SAF GROUP

Energy Tidbits

June 27, 2021

Produced by: Dan Tsubouchi

Biden Either Doesn't Estimate or Won't Say How Many $ Trillions To Get US to Carbon Neutral

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. Granholm says the Biden administration doesn't have an estimate for how many $ trillions it will cost to get US to carbon neutral. (Click Here)

2. Biden looks to have lowered the bar for the potential removal of sanctions against Venezuela/Maduro. (Click Here)

3. Qatar warns underinvestment to cause a significant shortage of LNG in the 2025-2030 period. (Click Here)

4. Granholm's comments make us believe the sale of oil from Strategic Petroleum Reserve is more likely to raise $7b than $6b. (Click Here)

5. Rystad estimates US tight oil companies will generated 2021 $60b free cash flow (pre hedging) in 2021 (Click Here)

6. Please follow us on Twitter at [LINK] for breaking news that ultimately ends up in the weekly Energy Tidbits memo that doesn't get posted until Sunday noon MT.

7. For new readers to our Energy Tidbits and our blogs, you will need to sign up at our blog sign up to receive future Energy Tidbits memos. The sign up is available at [LINK].

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Natural Gas – Natural gas injection of 55 bcf, storage now -513 bcf YoY deficit

YoY storage at -513 bcf YoY deficit

The EIA reported a 55 bcf injection (vs 64 bcf injection expectations) for the June 18 week, which was below the 5-yr average injection of 65 bcf, and below last year's injection of 65 bcf. Storage is 2.482 tcf as of June 18, increasing the YoY deficit to 513 bcf from 453 bcf last week and storage is 10 bcf below the 5 year average vs 71 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]

Figure 1: US Natural Gas Storage

	Stocks billion cubic feet (Bcf)				Historical Comparisons: Year ago (06/18/20)		Historical Comparisons: 5-year average (2016-20)	
Region	06/18/21	06/11/21	net change	implied flow	Bcf	% change	Bcf	% change
East	488	461	27	27	614	-20.5	530	-7.9
Midwest	595	570	25	25	712	-16.4	607	-2.0
Mountain	169	165	4	4	164	3.0	159	6.3
Pacific	239	236	3	3	298	-19.8	277	-13.7
South Central	991	995	-4	-4	1,206	-17.8	1,063	-6.8
Salt	295	299	-4	-4	370	-20.3	319	-7.5
Nonsalt	697	696	1	1	836	-16.6	744	-6.3
Total	2,482	2,427	55	55	2,995	-17.1	2,636	-5.8

Source: EIA

Natural Gas – Good US LNG insights from Rystad blog

US LNG insights from Rystad

We are fortunate that, in today's information world, there is public access to quality global analysts at places like RBN, Rystad and Wood Mackenzie, who dig in and provide data and insight to the energy call. This week, we noted a few insights from a good Rystad release "*Supplying Asia with LNG got much costlier for the US, but strong demand brings export records*" [LINK]. (i) Rystad notes that increasing transportation costs are impacting all LNG tanker deliveries, including US LNG. Rystad notes "*Meanwhile, the high transportation costs also affect producers located closer to Asia. For instance, the average cost of transporting Qatari LNG to Tokyo, Japan, has increased to $0.90 per MMBtu in 2021 from about $0.75 per MMBtu in 2020. By comparison, delivery of US LNG to Tokyo has seen an increase in voyage costs to about $1.90 per MMBtu in 2021 from $1.45 last year (already included in the US SRMC).*" (ii) US LNG is still the most expensive LNG. "*Rystad Energy estimates that the short-run marginal cost (SRMC) of US LNG exports to the Asian market has risen to about $5.60 per MMBtu as of June 2021, up 65% from $3.4 per MMBtu in mid-2020 and 30% higher than last year's average of $4.30 per MMBtu. The SRMCs of currently operational liquefaction projects globally have risen this year due to a jump in transportation costs for LNG, driven by higher charter rates and fuel costs. On top of that, costs in the US have also been boosted by a recovery in domestic gas prices. Despite the lower SRMC of LNG to Asia last year, the US was still the most expensive supplier globally*." (iii) Please note one other item they raise that is overlooked in the comparison of LNG export project supply costs is that some LNG projects are not just the LNG liquefaction export facility. Rather there are some LNG projects, like Qatar, that are "integrated LNG projects" where the LNG liquefaction export facility is part of a bigger project like including source natural gas. Rystad writes "*The SRMC of liquefaction projects is not the only important price increase to influence the LNG market of late. If pre-tax liquids revenue is accounted for, many integrated LNG projects have seen improved competitiveness during 2021 thanks to higher oil prices. Pre-tax liquids revenue is calculated as the pre-tax revenue from oil activity for the upstream assets that feed LNG plants, divided by LNG production. In that way, the variable cost of LNG can be*

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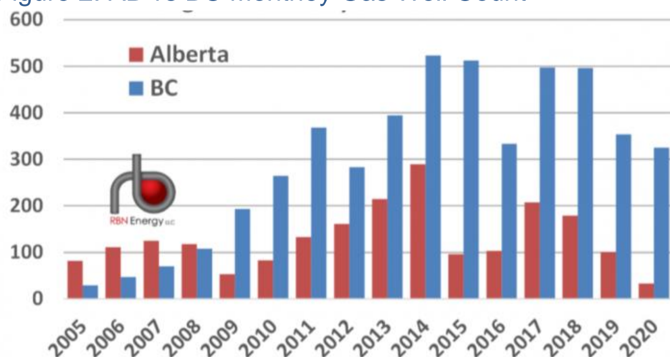
*offset by oil production revenue*s". Our Supplemental Documents package includes the Rystad release.

Natural Gas – Alberta Montney: fewer, less productive wells and more liquids-focused

The AB side of the Montney

RBN had an excellent blog post on Monday [LINK] with an overview of the characteristics of Alberta's side of the Montney Formation. We first highlighted Part 1 of RBN's blog series on the Montney in our May 2 Tidbits which detailed the importance of the Montney for Canadian gas production; for example, the Montney made up 46% of the 15.6 bcf of western Canadian gas production in the month of February. This next part of the blog series highlighted Alberta specifically. While the formation is equally divided between Alberta and BC, there are significant differences between them, namely in number of wells drilled, well length, well productivity and natural gas production. First, the AB side consists of far more liquids-rich gas, while BC leans more towards dry gas. According to the Alberta Energy Regulator, gas production from the AB Montney has been much smaller in in scale and growth than that of AB. It also took a bit longer in relative to BC to make active contributions to the province's gas production profile. However, Montney gas supply growth is now an important contributor to holding Alberta gas production relatively stable at ~10 bcf/d since 2015. Another key takeaway from the blog post is the number of wells in AB vs BC. Alberta started out ahead of BC in 2005, however BC's wells have continued to exceed AB's by a wide margin since 2009. The 16-year total (2005-2020) of BC wells is 4,795 vs AB's 2,088. AB's wells are simply less productive, which may be due to their liquids-focused nature, and there are fewer of them. The conclusion RBN drew was although AB Montney gas production has been growing, it has only been growing at a rate that is just enough to offset declines from elsewhere in the province. As a result, the Montney growth story, and the Western Canadian gas growth story as a whole is definitely more BC-focused. Our Supplemental Documents package includes the RBN blog post.

Figure 2: AB vs BC Montney Gas Well Count



Source: RBN

Natural Gas – Mexico's natural gas production still stuck below 5 bcf/d, +6.1% YoY

Mexico natural gas stuck below 5 bcf/d

Pemex reported its May oil and gas data on Friday. One of the key Mexican energy themes for the past 3 years has been that Mexico has been unable to grow domestic natural gas production, which means the continued opportunity for increase exports of US natural gas to Mexico. US pipeline exports to Mexico have increased ~2 bcf/d since Jan 1, 2018. Mexico natural gas production has been stuck at or below 5.0 bcf/d since Aug 2017. We believe Pemex is still in the "natural gas production is stuck below 5 bcf/d" phase as it has since Sept 2017. Pemex reported May natural gas production of 4.730 bcf/d, which was up 6.1% YoY and up 12.6% MoM, which was the first MoM increase since February. Pemex does not

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provide any commentary along with its production data. Below is our ongoing table of Pemex reported monthly natural gas production.

Figure 3: Mexico Natural Gas Production (bcf/d)

Natural Gas Production bcf/d	2015	2016	2017	2018	2019	19/18	2020	20/19	2021	21/20
Jan	6.584	6.162	5.326	4.910	4.648	-5.3%	5.005	7.7%	4.848	-3.1%
Feb	6.676	6.122	5.299	4.853	4.869	0.3%	4.942	1.5%	4.854	-1.8%
Mar	6.558	6.030	5.383	4.646	4.857	4.5%	4.946	1.8%	4.839	-2.2%
Apr	6.257	5.921	5.334	4.869	4.816	-1.1%	4.827	0.2%	4.671	-3.2%
May	6.202	5.841	5.299	4.827	4.841	0.3%	4.460	-7.9%	4.730	6.1%
June	6.390	5.881	5.253	4.840	4.843	0.1%	4.754	-1.8%		
July	6.374	5.785	5.216	4.856	4.892	0.7%	4.902	0.2%		
Aug	6.366	5.686	5.035	4.898	4.939	0.8%	4.920	-0.4%		
Sept	6.477	5.619	4.302	4.913	5.017	2.1%	4.926	-1.8%		
Oct	6.397	5.583	4.759	4.895	4.971	1.6%	4.928	-0.9%		
Nov	6.316	5.515	4.803	4.776	5.015	5.0%	4.769	-4.9%		
Dec	6.236	5.380	4.811	4.881	5.024	2.9%	4.846	-3.5%		

Source: Pemex

Natural Gas – More problems for Algeria Sonatrach 0.5 bcf/d Skikda LNG

Algeria Skikda LNG plant shutdown again

As of our 7am MT news cut off, we have still have not seen any official estimate of how long Algeria's 0.5 bcfd/d Skikda LNG Plant will be off. It was shut down after a technical issue and will undergo inspection, Platts reported on Monday [LINK]. Sonatrach, the company behind the plant released a statement last Saturday [LINK] *"A technical incident occurred on June 11 at the Skikda LNG Complex and led to the shutdown of this complex. The technical incident was caused by a sudden failure of a gas turbine control mechanism. No other damage is to be deplored thanks to the operation of the automatic safety devices of the machine and the plant…Sonatrach has decided to carry out a thorough inspection in order to carry out the necessary repairs."* Skikda had problems in 2020 also due to a turbine, it was previously closed for 6 months in 2020 due to extended maintenance as a result of necessary repairs to a turbine. Sonatrach attempted to compensate for the loss by increasing exports from Arzew, but Algerian LNG exports were contrained that year to 523.5 bcf. So far in 2021, Algeria has exported 298.7 bcf of gas, or around 50% of its technical nameplate capacity. The amount lost due to the shutdown is not a huge quantity, but helps provide more support for Europe natural gas prices, in turn providing support for LNG prices and US LNG exports this summer. Our Supplemental Documents package includes the Platts report.

Natural Gas – India May natural gas production flat MoM at 3.12 bcf/d

India natural gas production flat MoM

Unfortunately, we are now in a period where YoY comparisons aren't necessarily relevant given 2020 was hit by the initial global wave of Covid causing interruptions in everything including oil and gas production. The key India natural gas theme for the past few years has been that India has not been able to grow its domestic natural gas production so any increase in natural gas consumption means equal increase in LNG imports. India's Petroleum Planning and Analysis Cell released their monthly report for May natural gas and oil statistics last Friday [LINK]. India's domestic natural gas production peaked in 2010 at 4.6 bcf/d. India's domestic natural gas production was up 19.1% YoY from 2.62 bcf/d in May 2020 to 3.12 bcf/d, flat from 3.12 bcf/d in April. The YoY increase is not necessarily reflective of significant growth, more so a return to pre-pandemic production, as April 2019 to March 2020 production averaged 3.02 bcf/d. India has consistently struggled to grow domestic natural gas production with 2018-2019 production averaging 3.18 bcf/d, declining to 3.02 in 2019-2020 and averaged 2.78 bcf/d 2020-2021. This means that until they can grow production, any incremental natural gas demand is likely to be met by increasing LNG imports. Our Supplemental Documents package includes excerpts from the PPAC monthly package.

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Natural Gas – Qatar warns of LNG supply gap and higher LNG prices ahead

Qatar sees LNG supply gap

The headlines on Qatar Petroleum's LNG expansion [LINK] was how they received bids for double the equity being offered, and how all the big plays like Exxon, Shell and Total had made proposals. That was positive, but we thought there was a more significant comment from QPC's CEO and, don't forget, this is after accounting for the supply they are adding from their LNG expansion. Qatar sees a LNG supply gap and higher prices ahead due to the lack of investment in LNG supply projects. We had a 3 part tweet. (i) First, we highlighted [LINK] "*1/3. #LNGSupplyGap coming. big support for @qatarpetroleum expansion to add 4.3 bcf/d LNG. but also say "there is a lack of investments that could cause a significant shortage in gas between 2025-2030" #NatGas #LNG".* This is after QPC accounts for their big LNG expansion. The QPC release said "*However, His Excellency Al-Kaabi voiced concern that during the global discussion on energy transition, there is a lack of investment in oil and gas projects, which could drive energy prices higher by stating that "while gas and LNG are important for the energy transition, there is a lack of investments that could cause a significant shortage in gas between 2025-2030, which in turn could cause a spike in the gas market."* (ii) Second, this is a big 4.3 bcf/d expansion, but India alone has 3x the increase in LNG import demand. We tweeted [LINK] "*2/3. Adding 4.3 bcf/d is big, but dwarfed by items like India. #Petronet gave 1st specific forecast for what it means if #NatGas is to be 15% of energy mix by 2030 - India will need to increase #LNG imports by ~13 bcf/d. See SAF Group June 20 Energy Tidbits memo."* (iii) Third, Qatar's supply gap warning is driven by the lack of investments in LNG supply. We agree, but note that the lack of investment is in great part due to the delays in both projects under construction and in FIDs that were supposed to be done in 2019. We tweeted [LINK] "3*/3. #LNGSupplyGap is delay driven. $TOT Mozambique Phase 1 delay has chain effect, backs up 5 bcf/d. See SAF Group Apr 28 blog Multiple Brownfield LNG FIDs Now Needed To Fill New #LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2? #NatGas*." Our Supplemental Documents package includes the Qatar Petroleum announcement.

Petronet's forecasts India LNG imports +13 bcf/d to 2030, 3x Qatar expansion

Last week's (June 20, 2017) Energy Tidbits highlighted the first India forecast that we have seen to estimate the required growth in natural gas consumption and LNG imports if India is to meet its target for natural gas to be 15% of its energy mix by 2030. India will need to increase LNG imports by ~13 bcf/d or 3 times the size of the Qatar LNG expansion. Our June 6, 2021 Energy Tidbits noted the June 4 tweet from India's Energy Minister Dharmendra Pradhan [LINK] reinforcing the 15% goal "*We are rapidly deploying natural gas in our energy mix with the aim to increase the share of natural gas from the current 6% to 15% by 2030."* But last week, Petronet CEO AK Singh gave a specific forecast. Reuters report "*LNG's share of Indian gas demand to rise to 70% by 2030: Petronet CEO"* [LINK] included Petronet's forecast if India is to hit its target for natural gas to be 15% of energy mix by 2030. Singh forecasts India's natural gas consumption would increase from current 5.5 bcf/d to 22.6 bcf/d in 2030. And LNG shares would increase from 50% to 70% of natural gas consumption ie. an increase in LNG imports of ~13 bcf/d from just under 3 bcf/d to 15.8 bcf/d in 2030. Singh did not specifically note his assumption for India's natural gas production, but we can back into the assumption that India natural gas production grows from just under 3 bcf/d to 6.8 bcf/d. It was good to finally see India come out with a specific forecast for 2030 natural gas consumption and LNG imports if India is to get natural gas to 15% of its energy mix in 2030. Petronet's Singh forecasts India natural gas consumption to increase from 5.5 bcf/d to 22.6 bcf/d in 2030. This forecast is pretty close to our forecast in our Oct 23, 2019 blog "*Finally, Some Visibility That India Is Moving Towards Its Target For Natural Gas To Be 15%*

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Of Its Energy Mix By 2030". Here part of what we wrote in Oct 2019. "*It's taken a year longer than we expected, but we are finally getting visibility that India is taking significant steps towards India's goal to have natural gas be 15% of its energy mix by 2030. On Wednesday, we posted a SAF blog [LINK] "Finally, Some Visibility That India Is Moving Towards Its Target For Natural Gas To Be 15% Of Its Energy Mix By 2030".* Our 2019 blog estimate for India natural gas demand to be 24.0 bcf/d in 2030 (vs Singh's 22.6 bcf/d) and for LNG import growth of +18.4 bcf/d to 2030 (vs Singh's +13 bcf/d). The difference in LNG would be due to our Oct 2019 forecast higher natural gas consumption by 1.4 bcf/d plus Singh forecasting India natural gas production +4 bcf/d to 2030. Note India production peaked at 4.6 bcf/d in 2010. Our Supplemental Documents package includes the Reuters report on Petronet's LNG forecast and our SAF Group Oct 23, 2019 blog.

We see a new LNG supply gap with delay of 5 bcf/d of Mozambique LNG

Qatar's view on an LNG supply gap and higher LNG prices in the 2025-2030 period is right in line with our stated views. On April 28, 2021, we posted a 7-pg blog "*Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?*" [LINK] We thought, and still think, there has been a major change to the outlook for LNG supply in the 2020s and one that is still being overlooked – there is a big new LNG supply gap starting around 2025 that is hitting faster and bigger than anyone expects. We saw Total's April 27, 2021 announcement of force majeure at its Mozambique Phase 1 LNG of 1.7 bcf/d was much more significant that viewed. We just didn't see market focused on the fact that this situation backs up an additional 3.3 bcf/d of LNG supply that is also being counted on in all LNG supply forecasts. Total's Phase 2 of 1.3 bcf/d was to follow, and Exxon's Rozuma Phase 1 of 2.0 bcf/d was originally expected to go FID in 2019 but is now not expected to have a FID decision until 2022. Mozambique is considered a premium LNG supply region for Asia and is in LNG supply forecasts. Total's original in service for Phase 1 is 2024. We had been warning that Mozambique has a major LNG market impact and its why we posted the April 28 blog. Our blog reminds that even if Total makes a restart development decision in 12 months, it will take months just to get back to where they left off including rehiring services so any return to where they were in the construction process is at least more likely 18 months at a minimum. This is going to create a bigger and sooner LNG supply gap and the reality is that the only projects that can step up in any reasonable time frame will be brownfield LNG projects. Its why we also said what about LNG Canada Phase 2. There is much more in the 7-pg blog. Our Supplemental Documents package includes our blog.

Natural Gas – India May LNG imports up 9.2% YoY to 2.95 bcf/d, down 5.8% MoM

India LNG imports +9.2% YoY and -5.8% MoM

India is always viewed as an extremely price sensitive buyer in terms of its LNG imports, which was exemplified in their 2020-2021 import data. India had ramped up exports from June to October 2020, taking advantage of low LNG prices to fill their stocks. Imports began to decline in November as LNG prices began to rise, with the price trajectory ramping up in late Dec and reaching record levels January. This resulted in India LNG imports declining from a 2020-2021 peak of 3.836 bcf/d in Oct 2020 to just 2.814 bcf/d in Jan 2021. LNG imports have since normalized along with pricing, with import in May of 2.95 bcf/d, up 9.2% YoY but down 5.8% MoM from 3.13 bcf/d in Apr and 3.39 bcf/d in Mar as prices remain relatively elevated, and the Covid situation dampened demand.

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India LNG imports expected up late June/July

We expect India LNG imports to pick up in July. On Monday, Bloomberg reported that, after faltering demand in April and May due to the Covid situation, India has returned to the spot market, with Petronet LNG and Indian Oil Corp buying prompt shipments after their two-month absence. Both cargoes awarded to tenders cost more than $11.40/mcf, which is unusually high for price-sensitive India. This is a bullish signal for natural gas prices and will help natural gas prices higher. Our Supplemental Documents Package includes the Bloomberg report.

Natural Gas – Japan still expecting a warmer than normal July-Sept

Above normal temperatures for the rest of Japan summer

One of the big positive global energy surprises in 2021 has been stronger than expected LNG prices including for the summer. And we continue to see support for LNG prices thru the summer. On Thursday, we tweeted [LINK] "*Support for summer #LNG prices. @JMA_bousai updated Japan July-Sept ave temp forecast still calls for warmer than normal summer. #TokyoOlympics starts July 23, even without foreign spectators, should add some more than usual power demand. #NatGas.*" The Japan Meteorological Agency issued an updated weather forecast for July-Sept average temperatures on Friday [LINK]. The JMA is calling for temperatures that are well-above normal temperatures in all regions of the country for the rest of the summer. This is sure to lend continued support for global summer LNG prices. Below is the current JMA forecast for July to September.

Figure 4: JMA Temperature Probability Forecast for July to September

Source: Japan Meteorological Agency

Natural Gas – China domestic gas production +5.8% YoY to 19.25 bcf/d

China domestic natural gas production trends higher YoY

The China National Bureau of Statistics released data for Natural gas production in May on Tuesday [LINK]. Natural gas production in May was up 5.8% YoY to 19.25 bcf/d and is basically flat vs 19.84 bcf/d in April. January to May production volumes are +10.3% YoY, and +21.4% vs Jan-May 2019. We have been highlighting the theme of increasing domestic natural gas production and the negatives that brings for global LNG import volumes as China will no longer be the growth engine for YoY LNG increases as it was in the 2015-2019 period. LNG imports are less as domestic natural gas production moved to bigger YoY increases in 2019 and 2020, and there was the start up of the Power of Siberia natural gas pipeline from Russia to China.

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Natural Gas – China LNG imports +34.4% YoY, pipeline gas imports +26.2% YoY

China natural gas imports

The China General Administration of Customs released their detailed breakdown of imports for May on Tuesday [LINK]. Pipeline natural gas imports reached 5.1 bcf/d in May, up 26.2% YoY from 4.0 bcf/d in May 2020 and were down 7.3% MoM. Pipeline imports in 2021 have averaged 5.3 bcf/d, up from the 2020 average to April of 4.5 bcf/d. The release also included LNG import volumes which were +34.4% YoY to 10.89 bcf/d, up 1.1% MoM. Bloomberg had expected pipeline gas imports to outperform LNG imports in May, however this was not the case. It was predicted that China would increase domestic output of LNG, however output was in fact slightly down in May.

Figure 5: China LNG Imports

bcf/d	2016	17/16	2018	18/17	2019	19/18	2020	20/19	2021	21/20
Jan	3.84	39.3%	8.03	50.0%	10.20	27.1%	10.31	1.1%	13.15	27.6%
Feb	3.10	32.3%	6.84	66.9%	7.46	9.1%	7.26	-2.7%	9.52	31.1%
Mar	2.60	17.7%	5.04	64.5%	6.28	24.8%	6.49	3.3%	8.74	34.6%
Apr	3.00	14.7%	5.43	57.8%	7.27	34.0%	8.16	12.3%	10.77	32.0%
May	2.20	104.5%	6.39	41.9%	6.87	7.6%	8.10	18.0%	10.89	34.4%
June	3.51	38.2%	6.31	30.1%	7.25	14.9%	9.27	27.8%		
July	2.46	95.1%	6.40	33.4%	7.56	18.1%	7.79	3.1%		
Aug	3.54	37.4%	7.26	49.2%	8.04	10.8%	9.23	14.8%		
Sept	4.05	36.8%	7.00	26.3%	8.16	16.7%	9.17	12.4%		
Oct	2.85	93.0%	7.13	29.6%	6.26	-12.2%	7.78	24.3%		
Nov	4.26	52.6%	9.59	47.5%	10.42	8.7%	10.58	1.6%		
Dec	5.80	34.5%	9.75	25.0%	10.01	2.7%	11.76	17.5%		
Full Year Avg.	3.43	46.3%	7.10	41.2%	7.98	12.5%	8.83	10.6%	10.62	20.3%

Source: China General Administration of Customs

Figure 6: China Pipeline Imports

bcf/d	2016	2017	17/16	2018	18/17	2019	19/18	2020	20/19	2021	21/20
Jan	4.3	3.7	-13.5%	4.0	8.2%	5.0	24.9%	5.2	3.5%	4.9	-4.5%
Feb	5.0	4.4	-12.9%	5.0	15.6%	5.5	9.0%	5.7	3.8%	6.1	7.2%
Mar	4.2	3.6	-15.6%	4.2	17.7%	4.5	6.4%	4.2	-5.2%	4.8	12.8%
Apr	4.5	4.7	4.1%	5.5	17.7%	5.0	-9.3%	4.2	-15.5%	5.5	30.1%
May	3.2	3.9	23.2%	5.1	30.4%	4.8	-4.3%	4.0	-16.6%	5.1	26.2%
Jun	3.3	4.1	22.1%	5.3	31.2%	4.8	-10.3%	4.1	-15.0%		
Jul	3.2	4.1	25.5%	4.7	14.5%	4.7	0.0%	3.6	-23.3%		
Aug	1.7	3.9	133.5%	4.7	21.3%	4.9	3.1%	5.3	7.9%		
Sep	5.1	4.0	-22.3%	5.2	30.7%	5.0	-4.2%	4.7	-6.0%		
Oct	3.1	3.5	13.2%	4.2	20.6%	3.8	-8.1%	3.9	1.0%		
Nov	3.1	4.0	27.4%	5.1	26.8%	4.7	-6.9%	4.1	-13.0%		
Dec	3.6	4.4	22.7%	4.6	2.8%	4.7	3.9%	5.6	18.9%		

Source: China General Administration of Customs

Natural Gas – Did China lower its natural gas targets or negotiating for COP-26?

Looks like China negotiating for COP-26

There was a Thursday Reuters report to note because, if accurate, it would point to significantly less than expected growth in China natural gas demand/LNG import to 2030. We should note that we believe the report, while accurate, is less a forecast and more a negotiating tool ie. China's natural gas demand growth outlook is unchanged. (i) Reuters reported "*China National Petroleum Corp (CNPC) expects China to cut its coal use to 44% of energy consumption by 2030 and 8% by 2060 as the country aims to use more natural gas to achieve its climate change goals. China, the world's biggest coal consumer, is expected to increase the use of natural gas in its primary energy mix to 12% in 2030 from 8.7% in 2020, said Zhu Xingshan, senior director, Planning Department CNPC at a conference on Thursday. He added that the share of natural gas in energy consumption is expected to increase "significantly" from 2030 to 2035.*" (ii) The natural gas at 12% of the energy mix is below the long stated 15% target for 2030 that has been in place for ~4 years. It was the key to our Sept 20, 2017 blog "*China's Plan To Increase Natural Gas To 10% Of Its Energy Mix Is A Global Game Changer Including For BC LNG*" [LINK] that was anchored on China's then stated target to get natural gas to 10% of its energy mix by 2020 and 15% by 2030. (iii) We

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tweeted [LINK] "*Is this a reality check forecast by #CNPC for #NatGas to reach 12% of CN energy mix by 2030 vs CN 15% target? or set up for US/EU #COP26 negotiators to get a "win" by getting CN to stay firm to existing 15%? Surely CNPC didn't step out on limb here. Hmmm! #LNG #EnergyTransition*". We are surprised that we didn't see others worry about the 12% vs the 15% stated target. Maybe the CNPC forecast is the way China advises the world they are changing their target for natural gas. We don't think so and we believe for a moment that this CNPC person said this without China approval, which is why we think this is China setting the stage for its negotiations with the EU, US and others in the leadup to COP-26 Glasgow in November. There is only 4 months to go and there is going to be pressure on China, Russia, India, Brazil, and others to join in some sort of Glasgow deal. And we believe this CNPC 12% forecast is the start of the negotiation position ie. we think they end up reconfirming the 15% as part of the reducing carbon plan. Our Supplemental Documents package includes the Reuters story and our Sept 2017 blog.

China likely missed its target for natural gas to be 10% of 2020 energy mix

Perhaps there is some merit to the CNPC forecast that natural gas will only be 12% of the 2030 energy mix. But we find it hard to believe they are giving up with 9 years to go. China looks like it will have a big miss to the 2020 target. Our Sept 20, 2017 blog noted the target was to get natural gas to 10% of the 2020 energy mix. bp releases its statistical review on July 8 so we will see their 2020 actuals then but, for 2019, China only got to 7.8%.

Figure 7: China Primary Energy Consumption by Fuel 2018 and 2019

China: Primary Energy, Consumption by Fuel														
							2018							2019
Exajoules	Oil	Natural Gas	Coal	Nuclear energy	Hydro electric	Renew-ables	Total	Oil	Natural Gas	Coal	Nuclear energy	Hydro electric	Renew-ables	Total
China	26.58	10.19	79.83	2.64	10.73	5.81	135.77	27.91	11.06	81.67	3.11	11.32	6.63	141.70
% of Energy Mix	19.6%	7.5%	58.8%	1.9%	7.9%	4.3%	100.0%	19.7%	7.8%	57.6%	2.2%	8.0%	4.7%	100.0%
Source: bp														
Prepared by SAF Group														

Source: bp

Natural Gas – Europe storage 45.61% full vs 5 year average of 60.38%

Europe gas storage 45.61% full

We continue to see the set up for strong summer LNG price, which should support strong US LNG exports to Europe. It was a colder spring, which delayed the refill push in Europe and this is setting up support for summer prices. Additionally, the continued significant YoY deficit in Europe gas storage indicates that there will be strong demand for European LNG imports during the refill push especially since Russia, at least so far in Q2, looks like it only plans to ship contract volumes via Ukraine to Europe 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 storge 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 had resulted in the longest withdrawal season in history, supporting Europe LNG cargo prices. We are now seeing storage starting to build, with storage as of June 3 being up 9.64% since April 19, which looks to be the bottom. Storage as of June 24 is 45.61%, 33.2% less than last year of 78.81% and 14.77% below the 5 yr average of 60.38%. Europe storage

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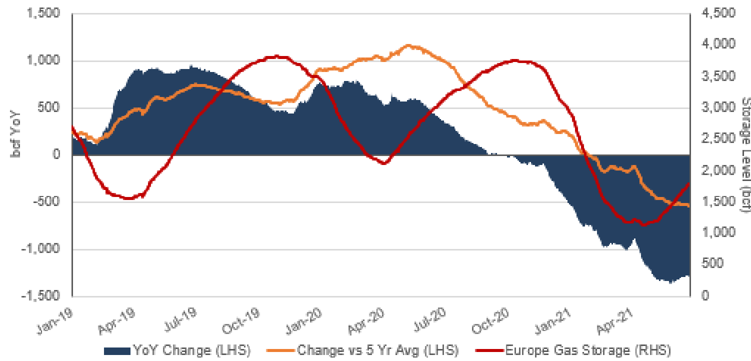
levels this summer will be the key item to watch for indications on LNG markets going into the winter. Below is our graph of YoY change in net LNG flows to NW Europe.

Figure 8: Europe Gas Storage Level



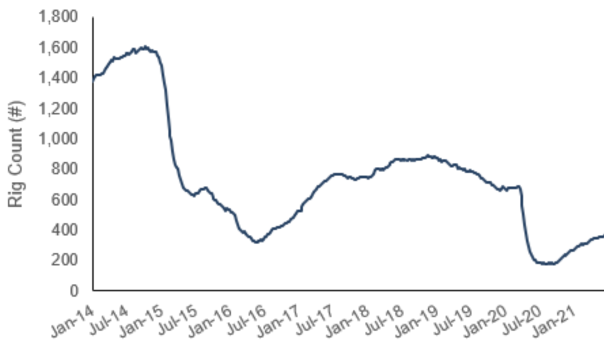
Source: Bloomberg

Oil – US oil -1 WoW at 372 oil rigs

US oil rigs -1 WoW

Baker Hughes reported its weekly rig data on Friday. US rigs are basically flat over the past few weeks despite strong oil and strong natural gas prices. We would be expecting to see some modest consistent increases. US oil rigs were down -1 rigs WoW at 372 rigs as of the June 25 week. Permian was -1 at 236 rigs. Increases came from Others (+1), Cana Woodford (+2). Decreases came from Permian (-1), Barnett (-1), Ardmore Woodford (-1) and Haynesville (-1). Oil rigs have been on a strong recovery path and are +200 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 311 to 372 oil rigs (-45.53%). Below is our graph of Baker Hughes US oil rigs.

Figure 9: Baker Hughes Total US Oil Rigs



Source: Baker Hughes

Oil – Frac spreads -2 to 233 for week ending June 25

Frac spreads -2 to 233

Every week, Mark Rossano (C6 Capital Holdings) posts a YouTube recap of frac spreads for the week on the Primary Vision Network [LINK]. Note his verbal comments were that US frac spreads were down 3 to 232 frac spreads for week ended June 25, whereas his slide deck had 233 frac spreads. There was one drop in the Permian, but he reminded that he counts “active” spreads and not spreads on the move to new locations and the Permian down one is likely a move ie. not active this week. US frac spreads are ending June in line with this expectation of 230 to 235 active spreads and still expects to see increases in July, but will be

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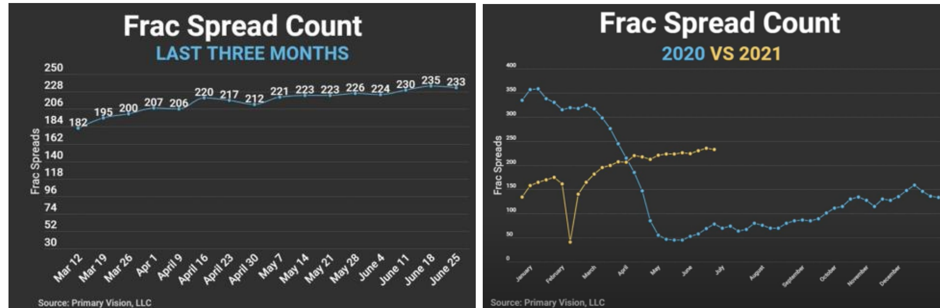
at a slower pace. Note Rossano said the Permian is right at full capacity for frac spreads, maybe can go up a couple but anything more needs new/repaired equipment, and most importantly, labor. He thinks there will be some activity in the Anadarko, the Williston will continue to move up. He sees the next top at around 270 to 275 spreads. And he reemphasized the big issue is labor. Below are his two key frac spread graphs.

Figure 10 Active Frac Spreads for Week Ending June 25, 2021



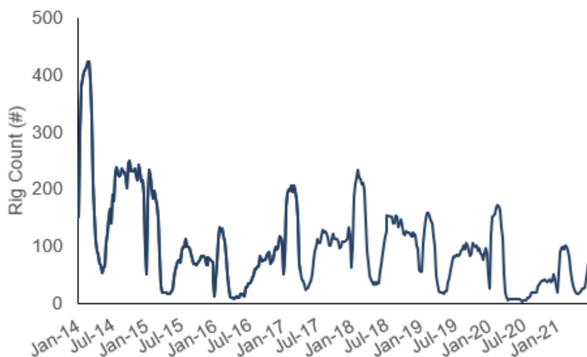
Source: Primary Vision

Oil – Total Cdn rigs +9 to 126 total rigs and up 113 YoY

Cdn rigs +9 this week

We are continuing to see Cdn rigs ramp up as spring breakup is over and we are moving into summer. Baker Hughes reported total Cdn rigs were up +9 this week to 126 total rigs. We expect Cdn rigs to continue to ramp up faster this month. Cdn oil rigs were up 8 to 82 rigs. Cdn gas rigs were up 1 to 44 gas rigs. One year ago, total rigs hit their all-time low: Cdn oil rigs were 4 and Cdn gas rigs were 9 for a total of 13 total rigs. Total rigs are now +113 since June 26, 2020 and total rigs are down 11 since 2019. Below is our graph of Baker Hughes Cdn oil rigs.

Figure 11: Baker Hughes Total Canadian Oil Rigs



Source: Baker Hughes

Oil – US weekly oil production -0.1 mmb/d to 11.1 mmb/d

US oil production -0.1 mmb/d WoW

US oil production was down 0.10 to 11.1 mmb/d for the June 18 week. Lower 48 -0.10 at 10.7 mmb/d. This puts US oil production up 0.1 mmb/d YoY, and is down 2.0 mmb/d since the 2020 peak of 13.1 mmb/d on March 13. The June STEO slightly raised its US crude expectations thru 2021, however it is still not returning anywhere near the Q4/19 peak of 12.78 mmb/d, with Q4/21 US crude of 11.38 mmb/d (down 1.40 mmb/d from peak). In the US oil production commentary, the EIA wrote "*U.S. crude oil production averaged 11.2 million*

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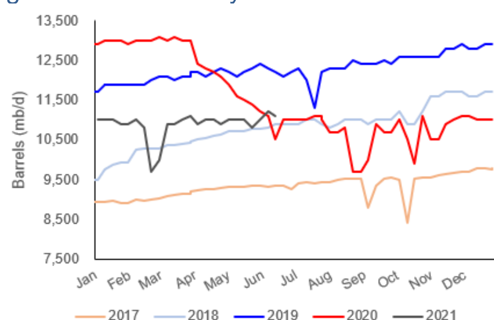
b/d in March 2021, an increase of 1.4 million b/d from February. The March rise indicates that the production outages caused by the February winter freeze were temporary and that production came back online quickly. Because prices of West Texas Intermediate crude oil remain above $60/b during 2021 in the current forecast, we expect that producers will drill and complete enough wells to raise 2022 production from 2021 levels. We estimate that 2022 production will average 11.8 million b/d, up from a forecast average of 11.1 million b/d in 2021." Additionally, on US rig counts, the EIA wrote *"However, our crude oil production forecast is lower than in recent STEOs because of relatively fewer rig deployments at existing price levels, particularly in the Permian".* The EIA DPR has the expectation of slight MoM increases in June and July. The EIA forecasts July at 84.301 bcf/d which is +0.050 bcf/d MoM. The EIA Form 914 actuals for March came in 209,000 b/d higher than the EIA weekly estimates for March, which was likely due to the estimates being too low and not capturing the rapid return to production.

Figure 12: EIA's Estimated Weekly US Oil Production

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

Source: EIA

Figure 13: US Weekly Oil Production



Source: EIA, SAF

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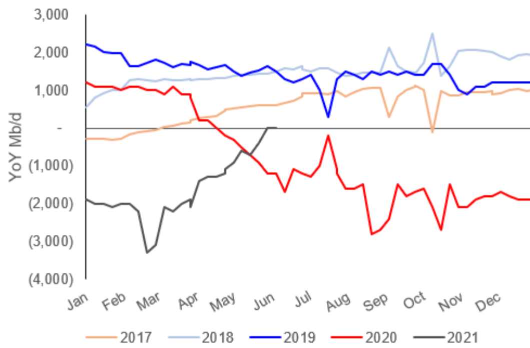
Figure 14: YoY Change in US Weekly Oil Production



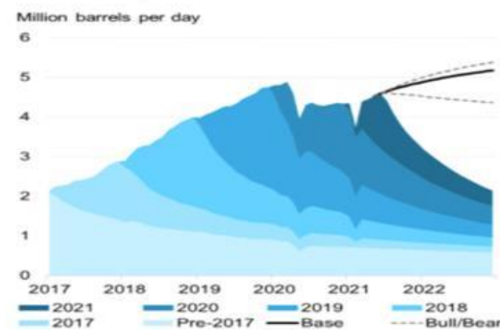
Source: EIA, SAF

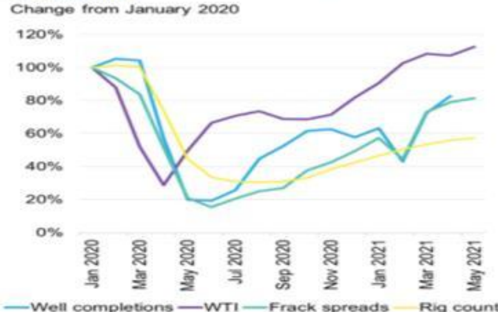
Oil – BloombergNEF expects Permian production to surpass pre-pandemic lvls in 2022

We have noted before our view that there should be enough distance between the US shale survival strategies in 2020 to a continued strong oil price in fall 2021 to provide for a return to increased capex for 2022. We normally find good oil tidbits during the Bloomberg terminal TOPLive coverage for the weekly EIA crude oil inventory data. On Wednesday, the TOPLive coverage included the below graphs from BloombergNEF analyst Tai Liu on their forecast for Permian oil production. Liu said *"The Permian is the U.S. shale play most likely to meaningfully increase oil output in the next 18 months. It is set to surpass its pre-pandemic levels of 4.9 million barrels by 2022. The Permian is attractive due to its low break-even prices and plentiful quality drill sites."* In fact, BloombergNEF estimates the Permian core can breakeven even at $30-35/bbl. Consequently, Liu said *"As a result, many multi-basin operators plan to direct most of their capital towards Permian acreage. This is only moderately optimistic for total U.S. output, though, as it will barely offset expected declines from the other shale basins."* We have seen the Permian rigs ramp up since its lows of 116 rigs in August 2020, up to 203 rigs last week. The Permian is currently producing 4.5 mmb/d, still down -8.2% from pre-pandemic levels of 4.9 mmb/d. Below are charts detailing BloombergNEF's predictions. Our Supplemental Documents package includes excerpts from the BloombergNEF TOPLive coverage.

Permian to be the growth driver for US crude production

Figure 15 – Permian oil production outlook





Source: BloombergNEF

Oil – Rystad estimates US tight oil co's 2021 $60b free cash flow (pre hedging) in 2021

There was another good reminder this week why US oil growth should be stronger in 2022 – Rystad's Wed blog "*A record cash flow is brewing for the world's public E&Ps in 2021 as US*

More reasons for strong US 2022 growth

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shale delivers super-profits" [LINK] included "*A key reason for the all-time-high FCF is the turnaround in the US tight oil industry. Historically, this industry has struggled to generate positive returns, but this could change in 2021. We estimate that all public tight oil companies will to make close to $60 billion in FCF this year, before hedging effects.*" Last week's (June 20, 2021) Energy Tidbits noted the BloombergNEF tracking of 42 US producers that estimated their oil hedge losses had reached $11 billion. So the $60 billion is going to be something lower, say $40 billion free cash flow, which is still huge. And it will be another set up for increased capex in to end 2021 and for 2022 budgets, which should lead to stronger US oil growth in 2022. Note the global view, Rystad writes "*With oil trading above $70 per barrel while investment activity remains low, the world's publicly traded exploration and production (E&P) companies are set to generate record-breaking free cash flows in 2021, a Rystad Energy report projects. Their combined FCF* is expected to surge to $348 billion this year, with the previous high being $311 billion back in 2008.*" The $348 billion FCF is almost triple 2020 of $125 billion, or +$223 billion YoY. Our Supplemental Documents package includes the Rystad blog.

It all makes sense why US oil growth is only modest in 2021 but more in 2022

The huge YoY increase in FCF is a reminder in how oil companies have returned to strength after fighting to survive when Covid crashed oil markets a year ago. On June 18, 2021, we tweeted [LINK] on why it makes sense that there is only modest growth in US oil production in 2021 despite strong oil prices but much higher growth in 2022. The Reuters report "*EXCLUSIVE OPEC told to expect limited U.S. oil output growth, for now – sources*" [LINK] wrote "*OPEC officials heard from industry experts that U.S. oil output growth will likely remain limited in 2021 despite rising prices, OPEC sources said, giving it more power to manage the market in the short term before a potentially strong rise in shale output in 2022. Officials from OPEC's Economic Commission Board (ECB) and external presenters attended a meeting on Tuesday focused on U.S. output, the sources said. OPEC heard from more forecasters on the outlook for 2021 and 2022 at a separate meeting on Thursday. While there was general agreement on limited U.S. supply growth this year, an industry source said for 2022 forecasts ranged from growth of 500,000 bpd to 1.3 million bpd.*" The report didn't mention why, which is why we tweeted why the growth is limited in 2021 but more in 2022. First, as noted earlier, hedge losses means that the producers aren't getting all the benefit of high oil price. But we remind think of the increased cash flow as these hedges roll off. Second, there is the well recognized need for labor/equipment to get to higher capacity levels after losing a lot of capacity in the oil/capital crash of 2020. Third, our prior view that public E&P can't do any significant step up in capex even though their financial positions are very strong. When Covid hit and oil prices crashed, the oil companies (supermajors down) all went into survival mode. They all had to convince investors a year ago that they could survive and that they could survive in a world of low oil prices. So they all had to abandon the growth model. It was done for survival. And not one of them said the oil price crash is temporary and we will be going back to our old plans once price quickly recovers. They can't return to growth at all costs, but our tweet said "*Another 3-6 mths of strong oil & stock prices & protected dividends, E&P will be still be cashed up & investors won't object to moving off Covid survival plans & more capital allocation to drilling*." As they say, time heals all wounds. Oil stock prices have been great performers. The oil companies are in strong financial position, another 3-6 months of strong prices will make their financial position even stronger. And with protected dividends and a year from the survival plans, we expect investors will be supportive of some stronger return to growth.

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Oil – Seeing impact of US tank truck driver shortage

Not enough tank truck drivers

Supply chain problems are impacting all industries including the retail gasoline sector. No surprise, there are reports of some local gasoline shortages despite high US gasoline inventories. On Thursday, Bloomberg report that gasoline stations in at least 6 US states have been experiencing temporary fuel shortages due to a shortage of tanker-truck drivers available to deliver fuel. And Bloomberg reported that, according to the tank truck carrier industry group, the shortage will likely affect fuel deliveries for another 12 months. While we can't quantify exactly how much, this has been a factor that has led to higher gasoline inventories. We recently highlighted this risk in our May 2, 2021 Energy Tidbits, warning for the potential for a risk of gasoline shortage this summer as a result of a lack of US tank truck drivers. 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 Streblow, the executive vice president of the NTTC. '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 Bloomberg report.

Oil – We think Biden could release 100 mmb in the SPR sales under his agreement

A sizeable sale from SPR

It looks like there will be a big release of oil from the US Strategic Petroleum Reserve over the next year or so. (i) On Thursday, the Biden administration released its Bipartisan Infrastructure Framework factsheet [LINK]. Biden has committed $1.2tn to the BIF, which is part of Biden's Build Back Better vision. The amount invested represents 2/3 of the resources President Biden had originally proposed in his American Jobs Plan. Some of the key goals of the Framework are building a national network of 500,000 EV chargers and upgrading the power infrastructure- building thousands of miles of new transmission lines to facilitate the expansion of renewable energy. The fact sheet listed proposed financing sources for the $1.2tn bill, one of which include reducing the IRS tax gap. However, one of the proposed sources we'd like to highlight is "Strategic petroleum reserve sale". No potential volume is disclosed by the White House fact sheet. (ii) Republicans reportedly say its $6b. Reuters reported that the Republicans say they agreed to a $6bn sale in a document circulated by Republican lawmakers [LINK]. This would equate to about 82 mmb at present oil prices. (iii) However, we think it will be more. On Friday, we tweeted on Energy Secretary's comments on Bloomberg Surveillance early Friday morning. We tweeted [LINK] "*Strategic Petroleum Reserve sale likely closer to $7b than $6b? @FerroTV asks @SecGranholm if Republicans $6b is right? Granholm didn't say its wrong, not set in stone and may move a bit. Political speak for yes to $6b, but now we have to change it because they leaked it. #OOTT*". Granholm's quote was ""*i am not saying it's wrong. i am just saying*

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that this is a framework that was announced not everything is set in stone and it may move, it may move a bit. the bottom line is that it is a limited sale". As we put in the tweet, Granholm certainly seemed to confirm the $6b amount but, given how politicians like to be the ones to break the news, we expect Biden to tweak the number higher just because of the Republican leak. And the reality is that they can use every billion they can find. The point is that it means that there is likely around 100 mmb of SPR to come out over the next year or so. Our Supplemental Documents package includes the White House fact sheet.

A 100 mmb release would be 16% of current SPR reserves

Granholm insisted a couple of times it is a limited sale, but a 100 mmb or even an 80 mmb sale may be limited, but is still a big sale. A 100 mmb sale is 16% of current SPR reserves, an 80 mmb sale is 13% if current SPR reserves. As of June 18, 2021 the SPR currently has a total of 623.9 mmb of total reserves, 253.2 mmb of which is sweet, 370.7 mmb is sour. Deliveries from previous sales are tapering off for 2021, but Platts says another 15 mmb is likely to hit the market in October [LINK]. Below is the current Dept of Energy SPR inventory [LINK].

Figure 16: Strategic Petroleum Reserve as of June 18, 2021

STRATEGIC PETROLEUM RESERVE INVENTORY

CURRENT SPR INVENTORY AS OF June 18, 2021 (MMB)

SWEET	SOUR				TOTAL
253.2 million bbls	370.7 million bbls				623.9 million bbls

SPR OIL MOVEMENTS in Millions of Barrels*

MONTH	OIL EXCHANGE/PURCHASE RECEIPT BARRELS		DRAWDOWN/SALES/OIL EXCHANGE RETURN BARRELS		NET MOVEMENT
Jan-21	0.0		0.0		0.0
Feb-21	0.2	C	(0.5)	B/D	(0.3)
Mar-21	0.0		0.0	B	0.0
Apr-21	0.0		(4.3)	D	(4.3)
May-21	0.0		(5.8)	D/E	(5.8)
Jun-21	0.0		(3.7)	E	(3.7)

*Although Current Inventory captures all oil movements, monthly total oil movements are captured after inventory is closed for each month.

( ) = Barrels released from SPR
A = Commercial Storage
B = Exchange Return
C = Australia Storage
D = FY 21 Mandatory Sale
E = FY 21 Modernization Sale

Source: US Department of Energy

Oil – Looks like more delays to Enbridge Line 5 in Michigan

More delays for Enbridge Line 5

It looks like there will be more delays to Enbridge Line 5 with the latest setback for the project coming from the Army Corps this Wednesday. Bloomberg reported on Wednesday that the Army Corps has required that the project have an environmental impact statement, which is lengthier than a simple environmental assessment. Acting assistant secretary for the Army for Civil Works said *"I have concluded that an EIS is the most appropriate level of review because of the potential for impacts significantly affecting the quality of the human environment".* As a result of the delay, groups opposing the project will gain more time to fight it and the project's original completion estimate of 2024 will be pushed back, as environmental impact statements can take years. The Globe and Mail reported Enbridge company spokesman Jesse Semko said [LINK] *"Project permitting continues to be the driver of project timing. The decision by the U.S. Army Corps of Engineers to complete an environmental-impact statement instead of an environmental assessment for the Great Lakes*

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Tunnel project will lead to a delay in the start of construction on this important project. Enbridge will continue to work with the U.S. Army Corps of Engineers on its review of our application and towards a successful conclusion to this process, which began when we filed our permit application in April 2020. To date, the company has spent more than [US]$100-million on the project. Enbridge remains intensely focused on project permitting and the sustained and safe operation of Line 5 until the tunnel is completed". Our Supplemental Documents package includes The Globe and Mail report.

Oil – Slowly removing oil sands facilities from Covid outbreaks list

Another facility off outbreak list

The Fort McMurray area may still be one of the relative hotspots for Covid in Alberta, but similar to all of Alberta case numbers are going down at a very fast rate. The last Wood Buffalo Covid update is as of June 24 [LINK]. When we went to print last week, there was only the June 14 update posted. There was only one change in the 10 day period, which was the removal of Suncor Mackay River from the outbreak list. This is now the third oil sands facility removed from the outbreak list following the CNRL Jackfish property and the Oilsands Industrial Lodge – Fort McKay. Below, we pasted the oil sands facilities listed in June 14, 17, 18, 21 and 24 updates.

Figure 17: Oil Sands Facilities With Covid Outbreaks at June 14, 17, 18, 21 and 24

June 24	June 21	June 18	June 17	June 14
Outbreaks in RMWB Industrial:	**Outbreaks in RMWB Industrial:**	**Outbreaks in RMWB Industrial:**	**Outbreaks in RMWB Industrial:**	**Outbreaks in RMWB Industrial:**
MEG Energy - ongoing	MEG Energy - ongoing	MEG Energy - ongoing	MEG Energy	MEG Energy
CNRL Horizon - ongoing	CNRL Horizon - ongoing	CNRL Horizon - ongoing	CNRL Horizon	CNRL Horizon
CNRL Albian - ongoing	CNRL Albian - ongoing	CNRL Albian - ongoing	CNRL Albian	CNRL Albian
Kearl Lake - ongoing	Kearl Lake - ongoing	Kearl Lake - ongoing	Kearl Lake	Kearl Lake
Civeo McClelland Lake - ongoing	Civeo McClelland Lake - ongoing	Civeo McClelland Lake - onoging	Civeo McClelland Lake	Civeo Lynx Lodge
Wapasu Creek Lodge - ongoing	Wapasu Creek Lodge - ongoing	Wapasu Creek Lodge - ongoing	Wapasu Creek Lodge	Civeo McClelland Lake
Civeo Athabasca - ongoing	Civeo Athabasca - ongoing	Civeo Athabasca - ongoing	Civeo Athabasca	Wapasu Creek Lodge
Cenovus Sunrise Lodge - ongoing	Cenovus Sunrise Lodge - ongoing	Cenovus Sunrise Lodge - ongoing	Cenovus Sunrise Lodge	Civeo Athabasca
Suncor Base Plant - ongoing	Suncor Base Plant - ongoing	Suncor Base Plant - ongoing	Suncor Base Plant	Cenovus Sunrise Lodge
Suncor Firebag - ongoing	Suncor Firebag - ongoing	Suncor Firebag - ongoing	Suncor Firebag	Suncor Base Plant
Suncor Fort Hills - ongoing	Suncor Fort Hills - ongoing	Suncor Fort Hills - ongoing	Suncor Fort Hills	Suncor Firebag
Syncrude Mildred Lake - ongoing	Syncrude Mildred Lake - ongoing	Suncor Mackay River - removed	Suncor Mackay River	Suncor Fort Hills
Syncrude Aurora - ongoing	Syncrude Aurora - ongoing	Syncrude Mildred Lake - ongoing	Syncrude Mildred Lake	Suncor Mackay River
CNOOC Long Lake - ongoing	CNOOC Long Lake - ongoing	Syncrude Aurora - ongoing	Syncrude Aurora	Syncrude Mildred Lake
		CNOOC Long Lake - ongoing	CNOOC Long Lake	Syncrude Aurora
				CNOOC Long Lake

Source: Wood Buffalo

Oil – Cdn crude by rail exports down 45,853 b/d MoM to 129,727 b/d in April, down 17% YoY

Cdn crude by rail exports increase MoM

The Canadian Energy Regulator (successor to NEB) reported Canadian crude by rail exports were -45,853 b/d MoM in April to 129,727 b/d vs 175,580 b/d in March [LINK]. This puts April export volumes at -26,515 b/d YoY (-16.97%) vs April 2020 of 156,242 b/d. CBR volumes are +90,859 since the July bottom of 38,867 b/d. The MoM decrease was expected as WCS-WTI differentials were very low for most of April before starting to ramp up in the last week but were still only $12 at April month end. Differentials didn't touch $14 until the May 19, but we should expect better May rail volumes with the better differential. Don't forecast its not just the differential, but the base WTI oil price starting point. Below is our graph of Cdn crude by rail exports compared to the WCS – WTI differential.

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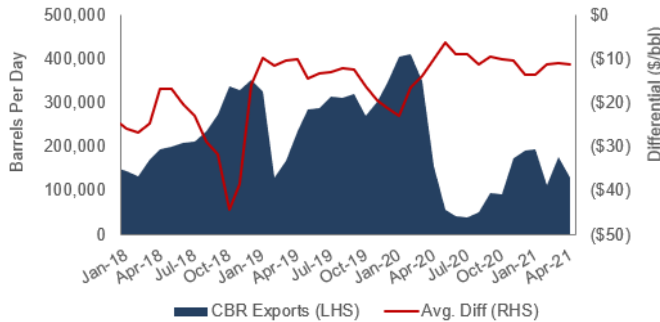
Figure 18 Cdn Crude By Rail Exports vs WCS Differential



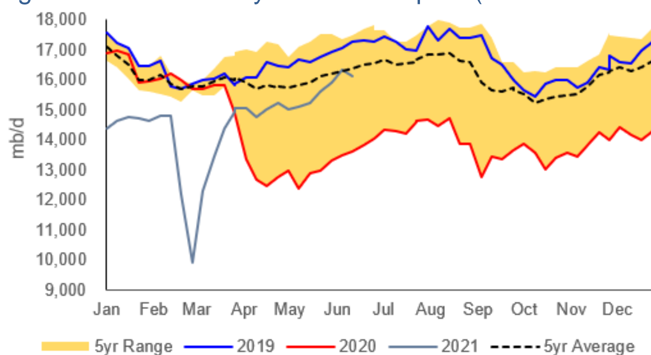
Source: Canadian Energy Regulator, Bloomberg

Oil – Refinery inputs -0.225 mmb/d YoY to 16.112 mmb/d

Refinery crude oil input just below the 5-yr avg

Crude inputs to refineries were up this week and were -0.225 mmb/d to 16.112 mmb/d, and are +2.272 mmb/d YoY. Refinery utilization was down 0.4% this week at 92.2%, which is still +17.6% YoY. The drop in refinery runs could be the result of higher oil prices cutting into the margins of fuel markers. Total products supplied (ie. demand) increased this week, with a 0.180 mmb/d increase to 20.751 mmb/d, and motor gasoline supplied was up slightly being +0.080 mmb/d to 9.440 mmb/d. Gasoline demand is back above 9.4 mmb/d for the first time since late May as Americans return to highways. Gasoline consumption in the US is expected to continue 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.

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



Source: EIA, SAF

Oil – EIA US refinery operating capacity down ~830,000 b/d YoY

EIA's annual refinery capacity report

On Friday afternoon, the EIA posted its annual "Refinery Capacity Report" [LINK], which includes refinery data as of January 1, 2021. We recommend adding this report to reference libraries. One of the global oil themes is that there will be a constant reduction in conventional oil refining capacity. Our Energy Tidbits memos have noted several announcements of refinery closures or conversions into import facilities or conversion into renewable fuels. The EIA estimates that the US saw a decline in the number of operating refineries and operating

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refining capacity. We created the below table to show the comparison of the EIA data for Jan 1, 2021 vs Jan 1, 2020. The EIA sees 7 less operating refineries and ~830,000 b/d less operating capacity per calendar day. Note that the EIA provides the same data in the below table for every refinery. This is always our first go-to when we are looking for data on a US refinery. Our Supplemental Documents package includes excerpts from the EIA report.

Figure 20: US Refinery Capacity

				Atmospheric Crude Oil Distillation Capacity					
	Number of Operable Refineries			Barrels per Calendar Day			Barrels per Stream Day		
Total US	Total	Operating	Idle	Total	Operating	Idle	Total	Operating	Idle
Jan 1, 2020	135	131	4	18,976,085	18,548,985	427,100	20,092,219	19,634,219	458,000
Jan 1, 2021	129	124	5	18,127,700	17,719,600	408,100	19,160,469	18,722,969	437,500
YoY Change	-6	-7	1	-848,385	-829,385	-19,000	-931,750	-911,250	-20,500

Source: EIA

Oil – Phillips 66 Ferndale refinery goes down for unplanned repairs

Unplanned repairs at Phillips 66 Ferndale refinery

As of 7am MT news cut off, we still have not seen any formal estimate for how long Phillips 66 Ferndale refinery will be offline. But we have seen some unconfirmed reports for a two week shut down. On Wednesday, Bloomberg reported that Phillips 66's Ferndale refinery was forced to shut its only fluid catalytic cracking (FCC) refinery late last week for unplanned repairs. Repairs to the 38,000 b/d FCC refinery are reportedly in progress and expected to be completed by early next week. This is not the first time it has had issues- according to a filing with the Northwest Clean Air Agency, there were problems for several days starting June 11 due its vacuum tower. FCC is the main gasoline producer at Ferndale and supplies markets in the Pacific Northwest. As a result of the shutdown, Pacific Northwest cash-market gasoline has climbed to a 15-month high, as PADD 5 gasoline stockpiles are also at their lowest seasonally since 2017. Our Supplemental Documents package includes the Bloomberg report.

Ferndale refinery typically takes Bakken crude by rail

Most will recall that the Phillips 66 Ferndale refinery was in the news in late Dec, when the BNSF crude by rail train derailed and caught fire in nearby Custer, Washington. The crude by rail was Bakken oil enroute to the Ferndale refinery. And the Ferndale refinery fire crew helped local firefighters put out the fire. As reported at that time, local county councilmen said in reference to the Ferndale fire crew "*This community is lucky to have those folks here," "As soon as those guys got there, once they started flowing foam, it went from being a very impressive fire to 'Let's start thinking about cleanup'.* We haven't seen official word confirming a 2-week shutdown. Any Ferndale temporary shut down will push back on Bakken crude by rail. The latest EIA data is for March and there was 196,000 b/d of Bakken oil shipped by rail to the West Coast in March.

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Figure 21: Crude Oil Movements by Rail March 2021 – thousand barrels/day

	Receipts						
Shipments	PADD 1	PADD 2	PADD 3	PADD 4	PADD 5	United States	Canada
PADD 1	0	0	0	0	0	0	0
PADD 2	57	0	0	0	196	254	0
PADD 3	0	0	0	0	1	2	0
PADD 4	0	0	4	0	0	4	0
PADD 5	0	0	0	0	0	0	0
United States	57	0	5	0	198	260	0
Canada	16	40	93	0	4	154	NA
Total	73	40	98	0	202	413	NA

Source: EIA

Vancouver gasoline prices should be hit by Ferndale downtime

As a reminder, the Ferndale temporary shutdown is likely to impact gasoline prices in Vancouver. On Thursday, we tweeted a picture of gasoline pump prices, noting how 91 octane had jumped up last week to $1.55.9/litre. One of our Twitter followers, @Bmrfan1, replied "*One up on you guys, here in YVR, just filled up for $1.67/L for reg. Expected further increase in the depths of summer. Welcome to beautiful BC.*" And then in an exchange on Ferndale, we had to reply "*yes, unplanned, i think happened on Tues. supposedly for 2 weeks, but should hit your gasoline prices*".

Oil – Major turnaround at Neste's 240,000 b/d Porvoo refinery complete

Neste's Porvoo Refinery turnaround complete

Neste announced on Thursday that the schedule maintenance turnaround at its Porvoo refinery in Finland had been successfully completed, and production has resumed at the 240,000 b/d refinery [LINK]. Total investment for the major turnaround was ~630mm Euros. Only the most critical maintenance work was done during 2020 due to the pandemic and as a result, the turnaround was delayed by a year. Jori Sahlsen, VP of Production at Porvoo said "*We executed a large number of regulatory inspections, maintenance works and asset improvement initiatives at the Porvoo refinery to ensure the safety and reliability of the refinery. The turnaround works focused on, among other things, process equipment and pipelines, and we also extensively renewed the refinery's electrification and automation systems. During the major turnaround, we also executed preparatory measures for the processing of renewable and circular raw materials at the Porvoo refinery*". Our Supplemental Documents package includes the Neste release.

Oil – US "net" oil imports up 0.430 mmb/d to 3.292 mmb/d

US "net" oil imports +0.430 mmb/d WoW

US "NET" imports were up 0.430 mmb/d to 3.292 mmb/d for the June 18 week. US imports were up 0.197 mmb/d to 6.943 mmb/d. US exports were down, being -0.233 mmb/d to 3.651 mmb/d. The WoW increase in US oil imports was driven by increases in Saudi Arabia, Mexico and Colombia. Some items to note on the by country data. (i) Canada was down this week, and was -0.209 mmb/d to 3.435 mmb/d for the June 18 week, which is now ~0.27 mmb/d below the average levels in Jan/Feb of 2020. (ii) Saudi Arabia was up 174,000 b/d to 0.555 mmb/d this week. (iii) Colombia was up by 0.197 mmb/d to 0.340 mmb/d this week. (iv) Ecuador was down 67,000 b/d to 29,000 b/d. (v) Iraq was down 154,000 b/d to 151,000 b/d. (v) Venezuela remained at 0 due to US sanctions. (vi) Mexico increased 114,000 b/d to 0.878 mmb/d.

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Figure 22: US Weekly Preliminary Oil Imports By Major Countries

	Apr 23/21	Apr 30/21	May 07/21	May 14/21	May 21/21	May 28/21	June 04/21	June 11/21	June 18/21	WoW
Canada	3,492	3,232	2,924	3,806	3,549	3,147	3,971	3,644	3,435	-209
Saudi Arabia	480	178	224	424	277	188	144	381	555	174
Venezuela	0	0	0	0	0	0	0	0	0	0
Mexico	608	467	434	692	661	702	423	764	878	114
Colombia	294	307	278	325	71	185	137	143	340	197
Iraq	270	41	235	199	184	163	173	305	151	-154
Ecuador	225	318	257	80	229	226	122	96	29	-67
Nigeria	119	95	157	73	29	169	264	169	183	14
Kuwait	0	0	0	0	0	0	0	0	0	0
Angola	0	0	0	0	0	0	0	0	0	0
Top 10	5,488	4,638	4,509	5,599	5,000	4,780	5,234	5,502	5,571	69
Others	1,128	813	979	812	1,273	851	1,404	1,244	1,372	128
Total US	6,616	5,451	5,488	6,411	6,273	5,631	6,638	6,746	6,943	197

Source: EIA, SAF

Oil – Mexico May production of 1.688 mmb/d, up 3.4% YoY, nowhere near forecast

Pemex May production up 3.4% YoY

Mexico's oil production continues to look to have no chance of reaching their 2021 forecast, but it looks to be stable, just not growing. On Friday, Pemex reported its crude oil production for May was 1.688 mmb/d, down slightly MoM from 1.693 mmb/d in Apr. The actuals to the end of May are nowhere near high enough to meet Pemex's unchanged 2021 production forecast to average 1.944 mmb/d of crude oil and condensate, which would be approx. 1.9 mmb/d of crude oil. Although Pemex's production has flipped to YoY increases this month as expected, it is just due to covid induced production declines, not actual growth.

Figure 23: Pemex Mexico Oil Production

Oil Production (thousand b/d	2015	2016	2017	2018	18/17	2019	19/18	2020	20/19	YTD 2020	2021	21/20
Jan	2,251	2,259	2,020	1,909	-5.5%	1,623	-15.0%	1,724	6.2%	1,724	1,651	-4.2%
Feb	2,332	2,214	2,016	1,876	-6.9%	1,701	-9.3%	1,729	1.6%	1,726	1,669	-3.5%
Mar	2,319	2,217	2,018	1,846	-8.5%	1,691	-8.4%	1,745	3.2%	1,714	1,697	-2.8%
Apr	2,201	2,177	2,012	1,868	-7.2%	1,675	-10.3%	1,703	1.7%	1,711	1,693	-0.6%
May	2,227	2,174	2,020	1,850	-8.4%	1,663	-10.1%	1,633	-1.8%	1,695	1,688	3.4%
June	2,247	2,178	2,008	1,828	-9.0%	1,671	-8.6%	1,605	-3.9%	1,680		
July	2,272	2,157	1,986	1,823	-8.2%	1,671	-8.3%	1,595	-4.5%	1,668		
Aug	2,255	2,144	1,930	1,798	-6.8%	1,683	-6.4%	1,632	-3.0%	1,663		
Sept	2,271	2,113	1,730	1,808	4.5%	1,705	-5.7%	1,643	-3.6%	1,667		
Oct	2,279	2,103	1,902	1,747	-8.1%	1,655	-5.3%	1,627	-1.7%	1,663		
Nov	2,277	2,072	1,867	1,697	-9.1%	1,696	-0.1%	1,633	-3.7%	1,660		
Dec	2,275	2,035	1,873	1,710	-8.7%	1,706	-0.2%	1,650	-3.3%	1,659		

Source: Pemex

Pemex 2021 oil production forecast of 1.944 mmb/d looks ridiculously high

Pemex posted a new investor presentation [LINK] on Thurs, which includes its unchanged 2021 forecast for "Total Crude Oil Production" to average 1.944 mmb/d in 2021. The fine print says it includes condensate, which typically runs about <50,000 b/d. If we back out the condensate and use 1.90 mmb/d, it means crude oil production would have to average ~2.05 mmb/d for the last 7 months of 2021. Below is the production forecast from the Pemex June 23 investor presentation.

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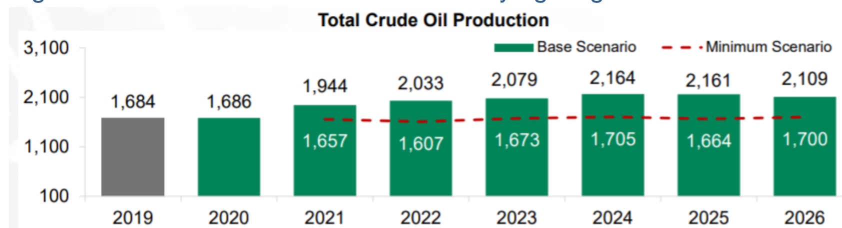
Figure 24: Permian Production Under Varying Degrees of Federal Restrictions



Source: Pemex June 23, 2021 investor presentation

Mexico oil exports -2.9% YoY in May

Oil – Mexico May oil exports -2.9% YoY to 1.031 mmb/d

Pemex also reported its May crude oil exports on Friday. Mexico oil exports in May were 1.031 mmb/d, which is -2.9% YoY, and +11.7% from Apr of 0.923 mmb/d. Exports will be an important item to watch in 2021 given one of Pemex and AMLO's big pushes is for a rapid increase in domestic refining volumes, leading to a drop in exports. We noted in our Mar 7, 2021 Energy Tidbits that Pemex stated at CERAWeek that there was no need to reduce exports currently, but we have to wonder if that is because refinery inputs are vastly below targets. Pemex has not updated their refinery input forecasts since Oct 5 which was for 2020 of 681,000 b/d and 2021 of 1.114 mmb/d and 2020 was well below forecast at 591,000 b/d. April refinery inputs were 0.690 mmb/d, down 4.5% YoY with YTD average of 0.712 mmb/d, well below their forecast. The MoM decline in refinery inputs was due to the explosion and fire at the 285,000 b/d Minatitlan refinery. We had expected May exports to be down to some extent MoM as 1 of 2 single buoy-moorings at the Dos Bocas terminal had been shut for repairs for 4 months. Below is our table of the Pemex oil export data.

Figure 25: Pemex Mexico Oil Exports

Oil Exports (thousand b/d)	2015	2016	2017	2018	2019	19/18	2020	20/19	YTD 2020	2021	21/20
Jan	1,261	1,119	1,085	1,107	1,071	-3.3%	1,260	17.6%	1,260	979	-22.3%
Feb	1,305	1,241	1,217	1,451	1,475	1.7%	1,093	-25.9%	1,179	1,006	-8.0%
Mar	1,228	1,062	1,001	1,176	1,150	-2.2%	1,144	-0.5%	1,167	925	-19.1%
Apr	1,035	1,081	1,017	1,266	1,023	-19.2%	1,179	15.2%	1,180	923	-21.7%
May	1,114	1,204	958	1,222	1,205	-1.4%	1,062	-11.9%	1,156	1,031	-2.9%
June	1,047	1,098	1,157	1,110	995	-10.4%	1,114	12.0%	1,149		
July	1,187	1,146	1,255	1,156	1,079	-6.7%	1,051	-2.6%	1,135		
Aug	1,261	1,261	1,114	1,181	1,082	-8.4%	1,190	10.0%	1,142		
Sept	1,169	1,425	1,159	1,206	995	-17.5%	1,023	2.8%	1,132		
Oct	1,280	1,312	1,342	1,027	963	-6.2%	908	-5.7%	1,110		
Nov	1,178	1,273	1,388	1,135	1,114	-1.9%	1,171	5.1%	1,115		
Dec	1,008	1,115	1,401	1,198	1,115	-6.9%	1,243	11.5%	1,126		

Source: Pemex

Biden lowers bar for Venezuela sanctions removal

Oil – Negative to mid term oil, Biden lowers bar for Venezuela sanctions removal

We recognize that that this is a mid term item, but yesterday morning, we tweeted on the Friday afternoon US/Canada/EU joint statement [LINK] because we see this as a clear indication that Biden wants to put the US on a near term path to remove sanctions on Venezuela. (i) Bar is lowered for sanctions removal. Our first tweet [LINK] was "*1/2. Negative to mid term Cdn #Oil exports to Gulf Coast. US lowers bar for VEN #Maduro sanctions removal ie. no longer insist Maduro goes. US creates EU/CAN peer group when wasn't one, provides cover & higher probability to sanctions removal by US. #OOTT*". Take a read thru the short statement, its clear the US is lowering the bar for removing sanctions ie. the US is no longer insisting that Maduro step down. The statement says "*We welcome substantive, credible advancements to restore core democratic processes and institutions in Venezuela and are willing to review sanctions policies based on meaningful progress in a comprehensive negotiation. We call for electoral conditions*

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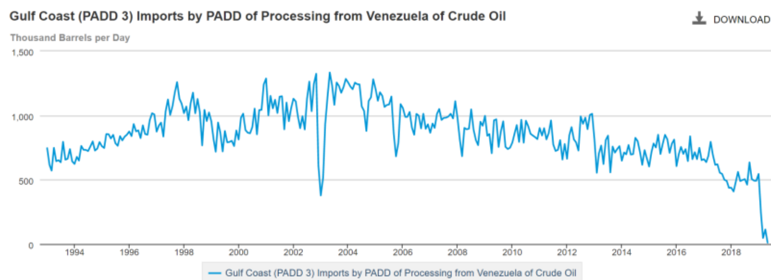
that abide by international standards for democracy, beginning with the local and regional elections scheduled for November 2021." Elections by international standards sounds good, but isn't going to be the bar that will make Maduro think he can't influence the elections. (ii) Why create a peer group? But what is just as significant is that the US creating a peer group bringing in the EU and Canada, when they didn't have a peer group. We have to believe the EU and Canada had more pressing US issues to deal with so we have to believe this was US driven. So Biden effectively creates something like a JCPOA where there are peers. We think this is done to provide cover for Biden as now he can have his partners push him harder. And having partners also increases the probability for the movement to removal of sanctions. Our Supplemental Documents package includes the joint statement.

Cdn oil to Gulf Coast would be hit by Venezuela sanctions removal

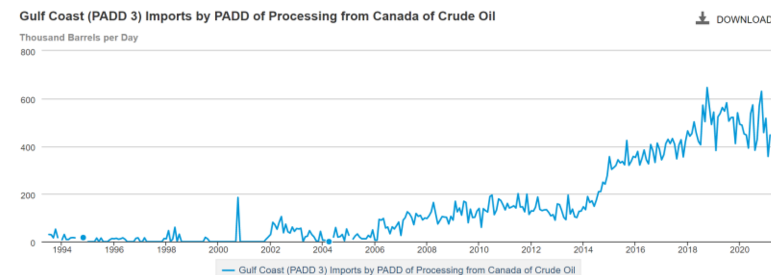
Our tweet started warned this was a negative to mid term Cdn oil exports to Gulf Coast. The reality is that Canadian' medium/heavy oil has been the big beneficiary of declining Venezuela oil production and oil exports to the US Gulf Coast (PADD 3). Please note that the below EIA graphs showing PADD 3 oil imports from Venezuela and Canada have different scales. Any return of Venezuela oil would be a direct hit to Cdn oil to the Gulf Coast for both volumes and price. We couldn't help a second tweet [LINK] ""*2/2. Doubt Cdn #OilSands #Oil sector finds this ironic. but Cdn heavy/medium oil filled void in #PADD3 from less VEN oil. Removal of sanctions should see mid term VEN oil fill void that #KeystoneXL would have delivered to PADD 3. Negative to mid term Cdn heavy medium oil. #OOTT*"

Figure 26: US PADD 3 oil imports from Venezuela



Source: EIA

Figure 27: US PADD 3 oil imports from Canada



Source: EIA

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Oil – Next OPEC+ ministerial meeting is Thurs July 1

OPEC+ meeting July 1

Its still early but, as of right now, it seems like the expectation is for OPEC+ to make a modest increase to oil supply. We don't think anyone is expecting another record quick meeting of under 30 minutes but, at least for now, the meetings should not have the risk of a quick return to the JCPOA to consider for their quota. The current schedule of the OPEC+ meeting is as follows: Tues – Joint Technical Committee (JTC). Wed – Joint Ministerial Monitoring Committee (JMMC). Thurs – Full ministerial meeting. Below is our table of the current schedules OPEC+ production increases following the OPEC+ June 1 meeting.

Figure 28: OPEC+ Quotas Post June 1 Meeting

OPEC (mmb/d)	Reference Level Production	May-July 2020	Aug-Dec 2020	Jan 2021	Feb 2021	March 2021	April 2021	May 2021	June 2021	July 2021	Jan/21 - Apr/22 per Apr/20 Agreement
Algeria	1,057	816	864	876	876	876	876	887	898	912	912
Angola	1,528	1,179	1,249	1,267	1,267	1,267	1,267	1,283	1,298	1,319	1,318
Congo	325	251	266	269	269	269	269	273	276	281	281
Equatorial G.	127	98	104	105	105	105	105	107	108	110	110
Gabon	187	144	153	155	155	155	155	157	159	161	161
Iran	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Iraq	4,653	3,592	3,804	3,857	3,857	3,857	3,857	3,905	3,954	4,016	4,016
Kuwait	2,809	2,168	2,297	2,329	2,329	2,329	2,329	2,358	2,387	2,425	2,424
Libya	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Nigeria	1,829	1,412	1,495	1,516	1,516	1,516	1,516	1,535	1,554	1,579	1,579
Saudi Arabia*	11,000	8,492	8,993	9,119	8,119	8,119	8,119	9,232	9,347	9,495	9,495
UAE	3,168	2,446	2,590	2,626	2,626	2,626	2,626	2,659	2,692	2,735	2,735
Venezuela	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total OPEC	26,683	20,598	21,815	22,119	21,119	21,119	21,119	22,396	22,673	23,033	23,031
OPEC vs. ref.	**0**	**-6,085**	**-4,868**	**-4,564**	**-5,564**	**-5,564**	**-5,564**	**-4,287**	**-4,010**	**-3,650**	**-3,652**

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

Non-OPEC	Reference Level Production	May-July 2020	Aug-Dec 2020	Jan 2021	Feb 2021	March 2021	April 2021	May 2021	June 2021	July 2021	Jan/21 - Apr/22 per Apr/22 Agreement
Russia	11,000	8,600	8,993	9,119	9,184	9,249	9,379	9,418	9,457	9,495	9,495
Kazakhstan	1,709	1,319	1,397	1,417	1,427	1,437	1,457	1,463	1,469	1,475	1,475
Oman	883	682	722	732	732	732	732	741	750	762	762
Azerbaijan	718	554	587	595	595	595	595	603	610	620	620
Malaysia	595	459	486	493	493	493	493	499	506	514	513
Bahrain	205	158	168	170	170	170	170	172	174	177	177
Sudan	75	58	61	62	62	62	62	63	64	65	65
South Sudan	130	100	106	108	108	108	108	109	110	112	112
Brunei	102	79	83	85	85	85	85	86	87	88	88
Total Non-OPEC	15,417	12,009	12,603	12,781	12,856	12,931	13,081	13,154	13,227	13,308	13,307
Non-OPEC vs. ref.	**0**	**-3,408**	**-2,814**	**-2,636**	**-2,561**	**-2,486**	**-2,336**	**-2,263**	**-2,190**	**-2,109**	**-2,110**
Total OPEC+	42,100	32,607	34,418	34,900	33,975	34,050	34,200	35,550	35,900	36,341	36,338
OPEC+ vs ref.	**0**	**-9,493**	**-7,682**	**-7,200**	**-8,125**	**-8,050**	**-7,900**	**-6,550**	**-6,200**	**-5,759**	**-5,762**

Source: Bloomberg, OPEC, SAF Group

Oil – Bloomberg sees OPEC+ true spare capacity 1.3 mmb/d less than expected

One of my favorite Sunday reads is Bloomberg's Julian Lee weekly Bloomberg Opinion piece. The challenge is that Sunday mornings are a scramble to get last minute news items as of our 7am MT cut off so I often don't get all the good items in the memo. Lee raised the issue that OPEC+ doesn't have as much true spare capacity as most expect. Later last Sunday, I tweeted [LINK] "*Overlooked bullish #Oil factor. A must read is @JLeeEnergy weekly @bopinion piece, he estimates #OPEC+ true spare capacity is probably closer to 4.5 mmb/d, rather then 5.8 mmb/d suggested in Declaration of Cooperation. #OOTT*". Lee wrote "*The OPEC+ countries have the capacity to raise output quickly, although maybe not by as much as we've been led to believe. Spare capacity is concentrated in just a few of the 23 countries, and the two biggest probably have less of it than the numbers used in the production cut deal indicate. One reason for this is that the reference production levels used for the two biggest producers, Saudi Arabia and Russia, were arbitrarily set at 11 million barrels a day when the deal was first struck in April 2020. That allowed Russia to claim a bigger cut than it actually made and is more than it can pump. It is also more than Saudi Arabia has produced at any time except during its April 2020 production surge. Other countries, most notably Angola, have seen production capacity slump as investment has stalled. The true production uplift available is probably closer to 4.5 million barrels a day, rather than the 5.8 million barrels suggested by the numbers in the deal.*" There is much more in the Lee opinion piece. Our Supplemental Documents package includes the Lee piece.

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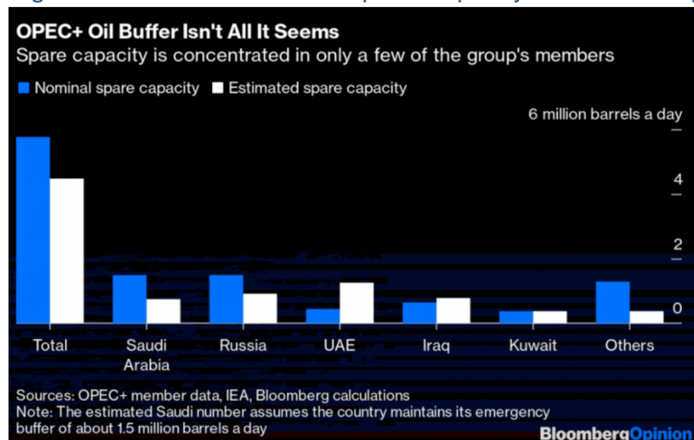
Figure 29: OPEC Estimated Spare Capacity vs Nominal Spare Capacity

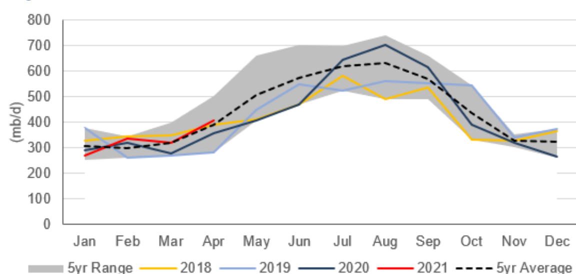


Source: Bloomberg

Oil – Reminder Saudi is just moving into peak oil consumed for electricity season

Last week's (June 20, 2021) Energy Tidbits highlighted the updated JODI data that included our monthly update of our Saudi Arabia's direct use of crude oil for electricity. Last Sunday, we tweeted [LINK] "*Reminder, just moving into peak seasonal period for Saudi using #Oil for electricity every summer. Can use an additional ~300,000 b/d from April to summer peak. Below is graph incl @JODI_Data from SAF Group June 20, 2021 Energy Tidbits memo.*" April normally marks the start of the ramp up in Saudi domestic consumption in oil to generate electricity. Saudi used more oil for electricity in Apr vs Mar due to higher average temperatures during the month, and April was higher YoY. Mar was 319,000 b/d (vs Mar 2020 of 279,000 b/d) and Apr was 407,000 b/d (vs Apr 2020 of 355,000 b/d). April was slightly above the latest 5 yr average of 320,000 b/d. Our tweet reminded that Saudi Arabia is likely to use ~700,000 b/d for electricity in peak summer months, which is +300,000 b/d vs April. Below is our monthly graph.

Figure 30: Saudi Arabia Direct Use of Crude Oil For Electric Generation



Source: JODI

Oil – Will US and Iran get to JCPOA before Raisi takes office on Aug 3?

July to be key month for JCPOA

There is no question that July is turning into the key month for the US and Iran to see if they will return to the JCPOA ahead of Raisi taking office on Aug 3. (i) This week, both the US and Iran reiterated that there isn't unlimited time to get to a deal but both also believe a deal is still within reach. On Thursday, the State Dept held a background briefing on the JCPOA with a senior state department official. Bloomberg wrote "*Let me make it absolutely clear: We just concluded round six. We will be resuming - or coming back for round seven sometime in*

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the not-too-distant future, and we wouldn't be doing that if the deal were already done. We still have serious differences that have not been bridged, serious differences with Iran over the host of issues, whether it's the nuclear steps that Iran needs to take to come back into compliance, the sanctions relief that the U.S. will be offering, or the sequence of steps that both sides would be taking. Nothing is agreed until everything is agreed. And since everything is not agreed, we still don't have anything nailed down. And there's still some very important issues that need to be resolved. By the same token, we wouldn't be going back for a seventh round if we didn't think that a deal was possible. It remains possible. It remains our objective, but we're not there yet, and I'm not going to speculate as to if or when we will get there." Yesterday, MEHR News Agency reported [LINK] "*"Out of a steadfast commitment to salvage a deal that the US tried to torpedo, Iran has been the most active party in Vienna, proposing most drafts," Saeed Khatibzadeh, the spokesman for Iran's Foreign Ministry said in post on his Twitter account on Saturday. The spokesman added by saying that Iranians "Still believe a deal is possible if the US decides to abandon Trump's failed legacy." Khatibzadeh's went on to warn Washington no to kill time and agree to lift all the sanctions against Tehran by stressing that "Iran will not negotiate forever."* (ii) There was one interesting item that the US State Dept highlighted that seemed to be a message to Iran. He used this background briefing to note a couple times that the US sees the start of the diplomatic process after the return to the JCPOA. We believe using the term "diplomatic process" is meant to send a signal to the Iran. Here is one example "*And we believe that preventing them from acquiring a nuclear weapon is an important step in then trying to address the other issues that we have with Iran. Because again, as President Biden and the Secretary of State have made clear, we see the return to the JCPOA as a beginning of a diplomatic process, not at the end, because we have many other issues of concern that we need to raise from Iran's (inaudible) groups in the region, to its ballistic missile program, to its many other destabilizing activities.*"

Oil – Why Trafigura thinks could be $100, another bullish post 2022 oil call

Trafigura case for $100 oil

No question that Abdulaziz great management of OPEC+ supply demand has led to stronger than expected oil prices even though most don't forecast oil demand back to pre covid levels until sometime in 2022. Kudos to Abdulaziz. Our view hasn't hanged that the key to the oil call is that post Covid post 2022 oil supply/demand fundamentals look very good for multi year stronger for longer oil. Early Tuesday morning, we had a 3 part tweet [LINK] on comments from Saad Rahim (Chief Economist at Trafigura) on Bloomberg Daybreak: Europe [LINK]. He was asked about the Trafigura CEO call that oil could hit $100. Rahim didn't say oil would hit $100, but laid out their view why it could hit $100. His comments were excellent and he said a lot in a little time. We recommend reading the transcript we made of his comments. (i) He reminded that any concerns that were hitting the market in 2021 are being absorbed by the market with prices staying strong. Think about, a negative story comes out, but oil price stays strong. And this happens over and over. He noted some examples, the last wave of Covid, floating storage is going down, inflation fears, OPEC still has a lot of capacity voluntarily held back, etc. (ii) Its really about "structural underinvestment". This is a theme we have been highlighting for years. Rahim said "*For us, this has really been a question of structural underinvestment that you have been seeing now, since 2014. So this has now been going for a better part of a decade. And to me, this is something where the market is slowly realizing that, even with all the spare capacity that OPEC currently has off the market, that eventually you are going to be in a situation where demand has not only recovered, but that is stronger than where it was. and you don't have that capacity anymore that you are really going to need other than maybe as a little bit of a buffer*." (iii) Demand to recover and then grow. As noted above, Trafigura Is not in the camp that peak oil demand has come. Rather, they see oil demand recovering and growing. (iv) "Other" countries had

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declining production. It was interesting to see his comment here as it reinforces why our Energy Tidbits regularly report on oil production from other smaller producers such as Colombia, Mexico, India, etc. Rahim said "*And all of a sudden I think the market is going to wake up and realize we have lost significant production from a lot of the smaller producers that people don't talk about – Angola, Mexico, Colombia, Vietnam just to name a few, and that production really needs a much higher price, not just in the front but in the back to really incentivize new production to start to come on.*" (v) Need the back end of the curve up. This is something most forget, oil investment is driven by the price over the first 5 years or so of production. Rahim reminds that many countries need higher backend prices, not just spot prices, to drive investment. (vi) Potential for $100 oil is over the next 12-18 months ie. post Covid post 2022. Rahim said "*It is something where you will quite quickly run out of spare capacity as that demand recovers back to pre pandemic levels. So given the conditions that we are seeing, so given how quickly quite frankly we come from $35 back up to $70, to $75, this is something you could see in the next 12 to 18 months, but again conditions have to be really ripe for that.*" Our Supplemental Documents package includes the transcript we made of his key comments.

Oil – 76% of US E&P and oilfield service see a supply gap in next 2-4 years

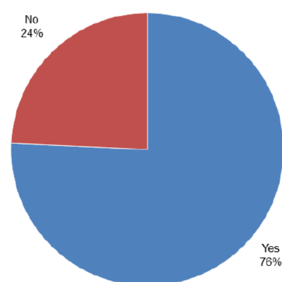
76% of US oil and gas see oil supply gap

Later in the memo, we provide more color on the Dallas Fed quarterly energy survey [LINK] of survey data collected June 9-17 from a total of 152 firms, 101 E&P and 51 oilfield services. We don't have the geographical breakdown of the respondents. We would expect the vast majority will be Texas based, after all most of the oil industry is Texas based. But we believe this is representative of the overall US E&P and oilfield service sector. For this specific question, 140 of the 152 respondents answered the question. One of the special questions this quarter was "*Do you believe there will be a global crude oil supply gap in the next two to four years?*" The survey said 76% said Yes.

Figure 31: US oil and gas companies expect a global oil supply gap

Do you believe there will be a global crude oil supply gap in the next two to four years?

Seventy-six percent of executives said they believe there will be a global crude oil supply gap in the next two to four years.



NOTE: Executives from 140 oil and gas firms answered this question during the survey collection period, June 9–17, 2021.
SOURCE: Federal Reserve Bank of Dallas.

Source: Dallas Fed

Oil – bp CEO sees strong possibility for high oil prices to sustain for coming years

bp sees higher for longer oil prices

Its interesting to see how the European supermajors that were the early movers to go all in on the energy transition are messaging what it means to believe in higher than expected oil prices for the mid term in a strategy announced to reduce oil exposure. The point for oil markets is that supermajors committed to reduce oil are grudgingly saying they now expect stronger for longer oil prices. A good example is bp CEO Bernard Looney, who was widely quoted "*I think there is a very strong possibility that these prices will sustain over the coming*

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years and if they do, that's very good for our strategy". Higher oil prices means stronger cash flows to reduce debt and to provide even stronger returns to offset the lower renewable returns.

Oil – China's oil imports -1.7% MoM in May to 9.69 mmb/d

China oil imports

China's customs data showed May imports were 9.69 mmb/d, down -1.7% MoM from 9.86 mmb/d in April. This was still a YoY increase of 14.6%, and January-May import volumes are +2.3% YoY. China imports are declining due to the rising international crude oil price. It sounds like some of the MoM decrease is due to refiners processing oil from storage. On Monday, Bloomberg reported that Chinese refiners processed ~589,000 b/d in excess of what was available from imports and domestic output, hence they must have drawn on inventory. This relatively large May draw signals that refiners would rather dip into their stockpiles than purchase cargo and import at the current prices, which they may deem to be inflated by speculative commodity flows. Bloomberg expects that June's imports will be practically in line with April and March's imports, 24.54 mmb/d and 24.79 mmb/d respectively.

Oil – India oil imports down MoM to 4.09 mmb/d in May

India May crude imports 4.09 mmb/d

Last Friday, India's Petroleum Planning and Analysis Cell released crude oil import data for May [LINK]. Total crude oil imports increased 18.5% YoY in May to 4.09 mmb/d and decreased from 4.47 mmb/d April. Crude imports for the 2020-2021 financial year were down 12.7% YoY. Petroleum products demand for May was -1.3% YoY to 3.57 mmb/d and was down 13.9% MoM from 4.15 mmb/d in April. Given the Covid situation in India this decrease in demand was expected. Refinery throughput in April-May was +24.8% YoY to 4.67 mmb/d but down from 4.86 mmb/d in April.

Oil – India asks OPEC to increase production

India asks OPEC to increase production

Recall earlier this year how India tried to force Saudi Arabia to open the taps by not buying from them, and how that didn't last long with India coming right back and bidding for Saudi oil deliveries. India's attempt at a squeeze on Saudi Arabia went nowhere and Pradhan wasn't going to try that again. Rather this time, India didn't go to Saudi Arabia, but thought they would try OEPC Secretary General Barkindo. On Thursday, India Energy minister Pradhan had a number of tweets on his meeting with Barkindo tweeting [LINK] "*I took the opportunity to express India's deep concern on increasing crude oil prices and its impact on consumers as well as on smart economic recovery. I emphasised that high crude prices is adding significant inflationary pressure on India.*" As noted earlier, its still early but the expectations seem to be for a small OPEC+ increase at Thursday's meeting.

Oil – Vortexa floating storage -9.6% WoW, down 57.8% YoY

Vortexa floating storage

We won't be surprised to see revisions and unexpected weekly changes in floating oil storage over the next two months. The strong backwardation in the market provides a big disincentive for oil to go into any mid term storage. The peak of crude oil in floating storage almost one year ago. Bloomberg reported on Vortexa floating oil data that showed a WoW decrease of 6.99 mmb or -9.6% WoW to 88.11 mmb on June 18 from 97.51 mmb on June 11. Note there was a revision to the June 11 numbers as they were adjusted upwards from 95.71 mmb. Floating storage is down -59.9% since the June 26, 2020 peak of 216.42 mmb. While the amount of crude in floating storage has declined significantly from its peak last year, it has still not returned to normal levels. Over 2017-2019, the average quantity of crude in floating storage during the week of June 18 was ~54.5 mmb. Below is a graph of the Vortexa Global Floating Storage Level over the past 5 years and a table of the past 4 years' levels of floating storage during the same week and the price of Brent that week. Our Supplemental Documents package includes the Bloomberg Vortexa report.

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Figure 32: Vortexa Global Floating Storage Level (5 yr)

Source: Bloomberg, Vortexa

Figure 33: Crude Oil Floating Storage & Brent Price

Date	Vortexa Crude Oil Floating Storage (million barrels)	Brent $/b
06/18/2021	88.1	$73.51
06/19/2020	209.5	$42.19
06/17/2019	50.0	$60.94
06/18/2018	49.5	$75.34
06/19/2017	63.9	$46.91

Source: Bloomberg, Vortexa

Oil – Bloomberg Oil Demand Monitor, Jet fuel demand on recovery path

Bloomberg's Oil Demand Monitor

We recommend reading the weekly Bloomberg terminal Oil Demand Monitor for a good recap of key oil demand indicators around the world. Their update provides more support that oil demand is moving into the demand surge period. Air travel continues to be the big demand story, and flight numbers and seat capacity data in Europe have been showing recovery: last week flight levels were at 51% of 2019 levels. This marked the first time the deficit between 2019 flight levels has been less than 50%, aside from a brief period just before Christmas. The rebound in demand is demonstrated with Portugal's demand for aviation fuel. Rising by 39% in May vs April for its third monthly consecutive gain, the data is certainly signalling there is a recovery underway. In the US, the number of passengers passing through TSA security has surpassed 2 million on six days so far in June. Prior to this the daily count had been below 2 million since March 2020. While continental Europe has seen a recovery, the UK continues to lag. The nation is still 78% below 2019 levels, while France is down 54% and the US is only 19% lower. However, the UK government is preparing to relax travel restrictions and allow Brits to travel to 150+ countries without quarantining upon their return, so this may spell the beginning of their demand recovery. Shifting to road traffic, Paris had the most road congestion of Europe this Monday morning and has returned to 2019 levels. London was down just 3%, while Tokyo and Rome were down 26%. Traffic on European highways are showing a vast improvement from April when Italy, Spain and France were all showing a deficit of 40% versus 2019 levels. Now Italy and France are only -11.0% and Spain only down –6.8%. Our Supplemental Documents package includes the Bloomberg Oil Demand Monitor.

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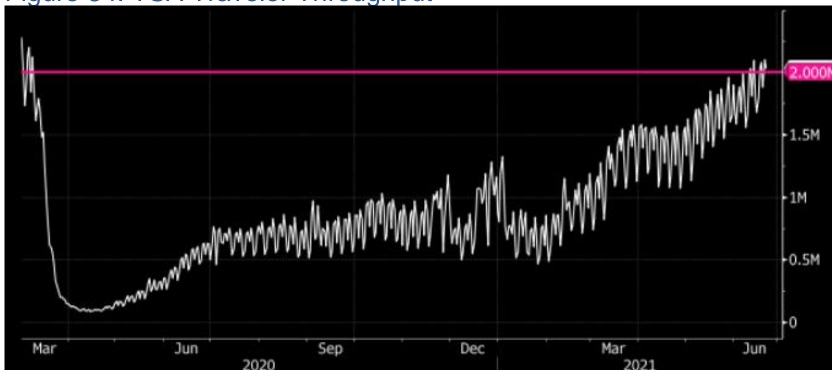
Figure 34: TSA Traveler Throughput



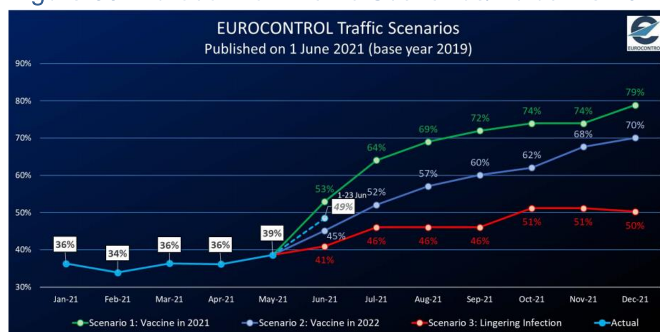
Source: Bloomberg, TSA

Oil – Eurocontrol update: European air travel on the rebound

Eurocontrol air traffic update

We believe the key oil theme this summer and thru year-end is the demand surge. We have seen it, when vaccinations ramp up quickly and get to high enough levels, there is a demand surge in oil. Eurocontrol posted its updated slide deck "*Covid-19 Eurocontrol Comprehensive Assessment Impact on European Aviation"* [LINK]. It is an excellent slide deck for a recap of Europe air travel and also some insights on international travel. European passenger air traffic is starting to rebound, Eurocontrol wrote "*18,094 flights (51% of 2019 levels) on Wed 23 June 2021, increase (+16%) over 2 weeks".* As we mentioned in the above item, this is the first time since a brief period just before Christmas that the deficit to 2019 levels has been less than 50%. Eurocontrol has seen a continuous increase to traffic as of early June, with over 19,826 flights on June 18 being the record number so far for the recovery. European air traffic for June 1-23 is at 49% of 2019 levels, which is in line with the latest Eurocontrol traffic scenarios we last highlighted in our June 6 Tidbits. Eurocontrol had predicted (in their base scenario) that the number of flights should rise from 39% of 2019 levels in May to 57% in August. Also note that the low-cost airlines are recovering and are back in the Top 10 of busiest airlines; Ryanair flew about 1000 additional flights per day since the start of June. Our Supplemental Documents package includes excerpts from the Eurocontrol slide deck.

Figure 35: Eurocontrol: Traffic Scenarios/Actual vs 2019



Source: Eurocontrol

Oil – May truck tonnage -0.7% MoM, up 3.7% YoY

Truck tonnage index -0.7% MoM in May

Earlier in the memo, we noted the tank truck driver shortage is impacting gasoline supplies to gas stations. This driver shortage is part of an overall truck/transport driver shortage impacting the supply chain in all sectors. And the US is accelerating out of Covid with the

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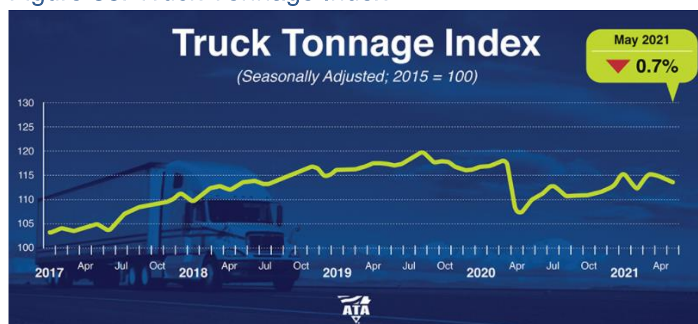
removal of most Covid restrictions with the big ramp up in vaccinations, but it is also exposing the supply chain shortages. This shows up in the monthly trucking data. Trucking tonnage serves as an important economic indicator for the U.S. economy. It has remained resilient throughout 2020 and into 2021, showing substantial improvements. The May index declined slightly after a slight decline in April, and no surprise, the supply side was cited as the big issue for trucking (namely finding qualified drivers) which other industries are also experiencing. On Tuesday, the American Trucking Association released its monthly Truck Tonnage Index which decreased 0.7% MoM in May after a 0.6% MoM decrease in April which had been revised up from a decrease of 0.3% as previously reported [LINK]. The May reading is +3.7% YoY vs Apr of +6.9% YoY. The ATA wrote *"Tonnage, despite falling slightly over the last two months, remains well above the lows of last year. This is no small deal considering that truck tonnage fell significantly less than many other indicators during the depths of the pandemic in the spring of 2020,"* said ATA Chief Economist Bob Costello. *"One freight segment that is helping tonnage is gasoline as demand for travel, both commuting and vacation related, picks up, I'm also expecting retail freight to remain robust as inventories are at historic lows. As retail stocks are rebuilt, it will boost freight. As has been the case for some time, trucking's biggest challenges are not on the demand side, but on the supply side, including difficulty finding qualified drivers."* Our Supplemental Documents package includes the ATA monthly update.

Figure 36: Truck Tonnage Index



Source: American Trucking Association

Oil & Natural Gas– Dallas Fed Survey, most bullish outlook 5 years survey history

Dallas Fed Survey

Earlier in the memo, we noted the Dallas Fed survey special question that 76% of the US oil and companies see a global oil supply gap within the next 2-4 years. There were many other insights from the Dallas Fed quarterly energy survey [LINK]. The data for this survey was collected June 9-17 from a total of 152 firms, 101 E&P and 51 oilfield services. (i) The headlines were the overall bullish outlook from oil and gas producers and service companies, seeing the best outlook since the survey started 5 years ago. This was expected given the stronger oil and natural gas prices. (ii) Activity remained elevated in Q2, the Dallas Fed wrote *"The business activity index – the survey's broadest measure of conditions facing Eleventh District energy firms – remained elevated at 53.0, essentially unchanged from its first-quarter reading"* which was the highest reading in the survey's 5-year history. *"Oil and gas production increased, according to executives at exploration and production (E&P) firms. The oil production index rose from 16.3 in the first quarter to 35.0 in the second quarter- its second-higher reading since the survey's inception in 2016. Similarly, the natural gas production index increased 19 points to 35.0".* (iii) Six-month outlooks improved significantly- the index rose from 21.6 in Q4 2020 to 70.6 last quarter and continued to rise to 71.9 this quarter, which is the highest reading in the survey's five-year survey. (iv) On average, respondents expect a WTI oil price of $70 per barrel at YE 2021, and HH price of $3.10 per MMBtu. (v)

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There were increasing costs across the board for oilfield services (OFS) on input costs, with the index rising notable from 36.0 to 56.0- a record high which suggests significant cost pressures. The same trend occurred for E&P for both lease ops (up from -5.9 to 23.4) and F&D (up from 3.9 to 28.3). (vi) Another interesting special question was on investment in wind/solar. Firms were asked whether they had already made or were planning to make investments in wind and/or solar, and the majority of respondents (83%) said they have not yet made investments. Only 7% had already made an investment, and 9% were planning to make an investment by 2025. Our Supplemental Documents package includes excerpts from the Dallas Fed survey.

Oil & Natural Gas – To early to celebrate on injunction on Biden's federal lands plan

Too early to celebrate on federal lands

Last week in our June 20 Tidbits we highlighted that a federal judge had blocked Biden's ban on federal oil and gas leases, granting a preliminary injunction and ordering that lease sales on the Gulf of Mexico and Alaska be resumed. While this reprieve was welcomed by the oil and gas sector, we knew a week ago that the story was still not over. There are two reasons why its too early to celebrate. First, we believe the administration can stall and delay in a wide range of administrative actions. A good example is what we saw in BC on how they used every tool in their toolbox to delay permits/licenses for TMX. Second, on Wednesday, Reuters reported [LINK] that the Interior Department had not yet resumed new leasing activity. During a House Natural Resources subcommittee hearing, Republican Congressman Garret Graves of Louisiana asked Interior Secretary Haaland whether the Interior Department had taken any steps to resume new leasing activity in light of the court decision, such as publishing any new lease sales in the Federal Register. Haaland replied that the Interior Department and the Justice Department were reviewing the court decision and as such had not published details of new lease sales in the Federal Register, even though last week they had agreed to comply with the court decision and resume lease sales [LINK]. Haaland also mentioned that her agency will soon release a report which will assess the future of the federal oil and gas leasing program, saying *"I don't think there is a plan right now for a permanent ban but ... the review will come out early summer and we will assess the fossil fuel programs at that time".* Our Supplemental Documents package includes the Reuters report.

Electricity – Japan's summer reserve margin improves, but still tight

Restart of nuclear and thermal improves Japan electricity reserve

One of the support items for LNG markets this summer has been the extremely tight electricity reserve situation in Japan. Its why we have noted on several times that Japan will want to keep its LNG tanks topped up. It looks like that extremely tight electricity reserve is being improved, but it is still very tight and still supportive for summer LNG prices. We last highlighted in our May 30th Tidbits that Bloomberg expected *"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%."* We commented that especially with the Olympics Japan would want to keep LNG tanks topped up. On Saturday, the NHK reported [LINK] that the electricity supply is expected to improve due to the restart of nuclear power plants and the restoration of shutdown thermal power plants. Due to these changes, the reserve margin for this summer is expected to improve to 5%-6% in Honshu, Shikoku and Kyushu in July. In August, the situation in TEPCO and Tohoku Electric Power's jurisdiction

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will improve marginally to 3.9% but other regions on Honshu and Shikoku will are set to reach 6%, and Kyushu up to 8%. Our Supplemental Documents package includes the NHK report.

Energy Transition – Petro-Canada has coast to coast Canada EV fast charging now

Petro-Canada cross Canada fast charging

Shout out to Petro-Canada for their announcement [LINK] that they have established Canada's Electric Highway, saying "*Canada's first coast-to-coast EV fast charge network. Canadians' fuelling needs are evolving, so we are excited to be the first to offer a network of EV car charging stations across the country. We have a charger every 250 km or less from Halifax, N.S. to Victoria, B.C.*" As to cost, Petro-Canada wrote "*Pay only for the time you charge. We've now implemented time-based, competitive pricing at our charging stations. Pay only $0.33 per minute in Alberta when you visit us on Canada's Electric Highway™, with no connection or idling fees.**" We can always get into the debate on there is a minute number that is needed, but it's the start. And the issue will be how quickly Petro-Canada and others can exponentially add fast chargers and at smaller intervals to deal with weather.

Figure 37: PetroCanada's Canada's Coast-to-Coast EV Fast Charge Network

Source: PetroCanada

Energy Transition – Biden has no idea how many $ trillions to get US to carbon neutral

Unknown $ trillions to get US to carbon neutral

We think Energy Secretary Granholm may have inadvertently taken away the credibility for the Biden administration to shoot down any views that the energy transition will make energy very expensive in the future. We recognize that Senate and House hearings with Biden cabinet members, in this case Energy Secretary Granholm, are basically used by the questioners to make their political point. However, in this case, we tweeted on an exchange between Rep Senator Kennedy and Granholm. Kennedy's problem is that the Biden's push to reduce emissions won't mean much if China and India don't similarly step up. But linked to that was the exchange that caused us to tweet [LINK] "*US can't control what CN IN actually spend to be #CarbonNeutral, but politics aside, shouldn't #Biden admin have a rough estimate of how many $trillions to get US to carbon neutral? How can anyone say #EnergyTransition won't cost more? #NatGas #OOTT".* The exchange starts with Kennedy asking Granholm how many trillions it will cost to get the world to carbon neutral, she doesn't have a number, he asks hundreds of trillions and she replies "*it would be a lot, for sure*" with a smile. We don't think we are been bias by saying most people think she is a well liked person and we suspect she probably that might be enough to change questions. However, it was Kennedy so he comes back asking how much the energy department thinks it will cost to make the US carbon neutral? Granholm replies, "*again, it would be a lot*", Kenney asks "*hundreds of trillions*?", Granholm "*I don't know about hundreds of trillions but it would a lot of money"*, Kennedy "*it'd be in the trillions*", Granholm "*Yes*", Kennedy "*mid trillions*?", Granholm "*I don't know*". We recognize Kennedy is trying to play at gotcha you in getting Granholm to commit to an estimate but, the more we thought about it, we thought it was a good question –

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shouldn't the Biden administration have some even really rough idea of what they think it will cost? Because without some rough cost with many unproven assumptions, how can they continue to argue that estimates or even calls that the energy transition will be expensive are incorrect or based on old thinking? Didn't Granholm take away their credibility to say that in the future. The gotcha you question may not have worked the way Kennedy wanted, but really did work in a different way. Our Supplemental Documents package includes the transcript of the Kennedy/Granholm exchange.

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

Energy Transition – Net Zero challenge, Nigeria won't skip natural gas for renewables

Nigeria to use natural gas not renewable

Earlier this morning, we tweeted [LINK] on the story out of Nigeria "*Nigeria accidentally struck 206 trillion cubic feet of gas reserve: Minister Sylva*" [LINK] that started with the headline of more Nigeria natural gas. However, we thought the more significant energy aspect was the last third of the story, which is why we tweeted "*Reinforce why #COP26 can't/won't get developing countries to sign up onto #NetZero & #EnergyTransition. Nigeria says okay for western countries who are in position to use renewables, but are moving first to #NatGas before can transit to #RenewableEnergy. Thx @chigrl for flagging.*" Nigeria's Minister of State for Petroleum, Timipre Sylva highlighted that its okay for developed countries to transition from natural gas to renewables, but not for Nigeria that is still a step behind. Sylva said "*"What we are saying is that the western countries are in a position to move to renewables after using coal and crude oil to stabilise the electricity in their areas and everybody there enjoys it. "But we have a situation in Nigeria where a lot of people do not have access to electricity yet. "So, what we are saying is that we agree to transit but let us use our gas first to develop our country and get the benefits of development, that point where everybody has electricity, then we can transit to renewable fuel," he added.*" Sylva also reminded the emissions problem is not caused by Africa, rather he said "*Africa as a continent does not contribute more than one per cent of global warming as carbon emission.*" A good reminder that if the developed countries want to fix the problem, go after who caused the problem. Our Supplemental Documents package includes the Nigeria report.

Energy Transition – COP26 problem, most populous countries are like Nigeria

Challenge for COP26

Nigeria's comments noted above are a reminder of the challenge for the developed countries (US, EU, Canada, etc) pushing the rest of the world to commit to Net Zero. The developing countries are developing countries so are still just moving into a broader fossil fuels adoption, or in the case of Nigeria, just want to move to natural gas. They know they can't or won't skip over fossil fuels to go to renewables. Its why, earlier this morning, we tweeted [LINK] "*Here is #COP26 problem for US, EU, CAN & all developed countries pushing the ROW to commit to*

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#NetZero. Nigeria won't be alone. Look at list of Top 20 countries by population. Who will give the $ trillions needed to get them to sign on, even a partial sign on? #EnergyTransition". Our tweet included the below table. The question will be how many $ trillions will the developed countries offer the developing countries in return for a certain level of commitment to reduce emissions. Perhaps this is one of the reasons why Energy Secretary Granholm and Biden don't want to say how many $ trillions it will cost to get carbon neutral. .

Figure 38: Top 20 Countries By Population

Rank	Country	Populaton 2020	World Share
1	China	1,439,323,776	18.47%
2	India	1,380,004,385	17.70%
3	United States	331,002,651	4.25%
4	Indonesia	273,523,615	3.51%
5	Pakistan	220,892,340	2.83%
6	Brazil	212,559,417	2.73%
7	Nigeria	206,139,589	2.64%
8	Bangladesh	164,689,383	2.11%
9	Russia	145,934,462	1.87%
10	Mexico	128,932,753	1.65%
11	Japan	126,476,461	1.62%
12	Ethiopia	114,963,588	1.47%
13	Philippines	109,581,078	1.41%
14	Egypt	102,334,404	1.31%
15	Vietnam	97,338,579	1.25%
16	DR Congo	89,561,403	1.15%
17	Turkey	84,339,067	1.08%
18	Iran	83,992,949	1.08%
19	Germany	83,783,942	1.07%
20	Thailand	69,799,978	0.90%
Total		5,465,173,820	70.10%

Source: Worldometer, United Nations Population Division

Energy Transition – Alberta's coal/natural gas shielding from heatwave so far

Heat wave also in Alberta

The big weather story in the US West Coast and in western Canada is heat wave. Its hot in Calgary and in the Rockies, but even hotter in northern Alberta. The stories in the US are about power conservation and couldn't help note the comments from some of the Bloomberg TV on how air conditioners were having to be set at very high temperatures. We are fortunate in Alberta and haven't been squeezed so far on any aggressive cut back in using electricity over the past couple days and can only wonder how this would be if Alberta didn't have its existing coal/natural gas reliance for electricity.

Figure 39: Forecast Daily High Temperatures in ◦C

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Medicine Hat	31	34	37	38	39	36	35
Calgary	31	35	37	37	36	29	32
Banff	32	36	37	37	34	28	31
Edmonton	31	35	37	38	37	30	32
Fort McMurray	31	36	37	42	38	31	31
Grand Prairie	35	37	41	41	29	38	31

Source: Weather.com

Demographics – Significant decline to US birthrate in 2020

2020 US birthrate declined significantly YoY

The US National Center for Health Statistics released a report on Wednesday [LINK] which showed a significant YoY decline in the US birthrate over 2020. While births had been on the decline in the nation since 2007, over 2020 there was a 4% drop in the total number of US births, which is the largest annual decline in the number of births since 1973. From 2019 to 2020, there were no increases in the birth rates, only declines. The largest declines occurred in the second half of the year, in December (8%), August (7%) and November (6%). To put

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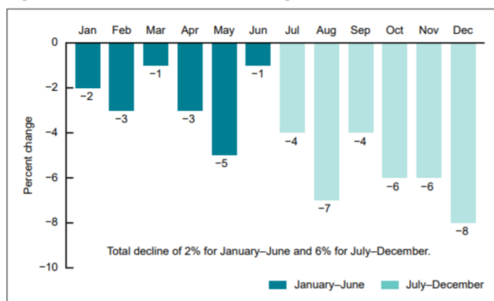
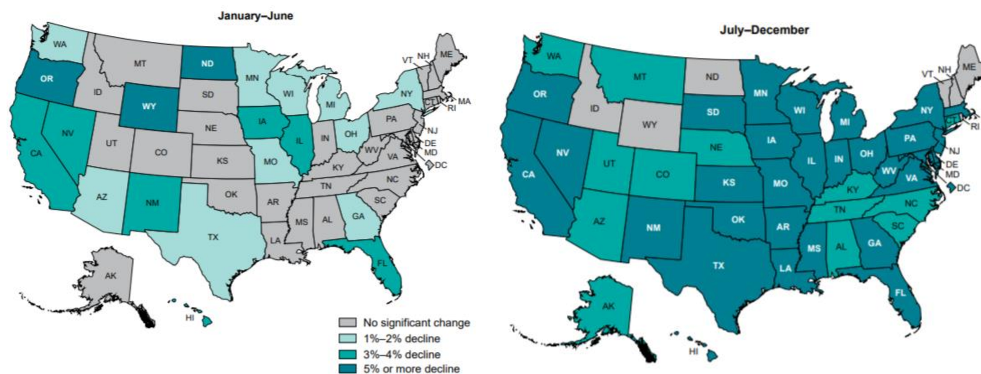
this data in perspective, in between 2018-2019, births only declined in 9 months of the yar and the maximum decline was 3%. It's no surprise that birth rates declined due to the COVID-19 pandemic – we have seen this trend happen in the wake of other crises. For example, after the global financial crisis, birth rates plunged in 2008 after just reaching the highest levels seen in decades in 2007. As we highlighted in our March 7 Tidbits, demographers say that the longer a crisis lasts, the longer the effects last on the fertility rate [LINK]. Evaluating 2021 data birth trends by month will determine whether they were unique to the pandemic or having staying power. Below is a chart which shows the percent change to the birthrate YoY, as well as a graphic showing the declines on a state-basis.

Figure 40: Percent change to US birthrate in 2020 vs 2019



Source: National Center for Health Statistics, National Vital Statistics System, Natality

Figure 41: Percent change to US birthrate in 2020 vs 2019 by state



Source: National Center for Health Statistics, National Vital Statistics System, Natality

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

@Energy_Tidbits on Twitter

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

LinkedIn – Look for quick energy items from me on LinkedIn

Look for energy items on LinkedIn

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

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Misc Facts and Figures.

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

The underdog Habs won their 3rd series, now in Stanley Cup final vs Lightning

Big shout out to the Montreal Canadians for their great run to date to the Stanley Cup finals against the Tampa Bay Lightning. The Habs have been the underdog in their three series wins to date and are for the finals. The Habs had 59 points in the regular season. Beat my Toronto Maple Leafs who had 77 points in round one, then beat the Winnipeg Jets who had 63 points and then the Vegas Golden Nights who had 82 points. The Lightning had 75 points in the regular season.

Too much information? Dyson's laser vacuum shows all your home's dirt

We couldn't help think of those news reports that come up every now and then on reporters using black lights on hotel rooms and they seemed to come up just before a business trip. It was too much information. The only relief was that you knew you were going home to your nice clean house. Well, this week, Dyson is putting an end to that automatic relief with the introduction of the new Dyson vacuum cleaner [LINK] that has laser dust detection. Basically, they use laser lights in green to show every minute spec of dust or whatever on your floor. So the good news is you can see everything to make sure you vacuum it up. The bad news is that you realize how much stuff is in your home living.

Figure 42: Dyson laser dust detection at work

Source: Dyson Canada

Anheuser Busch to buy a round if US hits Biden's July 4 vaccination goal

We didn't realize it at first that Anheuser Busch had said this before, but on Friday morning, we were watching CNBC Squawk Box interview outgoing Anheuser Busch InBev CEO Carlos Brito and couldn't help tweet when we heard his free beer offer. We tweeted [LINK] "*Free #Beer. did you just hear @AnheuserBusch CEO tell @BeckyQuick on @SquawkCNBC that they will give a free beer to everyone if US hits @POTUS July 4 vaccination rate?"* At 3:45 min mark [LINK], Brito says "*we have this promotion, you know the White House announced in that we're going to give a free beer to on the 4th of July if we get to the threshold established by the White House*". Becky Quick then asks *"I like that, how many beers you thinking you're going to give away"*. Brito "*we'll see, its all about celebrating freedon"*. Of course, when we looked on Twitter, we saw they said this about a week ago and we tweeted [LINK] "*old news but good news. apparently he has said this before today. and it's to*

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buy a round and obviously for over 21. but still who doesn't want to get a free round from @AnheuserBusch?"

Tour de France starts with two big crashes on day 1

Anyone who been to the Tour de France knows how crazy some of the fans can be to get their moment of glory on TV and, as does happen, this moment of glory can cause a massive crash. A fan holding a sign up to face the camera didn't see the riders coming up and basically caused most of the peleton to crash. There was another big crash later in the stage. We hope this isn't a sign of what is to come.

Figure 43: Tour de France massive crash caused by fan

Source: FloBikes

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