA deal will be done? What we don’t know is if or how the last two nights of major Israeli bombing on Hamas will impact the timing for Iran’s next steps on the JCPOA. Most believe May is the make or break month for a deal and there are only two weeks to the end of May. Iran Presidential election is June 18 and the expectation has been a deal has to be done well before June 18. We just had probably the quietest week on JCPOA chatter since the start of discussions. There didn’t seem to be many comments, which makes sense as there are really only two weeks to go to get to a deal. To date, all the chatter has been the same – movement to a deal but major issues were still to be resolved. It doesn’t mean there aren’t smaller issues, but we have to believe the silence means they are down to the make or break issues. The silence can’t last forever and, given there is only two weeks left in May, we expect to see “the signal” in the next week if there will be a deal. Given the timeline, we don’t expect to see either side break off talks, go home and say there is no way for a deal as a negotiating ploy as it would make it virtually impossible to repair and get to a deal in the next couple weeks. So we think the question is if we will get “the signal” that points to a deal getting done before we go to press on our May 23 Energy Tidbits? We recognize this isn’t being said by the experts. It just seems logical. There were a couple of interesting and not so coincidental (at least in our view) travel tidbits to note. On Friday, the US State Dept announced Blinken will be travelling to Iceland on May 19/20 to attend a ministerial meeting of Arctic council countries so would be available in Europe to potentially meet Zarif in the May 22/23 window. Last week, the reports came out that Zarif was travelling to Europe for meetings in various European countries, but without any firm schedule or length of trip. The first stop was Spain. And then yesterday, we found out another planned stop – Vienna. Vienna is the home city for OPEC but also the host for the JCPOA negotiations. However, the only reason we know of Vienna was that the reports came out that Zarif called off his trip to Vienna in response to Austria’s apparent support for Israel in the Hamas attacks. As of our 7am MT news cut off, we have not seen any reports if Zarif is returning to Tehran or lingering in Europe. It just seemed more than coincidental that both Blinken and Zarif would be in Europe and clearly a face-to-face would be a clear signal that the parties will be returning to the JCPOA.

Potential
JCPOA deal in
May?

Oil – BloombergNEF’s China oil markets monthly

We recommend BloombergNEF’s monthly reports to any Bloomberg terminal users. This week, BloombergNEF posted its China Oil Markets Monthly, which has a big focus on refinery data. On the China oil demand side, BloombergNEF wrote “*Road, domestic air travel and marine freight have recovered to pre-pandemic levels; international air travel still lags*”

BloombergNEF
on China oil
markets

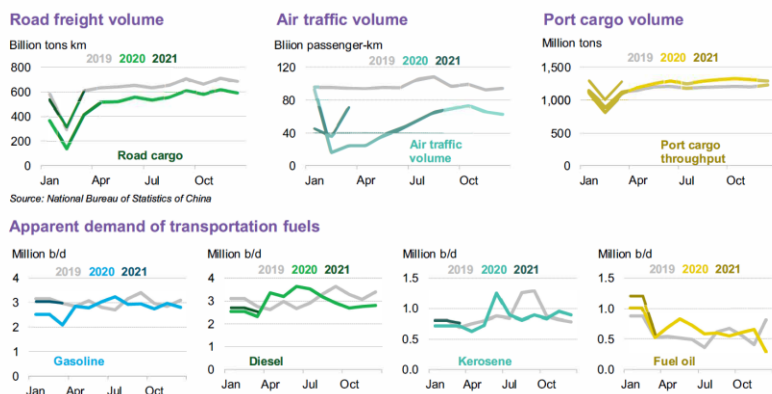
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and provided the below graph to support this view. BloombergNEF had some good insight on refineries noting “*May planned refinery outages remain 2.5 million barrels per day • Run rates for Shandong independent refineries headed lower, pushing up crude inventory • Chinese refiners see decline in diesel yields as middle distillates underperform light distillates and fuel oil*”. Our Supplemental Documents package includes excerpts from the monthly.

Figure 35: China Monthly Demand Indicators

Monthly demand indicators

Road and marine traffic rebound to pre-pandemic levels



Source: National Bureau of Statistics of China; Bloomberg Terminal, BloombergNEF. Note: Apparent demand is calculated by deducting net exports from production (apparent demand = production + import - export). China's statistical bureau reports a combined value for January and February in each year. The charts represent this as an even split between the two months for illustrative purposes.

4 China Oil Markets Monthly, May 2021 BloombergNEF

Source: BloombergNEF

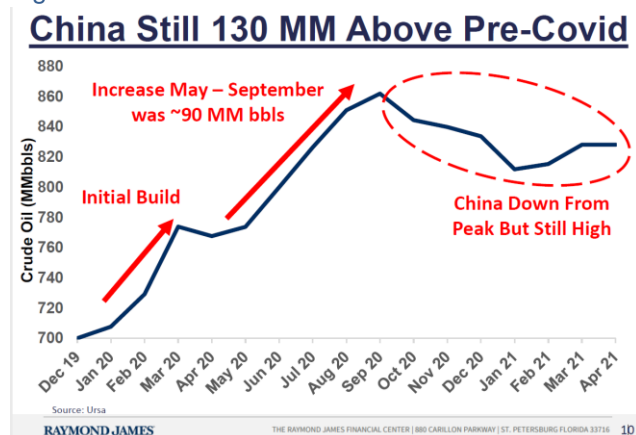
Oil – China must believe that post Covid oil supply will be less than expected

We keep reminding on our bullish view on Post-Covid Post-2022 oil – peak oil demand isn't likely until >2030 at the same time as peak oil supply is sooner because of substantial oil capital being redirected to renewables. We have been highlighting the underlying supply fundamentals since our Pre-Covid June 20, 2019 blog “*Exxon's Math Calls For Overall Global Oil Decline Rate of ~7%, A Very Bullish Argument For Post 2020 Oil Prices*”. This bullish for oil prices supply outlook was made even stronger by how much capital, since June 2019, has been redirected away from oil to renewables. On Friday, we attended the Raymond James Marshall Adkins oil outlook webcast “*2021/22 Oil Outlook: Fundamental Oil Outlook Is Still Much More Bullish Than Oil Futures Prices Suggest*”, which had numerous great oil insights. Adkins highlighted that global oil stocks have basically returned to pre-Covid levels everywhere around the world except for China, which is still 130 million barrels above pre-Covid levels. He said is the only one above normal and China has been hoarding a lot of commodities, and asked is this the new normal? His answer was “we'll see”. We suspect China will like his slide deck as his supply and demand slides support why their hoarding of oil might be more of a norm than a temporary surplus. Adkins highlights how the current global, not just OPEC, surplus capacity will be needed to meet the return of oil demand to Pre-Covid levels. And that by the end of 2022, all global surplus capacity today will be needed to meet demand. Our answer to his rhetorical question is absolutely makes sense that this would be a new normal for them. On Friday, we tweeted [\[LINK\]](#) “*China #Oil stocks only region not at pre-Covid level. @RaymondJames Marshall Adkins asks is this new normal? See Apr 29 tweet, makes sense like buying 1% of #Aramco. Post Covid #Oil looks strong with #PeakOil demand post 2030 & capex to renewables = peak oil supply sooner. #OOTT*”. Below is his China oil stocks slide.

China only region with high oil stocks

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Figure 36: China Oil Stocks



Source: Raymond James

Future oil supply risk is why China would build oil stocks & buy 1% of Aramco

Our tweet on Adkins China slide also referenced our April 29, 2021 tweet on why someone would buy 1% of Saudi Aramco is the same reason why China would have high oil inventory – they are concerned about the risk to future oil supply. That week, one of the headline grabbers was from the MBS interview that Saudi is in discussions to sell 1% of Saudi Aramco to a oil company. MBS didn't say an oil company but said *“that will be a great deal to enhance the sales of Aramco in the country where this company, I cannot mention the name but it's a huge company, if it will obtain 1 percent it will reinforce the industries of Aramco and it will promote that.”* Selling to a company that enhances the sales of Aramco sounds like an oil company. Dan Pickering (CEO of Pickering Energy) raised the question [\[LINK\]](#) on everyone's minds *“#EFT / Someone help me understand what a major oil company gets by buying 1% of Aramco. A strategic relationship? The right to overpay for other Aramco assets? ~\$19B could buy a lot windmills, even at today's inflated prices. Is it even a good beta call on crude? I don't get it.”* We tweeted [\[LINK\]](#) *“Maybe? China wants LT supply priority. doesn't see #PeakOilDemand soon. Covid demand crash masked challenge of increasing global oil declines so #PeakOilSupply coming in late 2020s & now sooner as #Oil capex shifts to renewables? or just a bad deal. enjoy @pickeringenergy work.”*

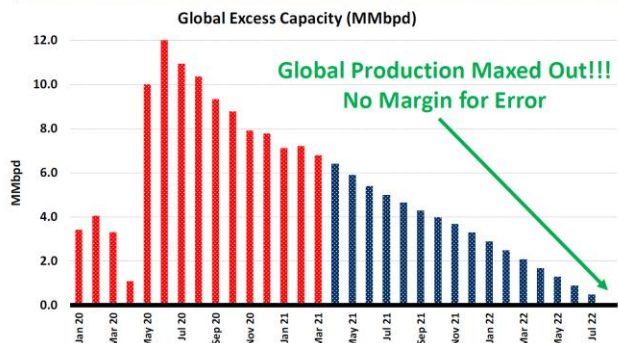
Oil – RJ sees all global oil spare supply capacity gone in H2/22

On Friday, we attended the Raymond James Marshall Adkins oil outlook webcast *“2021/22 Oil Outlook: Fundamental Oil Outlook Is Still Much More Bullish Than Oil Futures Prices Suggest”*, which had numerous great oil insights. Adkins avoided the debate of exactly when demand returns to pre-Covid levels, but highlighted his key long term view that peak oil demand doesn't come until after 2030. But the eye opening reminder from his presentation is that if demand returns to pre-Covid levels, he estimates all global spare supply capacity is gone before the end of 2022. This isn't just the voluntary cuts offline capacity by OPEC+, but all global spare capacity including a return of Iran barrels to the global market. Below are two of his key slide.

No global oil spare capacity in 2022?

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Figure 37: Global Excess Oil Capacity
Excess Oil Capacity Gone Mid-22!!!

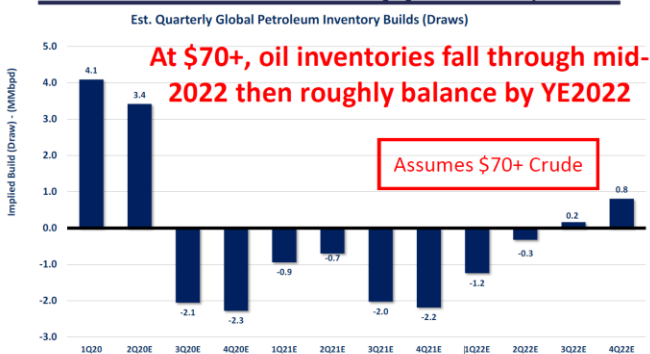


Source: Raymond James research

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Source: Raymond James

Figure 38: Quarterly Global Petroleum Inventory Builds
2021 Draws Still Happen at \$70+!



Source: IEA, Raymond James research

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Source: Raymond James

Oil – Vortexa floating storage +1.8% WoW, down 32% YoY

We continue to expect that India’s massive covid outbreak will reducing India oil imports an that this will likely lead to increasing floating oil storage cargoes. So we were not surprised when Bloomberg reported on Vortexa floating oil data that showed a WoW increase of 1.89 mmb or +1.8% WoW to 107.33 mmb on May 7 from 105.44 mmb on April 30. There was a 0.51 mmb downwards revision to the previous weeks data meaning the WoW increase vs the original would be 1.38 mmb. Floating storage is down 50.4% since the June 19, 2020 peak of 216.38 mmb. APAC, the region with the highest floating storage was up 8.8% WoW to 77.11 mmb, while the North Sea was down 100% WoW to 0, the lowest since September. Our Supplemental Documents package include the Bloomberg Vortexa report.

Vortexa floating storage

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Figure 39: Vortexa Global Floating Storage Level (5yr)



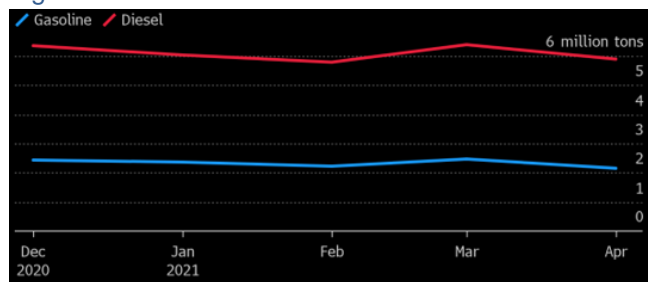
Source: Bloomberg, Vortexa

Oil – Bloomberg Oil Demand Monitor, Europe’s mobility has turned a corner

We recommend reading the weekly Bloomberg terminal Oil Demand Monitor for a good recap of key oil demand indicators around the world. India’s coronavirus outbreak continues to be the main detractor to global demand recovery as nearly all states are under some form of lockdown. As a result, diesel demand for the full month of April was 10% below 2019 levels and total oil products down was -7%. This resulted in a cut to JP’s forecast of India oil demand in May by 690,000 b/d and 400,000 b/d in June. Conversely, road fuel demand in Europe and Brazil has improved significantly since late April. Italy has rebounded sharply to its highest levels this year (-15.8%) and Brazil is showing levels surpassing the 2019 equivalent week. The UK’s vaccine roll-out has contributed to improving road fuel sales. On Friday, April 30, combined sales of gasoline and diesel reached new heights, exceeding last year’s summer vacation peak and reaching the heights levels since before the first lockdown in March 2020. In the US, passenger vehicle miles travelled were -6% vs 2019 for the week of May 2 while trucking VMTs were +9%. Our Supplemental Documents package includes the Bloomberg Oil Demand Monitor.

Bloomberg’s Oil Demand Monitor

Figure 40: India Fuel Sales



Source: Bloomberg

Oil – Air travel improvement MoM in March led by domestic flights in US and China

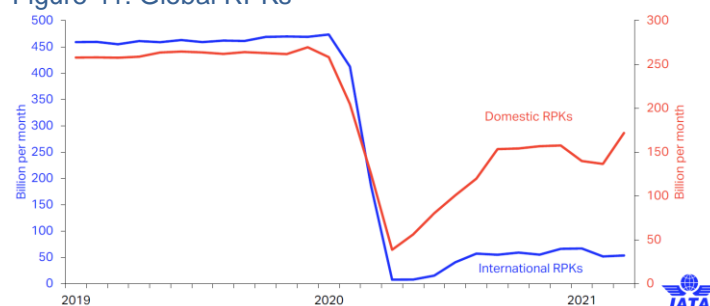
Last Tuesday, IATA posted its recap for March cargo and air travel markets [LINK](#). Similar to what we had seen in other indicators for the movement of good, like intermodal rail traffic, cargo flights/volumes had made a swift recovery post the onset of covid, and continue to do so with cargo tonne kms flown in March 2021 +4.4% above March 2019 volumes. Nearly all geographies are up vs Jan 2020 levels, with the exception of Latin America. Passenger traffic improved MoM from -74.9% in Feb 2021 vs Feb 2020. However, with many geographies still barring international travel and domestic restriction, passenger RPKs were

March global domestic RPKs -32.3% below March 2019

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still 67.2% below March 2019 levels. This is a key concept on the air travel recovery as the increasing numbers of passengers won't translate into the commensurate increase in jet fuel as long as the area being restricted/hurt the most is long haul international flights. If passengers are flying shorter distances, it means the RPKs (revenue passenger kilometres) are as high as if there was the normal blend of long haul international flights. Not surprisingly, this was led by domestic travel which improved to -32.3% in March 2021 vs March 2019 from a decline of 51.2% in February. The improving global domestic RPK level was mainly driven by the US and China which accounted for 55% of global RPKs in March. Additionally, initial looks at travel booking for May to July are indicating an improvement with one, two, and three month ahead bookings at the end of April improving vs bookings at the end of March. Our Supplemental Documents package includes the IATA cargo and passenger recaps for March.

Figure 41: Global RPKs



Source: IATA

Oil and Natural Gas – Q1 earnings what to do, and when, with higher cash flows?

Q1 reporting is essentially finished and, as usual, there was too much oil news in the last 3 days so I inevitably run out of time on Friday and Saturday to do all we planned on items like writing up Q1 calls that we have reviewed. But there is no change to what we see is the key takeaway from Q1 oil and gas reporting – cash flows were very strong due to prices and, certainly, well above 2022 budgets/plans. The challenge for all oil companies, especially the supermajors and US oil producers, is that they all had to come up with plans for investors on their new capital discipline ie. pay down debt, implement returns to shareholders via dividends/buybacks, etc. Basically commit to everything but plow the surplus cash flow back in the ground for E&P. Saudi led OPEC+ back to a major oil price correction and the big sellside oil analysts are now calling for \$70 oil. In the Q1 calls, mgmt teams are being careful to maintain their new capital discipline, but we expect to see that loosened, albeit gradually, with continued strong prices. What this means is that we are only likely to see smaller increases in E&P in 2021. However, we expect that we will see stronger E&P capex increases as companies look to 2022 budgets in the fall. This stronger view on oil and gas prices is also a reason we noted in our LNG blog as to why we expect to see brownfield LNG FIDs being looked at for approval going into the 2022 capex budgets.

Q1 oil cash flows are up

Electricity – NERC warns elevated summer risk TX, New England, MISO, high in CA

NERC will issue its summer electricity reliability assessment at the end of May. We suspect with Memorial Day being later this year, the NERC assessment will come in the last week of May. The summer assessment is effectively completed as NERC's Thursday's release "*Electric-Gas Interdependencies, Potential Summer Energy Shortfalls are Focus of Board Discussions*" [\[LINK\]](#) included a preview of the key electricity reliability regions this summer. NERC wrote "*The Board received a preview of NERC's 2021 Summer Reliability*

NERC warns on summer electricity risk

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Assessment, which is scheduled to be released at the end of the month. Based on predictions of above-normal temperatures throughout much of North America, the assessment warns of Regions where the risk of energy shortfalls during extreme conditions are elevated or high. Texas, New England and MISO are found to have “elevated risk.” Of greatest concern in the high-risk category is California, where up to 11 GW of additional transfers are expected to be needed in late afternoon to offset reduced solar output. This is in contrast to 1 GW of transfer needed on a normal peak day.” Our Supplemental Documents package includes the NERC release.

Energy Transition – Kerry, 50% of emissions cuts to come from future technology

We recognize that the Energy Transition is going to happen, but we just wish that the politicians would at least warn people that its going to take longer, be bumpy and be more expensive for energy. People have to understand the Energy Transition is not a plan, its an aspiration and governments do not know how it will be accomplished. No one expects them to have a 100% plan, but the reality is that, at best, they have a 50% plan. Could you imagine committing to any project delivery not know how 50% of the project will be accomplished? We say 50% at best because the reality is that politicians tend to overestimate the positive. This is what US Special Presidential Envoy for Climate said a month ago at the Biden global leaders climate summit – 50% of the planned emissions cuts will have to come from technologies not yet developed. Earlier this morning the Guardian reported [\[LINK\]](#) on Kerry’s comments in the UK. After seeing the Guardian report, we tweeted [\[LINK\]](#) “*#JohnKerry "I am told by scientists that 50% of the reductions we have to make to get to net zero are going to come from technologies that we don't yet have. That's just a reality". This means other reality is will need #NatGas #Oil for longer. #OTTT*” His comments on the reality check and that governments are setting real targets without knowing how it will accomplish is a reality check that the demise of natural gas and oil won’t be as fast as the Energy Transition aspirations. Our Supplemental Documents package includes the Guardian report.

Kerry on oil pipeline emissions

Energy Transition –Won’t matter but Kerry admits to pipeline advantages in emissions

One of the challenges for the oil and gas sector is that politicians won’t, unless forced publicly to do so, admit anything that is contrary to their anti fossil fuels stance. No one can dispute the Biden administration is anti fossil fuels especially oil pipelines ie. Keystone XL. It is too bad that they can’t rely on the science for energy like they are doing for Covid. It doesn’t make a difference to hear Kerry’s forced admission on oil pipelines at the House Foreign Affairs Committee meeting on Wed. Items in “*italics*” are the transcript of the exchange. Rep Darrell Issa (R) “*Isn’t it true that pipelines are more carbon-delivery efficient than trains or trucks or other forms of delivery? If you could answer just that limited question?*” Kerry “*Yeah, that is true. I think that is true, but it doesn’t mean necessarily you want to be adding another line when there are other alternatives. But is it better than train, and better than that, yes it is, in my judgement*” this week.

Kerry on oil pipeline emissions

Energy Transition – Toyota warns lack of charging infrastructure will hold back EVs

We have covered in various Energy Tidbits, most recently in our May 2, 2021 Energy Tidbits our view that that one of the biggest holdbacks for the rate of mass EV adoption is going to be the availability of charging station infrastructure. We had noted a Bloomberg report that reminded that EV charging stations are not profitable, so this begs the question of who will put in the capital to build them out in the necessary scale for wide adoption. It sounds like Toyota also has concerns on EV charging infrastructure worldwide and does not believe it will be near the expectations for the Energy Transition enthusiasts. On Wednesday we tweeted [\[LINK\]](#) on a WSJ story that noted Toyota is expecting most of its cars to be gasoline powered

Charging infrastructure is key hold back for EV adoption

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in 2030 [\[LINK\]](#). The WSJ wrote “The company projected that in 2030, slightly more than half of the vehicles it sells in North America would be hybrids, while around 30% would run on traditional gasoline engines and the remainder would be fully electric”. This leaves <20% of their vehicles being electric by 2030. The key here is the underlying reason for this assumption – lack of infrastructure. WSJ wrote “If you take a snapshot of 2030, the price of battery EVs and the provision of infrastructure around the globe probably won’t have advanced all that much,” said Toyota executive Jun Nagata at a news conference Wednesday. “Hybrids and plug-in hybrids will be easier for customers to buy”. This issue is perfectly exemplified by Toyota’s chief digital officer who said he would be an EV buyer as high apartment lacks the necessary charging infrastructure. We continue to view the charging infrastructure issue as the key hold back for EV adoption assumed in the Energy Transition. Our Supplemental Documents package includes the WSJ report.

Energy Transition – Vineyard Wind receives approval for 800 MW windfarm

Vineyard Wind, a JV between Avangrid Renewables and Copenhagen Infrastructure Partners received the Record of Decision on Tuesday from the US Department of the Interior Bureau of Ocean Energy Management, which was the final major step in the federal review process [\[LINK\]](#). This will be both the first national commercial scale offshore wind project in the US and one of the world’s largest of its kind. Vineyard Wind will reach financial close in H2 2021 and will start delivering energy by 2023. The project will be located 15 miles off the coast of Martha’s Vineyard and is set to produce 800 MW of electricity, which will power 400,000 homes and businesses in Massachusetts. It is estimated that Vineyard Wind will reduce carbon emissions by over 1.6mm tonnes per year. Our Supplemental Documents package includes the Vineyard Wind release.

Vineyard Wind to become first major offshore wind project in the US

Figure 42 – Map of Vineyard Wind



Source: Vineyard Wind

Energy Transition – JAPEX reminds CCS is needed to deliver net zero

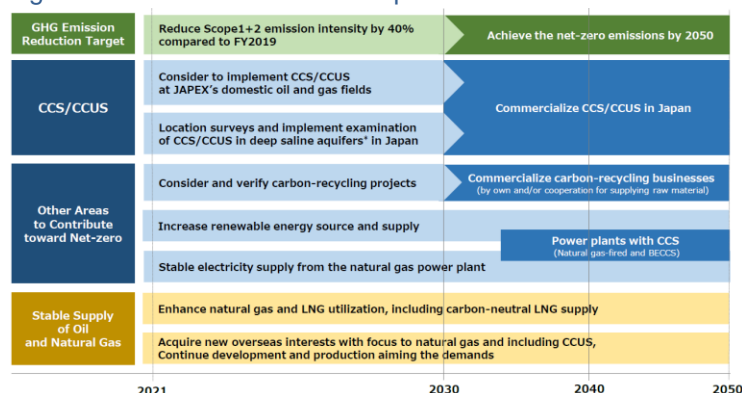
It didn’t get much attention but, on Thursday, JAPEX (Japan Petroleum Exploration Co) announced that they are selling their 10% interest in the North Montney Joint Venture in BC to project operator, Petronas [\[LINK\]](#). JAPEX made a point of noting they would still be investing in natural gas but, were selling the BC shale gas play. This is what got our attention

JAPEX roadmap for carbon neutrality

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especially when we went to the JAPEX website and see they separately posted their JAPEX2050 plan for its futures in a carbon neutral society. So how does selling natural gas but maybe buying natural gas help towards any future carbon neutral goal? JAPEX said the sale was part of JAPEX’s ongoing asset optimization efforts in addition to *“the structural changes by the new normal after the COVID-19 and accelerating the global decarbonization”*. The JAPEX2050 plan does not represent a move away from oil and gas development, rather recognizes the importance of natural gas in lowering emissions and winning in the demand category from fuel switching from coal and heavy oil. JAPEX wrote *“Recognize that oil and natural gas will remain as one of the major energy sources”* and *“Focus on the acquisition of oil and gas interests, as well as its development and production continuously”*. And the secret is that JAPEX sees the key factor to drive the 2030 to 2050 reduction in emissions is CCS. JAPEX is aiming to reach net zero emissions by 2050, with an interim goal of reducing scope 1 + 2 emissions by 40% by 2030 vs 2019 levels, with a key portion of these emission reductions coming from an increased focus on employing CCS. To get to net zero, JAPEX believes CCS is “the” essential factor needed. We describe it as what is needed to go the last mile, especially with the logical view that natural gas will continue to be needed to provide stable power. JAPEX wrote *“As a comprehensive energy company, aim to achieve a carbon-neutral society through the use of CCS/CCUS and other decarbonization technologies, rather than through a complete shift away from oil and natural gas”*. The JAPEX2050 plan summary graphic is pasted below. Our Supplemental Documents package includes excerpts from the JAPEX2050 presentation.

Figure 43: JAPEX 2050 Roadmap



Source: JAPEX

Oil – Personal mobility, looks like Covid uptick in UK cycling is not a lasting trend

On Thursday, the National Infrastructure Commission (NIC) of the UK released a good food for thought study *“Behaviour change and infrastructure beyond Covid-19”* [LINK]. The study is for infrastructure so looks at the long term to 2050 trends and our review was focused on transportation. Everyone knows what happened when Covid hit and lockdowns were put in place, transportation volumes crashed in every type of transportation other personal mobility ie. cycling. The purpose of the study is determine which behavioural changes are permanent and therefore important to consider in long term in infrastructure planning. There aren’t any real surprises in the UK long term 2050 view of public and private transportation – both are expected to be lower than pre-Covid from a variety of permanent behavioural changes such as remote working. This is for both public transit like trains, buses and private transit from cars. One interesting item that the UK does not consider a behavioural change is cycling. Something to think about as North American cities build out infrastructure on the basis of the

UK Study: Transportation to decrease post Covid

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continued ramp up in cycling. The NIC wrote “*Mobility restrictions have also prompted a surge in active travelling. Following the initial lockdown, cycling rates increased by approximately 50 to 100 per cent during most weeks of April and May 2020.*”²⁷ In the following months cycling uptake remained at slightly higher levels compared to pre pandemic, albeit lower compared to the initial surge. This suggests that the increased uptake observed may have been a short term impact.” This report would be a good read for governments as they look at infrastructure as we suspect the view of permanent vs temporary behavioural changes will be relatively similar in North America. Our Supplemental Documents package includes an excerpt from the study.

Capital Markets – JP Morgan’s carbon reduction targets for oil & gas and electricity

We know all banks are different and will take different approaches to emissions, but we saw a big difference in what a US bank like JP Morgan will require from energy companies vs a European bank. JP Morgan has come out with an approach that will push oil and gas and power companies to accelerate their emissions cuts. We described it in our tweet [\[LINK\]](#) as setting a stretch goal “*Is #JPMorgan trying to set stretch goals that can be achieved for its 2030 Carbon Reduction Targets by focusing on reducing "carbon intensity"? #Oil #Gas -35% in operational CI, work to address methane leakage, flaring.*” On Thursday, JP Morgan posted its “*JPMo”rgan Chase Releases Carbon Reduction Targets for Paris-Aligned Financing Commitment*” [\[LINK\]](#), which is its “*comprehensive steps it is taking in its efforts to align its financing activities with the climate goals of the Paris Agreement*”. This is their outline to their portfolio targets on how they will approach and what they expect of them to attract and retain JP Morgan support. We tweeted [\[LINK\]](#) on what we thought were the two key differences for oil & gas and electricity generators. JP Morgan’s target for oil and gas companies is based on a reduction in “carbon intensity” and not an absolute emissions targets. That is a significant difference for oil and gas. Their target for oil & gas is a “*2030 target: 35% reduction in operational carbon intensity, as well as a 15% reduction in end-use carbon intensity – reflecting a decrease in emissions from the combustion of oil & natural gas downstream and increase in renewable energy generation*”. Also working to address methane leakage and flaring is something already been done. JP Morgan also seems to infer that natural gas power will be needed and not believing Biden’s goal for all electricity to be carbon pollution-free generation by 2035 is not attainable. JP Morgan said “*the firm will work to accelerate the power sector’s shift to low- and zero-carbon sources*”. “Low” carbon isn’t consistent with no carbon. Oil and gas companies realize they will be pushed to reduce emissions, and have to be appreciative that JP Morgan is pushing them to do more. There was a good Bloomberg @TheTerminal report on the JP Morgan pledge that fit our concept of setting stretch goals. Bloomberg wrote “*Our targets reflect our view of how we think industries will need to continue to do more of what they’re doing but also do more to get on a path to reducing emissions,*” Marisa Buchanan, JPMorgan’s global head of sustainability, said in an interview. “*We will have the opportunity to potentially adjust the amount of financing we provide, depending on decisions we may make around the extent we feel like certain clients are on a viable pathway.*” Our Supplemental Documents package includes the JP Morgan release and Bloomberg report.

JP Morgan sets stretch targets for energy

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

@Energy_Tidbits on Twitter

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just retweeting other tweets. Rather we are trying to use Twitter for early views on energy items. Our Supplemental Documents package includes our tweets this week.

LinkedIn – Look for quick energy items from me on LinkedIn

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

Look for energy items on LinkedIn

Misc Facts and Figures.

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

Why didn't Buttigieg just say don't put gasoline in plastic garbage bags

We felt sorry for Transportation Secretary Buttigieg on Wednesday on having to remind Americans on what not to do for hoarding gasoline after the pictures of people going to gas stations and filling up plastic bags with gasoline. He had to remind Americans on what not to do. We suspect he might not have been able to keep a straight face if he said please do pump gasoline into plastic bag because it is dangerous. Rather, he said *"but hoarding does not make things better and under no circumstances should gasoline ever be put in anything but a vehicle directly or an approved container. And that remains true no matter what else is going on"*. However, the US Consumer Product Safety Commission was more direct and said *"do not fill plastic bags with gasoline"*.

Figure 44: Woman Filling Plastic Bag With Gasoline And Then Tying It Up



Source: YouTube

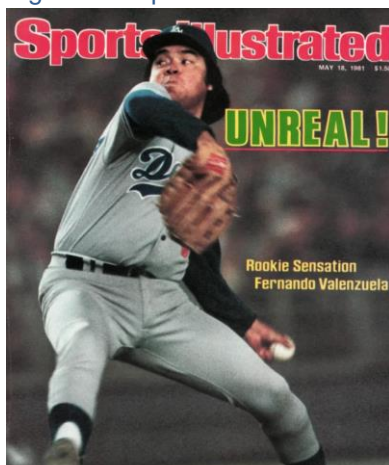
Fernandomania was the MLB story in 1981 until the mid season strike

Its amazing how many Energy Tidbits memo readers will note something to me on the misc items if they are on sports. Last week's memo noted the no hitters being thrown against the Cleveland Indians and the comments were MLB baseball just doesn't seem to have the same fan excitement or traction that it used to have in 70s, 80s, 90's and even early 2000s such as the attention on the McGwire/Sosa home run race in 1998. Another reader reminded of Fernandomania in 1981. And it just happened that it was 40 years that Fernando Valenzuela, as a rookie for the LA Dodgers, was on the cover of Sports Illustrated May 18, 1981. [\[LINK\]](#) He was a Sept call up in 1980, pitched 17+ innings of shut out ball. Was an opening day starter as a rookie and started 1981 at 8-0 with five shutouts and a 0.50 ERA. And that was the start of Fernandomania. Unfortunately, baseball fans will remember 1981 also for

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the mid season strike that wiped out about 1/3 of the games. Valenzuela wasn't as sharp after the strike but still led the Dodgers to the World Series victory going 3-1 in the post season.

Figure 45: Sports Illustrated Cover May 18, 1981



Source: SI

Shout out to Optimal Planning Solutions software used for NFL scheduling

Last minute addition to today's Energy Tidbits memo is linked to the NFL. As I was going to press, I had NFL Network on and the show was NFL Explained: Making of the Schedule. Last week, the big NFL news was on the new 17 game schedule. The show talks about how they did schedule in the old days by hand on a board. And then someone say they don't know they did it, today they use software from a Canadian company Optimal Planning Solutions". I didn't know this so flipped to their website [\[LINK\]](#) and see their software is used for scheduling of the NFL and MLB and other clients.