# Energy Tidbits

May 9, 2021

Produced by: Dan Tsubouchi

## Colonial's "Day After" Release Did Not Contain Any ETA To Restart of 2.5 mmb/d Gasoline/Products Pipelines

**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. No surprise that no ETA for restart of Colonial Pipeline's 2.5 mmb/d gasoline/products pipelines that were halted Friday by a cyber attack (Click Here)

2. Only 3 days to go until Michigan's May 12 shut down date for Enbridge (Click Here)

3. IEA's critical minerals report reminds the Energy Transition will take longer and cost more than expected (Click Here)

4. More views emerging that Mozambique's LNG delays will have a major impact on LNG in 2020s (Click Here)

5. May is the make or break month for return to JCPOA, indicators point to a make it month (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].

**Dan Tsubouchi**
Principal, Chief Market Strategist
dtsubouchi@safgroup.ca

**Ryan Dunfield**
Principal, CEO
rdunfield@safgroup.ca

**Aaron Bunting**
Principal, COO, CFO
abunting@safgroup.ca

**Ryan Haughn**
Principal, Energy
rhaughn@safgroup.ca

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### Natural Gas – Natural gas injection of 60 bcf, storage now -345 bcf YoY deficit

**YoY storage at -345 bcf YoY deficit**

The EIA reported a 60 bcf injection (vs 63 bcf injection expectations) for the April 30 week, which was well below the 5-yr average injection of 81 bcf, and below last year's injection of 109 bcf. Storage is 1.958 tcf as of Apr 30, increasing the YoY deficit to 345 bcf from 302 bcf last week and storage is now 61 bcf below the 5 year average vs 40 bcf below last week. The significant YoY deficit along with the forecasted very 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 (04/30/20) | | 5-year average (2016-20) | |
|---|---|---|---|---|---|---|---|---|
| Region | 04/30/21 | 04/23/21 | net change | implied flow | Bcf | % change | Bcf | % change |
| East | 332 | 319 | 13 | 13 | 421 | -21.1 | 346 | -4.0 |
| Midwest | 442 | 427 | 15 | 15 | 527 | -16.1 | 429 | 3.0 |
| Mountain | 124 | 119 | 5 | 5 | 110 | 12.7 | 117 | 6.0 |
| Pacific | 224 | 217 | 7 | 7 | 227 | -1.3 | 219 | 2.3 |
| South Central | 836 | 816 | 20 | 20 | 1,020 | -18.0 | 908 | -7.9 |
| Salt | 264 | 258 | 6 | 6 | 329 | -19.8 | 289 | -8.7 |
| Nonsalt | 572 | 558 | 14 | 14 | 691 | -17.2 | 619 | -7.6 |
| Total | 1,958 | 1,898 | 60 | 60 | 2,303 | -15.0 | 2,019 | -3.0 |

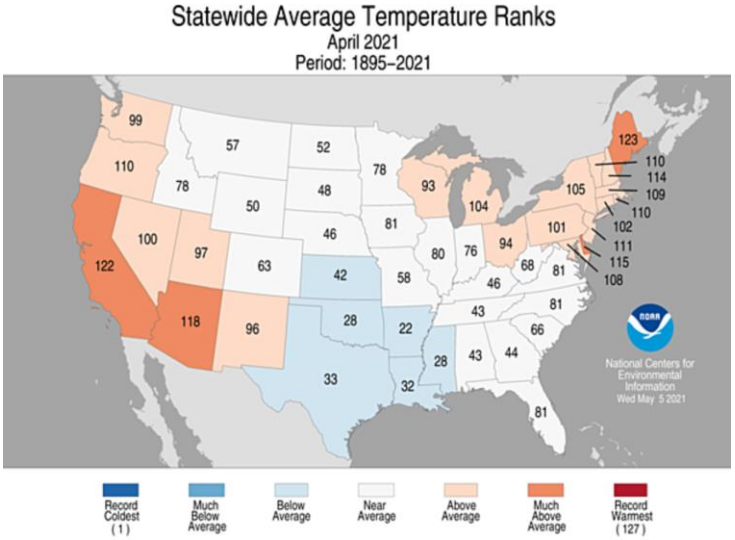
Source: EIA

### Natural Gas – April was warm, perfect weather to leave the windows open

**A warm April**

From a weather perspective, April was not a good month for natural gas demand as it was the 43rd warmest in the last 127 years. This would typically point to the perfect weather to keep windows open for fresh air. But despite the weather, the YoY deficit in US gas storage increased from -235 bcf at the end of March to -345 bcf at the end of April. Storage started the winter at a +200 bcf YoY surplus. Below is the NOAA's statewide average temperature map for April 2021. [LINK]

Figure 2: US Statewide Average Temperature Ranks April 2021




Source: NOAA

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### Natural Gas – Woodfibre LNG signs sales agreement with BP

**Woodfibre LNG signs sales agreement with BP**

We have to believe Woodfibre LNG's power source being BC hydro electric power is a key competitive advantage in securing customers for any offtake. LNG buyers are increasingly looking for carbon neutral LNG cargos and hydro electric power is a huge advantage. Woodfibre LNG announced on Thursday that it signed a sales agreement with BP Gas Marketing Limited (BPGM) [LINK] for the delivery of LNG from PO&G's Woodfibre LNG export facility near Squamish, BC. The new agreement stipulates BPGM will receive ~0.10 bcf/d over 15 years on a free on-board basis. The new agreement will increase BPGM's total LNG off-take to 0.19 bcf/d, which is over 70% of Woodfire LNG's future annual production. A key driver for the demand for gas from Woodfibre is that the facility will be powered by hydro, making the cargos cleaner than other facilities. Very attractive given the push recently for LNG shipments to be made carbon neutral. Construction on the Woodfibre LNG facility had been delayed, but is expected to begin in summer 2021 [LINK]. Our Supplemental Documents package includes the Woodfibre announcement.

### Natural Gas – Cheniere sees LNG demand doubling but not a supply gap till late 2020s

**Cheniere's LNG outlook**

Cheniere held its Q1 call on Tuesday and included comments and slides on its LNG outlook. (i) Forecast LNG trade to approx. double by 2040 and add ~46 bcf/d. "*On the demand side, the structural shift of gas on a global basis is evidence of the near-term doubling of LNG importing nations in the last ten years and the hundreds of billions of dollars of natural gas oriented infrastructure being built around the world today. LNG consumers recognize and value LNG's flexibility reliability, affordability in the critical role natural gas plays in improving environmental performance and achieving decarbonization goals. We forecast that global LNG trade well approximately double expanding by approximately 350 million tonnes per annum, over 700 million tonnes per annum by 2040, which would support additional approximately 225 million tonnes per annum of incremental global supply*." (ii) "*Demand for LNG and natural gas is expected to grow for decades to come.*" (iii) There is one big caveat to this next comment – Cheniere's long term demand forecast is not a Cheniere forecast, but uses 3rd party demand outlooks. We always wonder why a major global LNG player does this? This is what they did in their H2/20 slide decks and it wouldn't have causes us to pause if we hadn't seen their response when asked about how Mozambique LNG issues impact the global LNG market. It just feels like they are playing a a little possum until they can lock up some supply. Only time will tell, but in their slide deck, they have a long term LNG outlook that doesn't show a LNG supply gap until 2028/2029 but its based on other demand forecasts. And we would assume that they have Total 1.7 bcf/d in under construction. but if we adjust for that, this graph is far more conservative than Shell's. forecast that had LNG supply gap around 2025. Our Supplemental Documents package includes excerpts from the Cheniere Q1 call and Q1 call slide deck.

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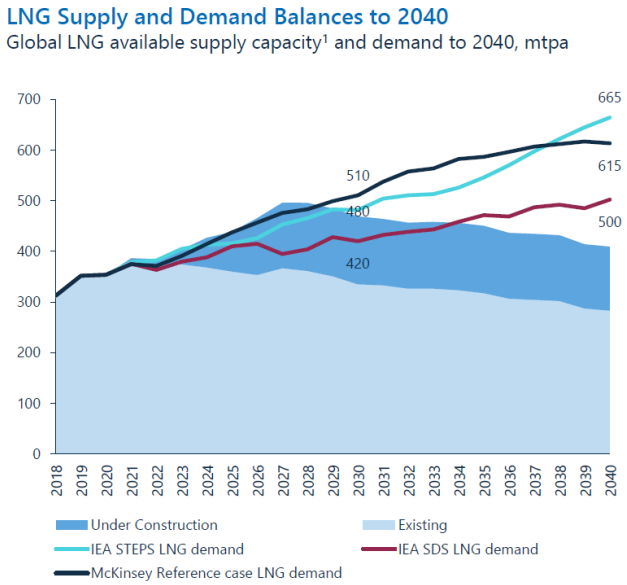
Figure 3: LNG Supply and Demand Balances to 2040




Source: Cheniere

**Natural Gas – Rystad seeing tighter LNG market due to Mozambique unrest**

**Mozambique impact on LNG supply/demand balance**

Similar to our April 28, 2021 Blog *"Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?"* [LINK]. Rystad released a blog on Wednesday detailing their forecast for a tightening LNG supply market thru the mid 2020s and into 2030/2031 [LINK]. Prior to the issues with Mozambique LNG projects, Rystad had a view of a relatively loose market from 2026-2030, but now forecast that ~1.2 bcf/d of supply could be removed from the market between 2026 and 2030, in addition to a lost 2 bcf/d from potential delays to Rovuma in 2027-2028. As a result Rystad's LNG supply/demand forecast has tightened out to 2030, with a supply deficit now expected in 2029 and 2030. Total phase 1 had been originally scheduled for completion in 2024, however Rystad now expects it reach production in 2026, similar to our view that the one year official delay from Total means that for construction/process to reach the point of stoppage once its resumed will add significant time to the process. Additionally Rystad expects that its likely that Rovuma will be delayed, coming online only in 2029 rather than 2027. On the Rovuma impact Rystad wrote *"Although Rovuma LNG's project timeline is behind Mozambique LNG, its forecasted delay from 2027 to 2029 is likely to have a larger impact on the market as its production is taken off an increasingly balanced market".* With these delays beginning to tighten the market beginning in 2024 vs previous expectations, Rystad expects contract and spot prices will have significant upwards pressure. Our Supplemental Documents package includes the Rystad blog.

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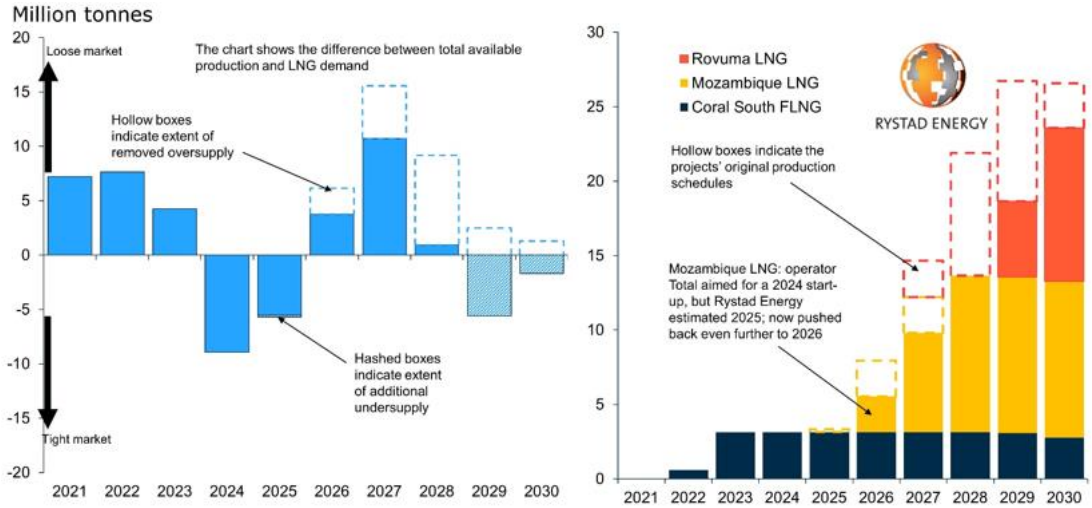
Figure 4: Impact of Mozambique LNG Delays




Source: Rystad

### SAF blog, Mozambique impact on global LNG supply/demand, 5 bcf/d hit

As noted above, we released our April 28 blog [LINK] because of Mozambique. We believe 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. It is being overlooked because markets are focused on Total's Tuesday announcement of force majeure at its Mozambique Phase 1 LNG of 1.7 bcf/d, but aren't 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 have been warning on Mozambique has a major LNG market impact and its why, on Wed, we posted our new 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] Recall that Total stopped development in Dec due to the security/violence, resumed development on Wed March 24, 3 days of violence ensued, Total then stopped development again on Sat March 27, declared force majeure on Mon April 26, and announced at least a year delay on Thurs April 29. We posted a blog a day before Total's Thursday Q1 call, but saw nothing to change our view that the likely delay is at least 2 years. On the call, Total said they expect at least a year delay. 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. Our Supplemental Documents package includes our blog.

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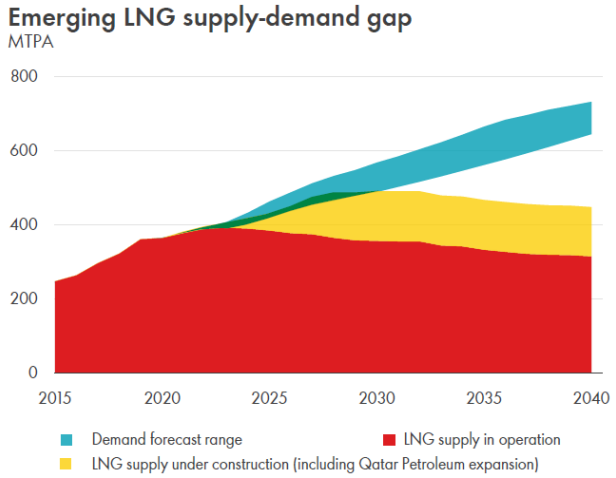
**Shell sees a LNG supply gap around 2025, likely a pre Mozambique call**

We recognize there are many different forecasts for LNG, but are referencing Shell' LNG Outlook 2021 from Feb 25, 2021 for a few reasons. (i) Shell's view on LNG is the key view for when and what decision will be made for LNG Canada Phase 2. (ii) Shell is one of the global leaders in LNG supply and trading. (iii) Shell provides on the record LNG outlooks every year so there is the ability to compare and make sure the outlook fits the story. It does. (iv) Shell, like other supermajors, has had to make big capex cuts post pandemic and that certainly wouldn't put any bias to the need for more capex. Shell did not provide the detailed numbers in their Feb 25, 2021 LNG forecast. We would assume they would have reflected some delay, perhaps 1 year, at Mozambique but would be surprised if they put a 2-3 year delay in for the 5 bcf/d from Total Phase 1 +2 and Exxon Rozuma Phase 1. Their long term LNG demand for 2040 is ~700 mm tonnes (92 bcf/d) vs 360 mm tonnes (47 bcf/d) in 2020. In the 2021 outlook, Shell highlighted that the pandemic delayed project construction timelines and that the "*lasting impact expected on LNG supply not demand*". And that Shell sees a LNG "*supply-demand gap estimated to emerge in the middle of the current decade as demand rebounds*". This is why we believe a 2 to 3 year delay in the 5 bcf/d of Mozambique LNG supply will bring a bigger and sooner LNG supply gap. Total's 1.7 bcf/d Phase 1 Mozambique was to be in-service in 2024.

Figure 5: Supply-demand gap est to emerge in the middle of the current decade




Source: Shell's Feb 25, 2021 LNG Outlook 2021

**Natural Gas – Cheniere only knows what we read on TOT MZ impact on LNG markets**

**Cheniere on Mozambique**

We had to chuckle when we saw Cheniere's response in the Q&A to its Q1 call on Tuesday that they only know what we know from reading the Total releases on Mozambique and its impact on LNG markets. Its why we tweeted [LINK] "*Hmm! $LNG says only know what we read on #LNG market impact from $TOT $XOM MZ LNG delays. Surely #TohokuElectric & other offtake buyers are reaching out to #Cheniere. MZ LNG delays is a game changer to LNG in 2020s, see SAF Group blog. Thx @olympe_mattei @TheTerminal #NatGas".* How could they not be talking to LNG buyers for Total and /or Exxon Mozambique LNG projects. In the Q1 Q&A, mgmt was asked about Mozambique and didn't know any more than what you or I have read. Surely, they are speaking to LNG buyers at either Total Mozambique or Exxon Rozuma Mozambique or both. Mgmt is asked "*wanted to just kind of touch on the color use talking about for these supply curve. And are you able to kind of provide any*

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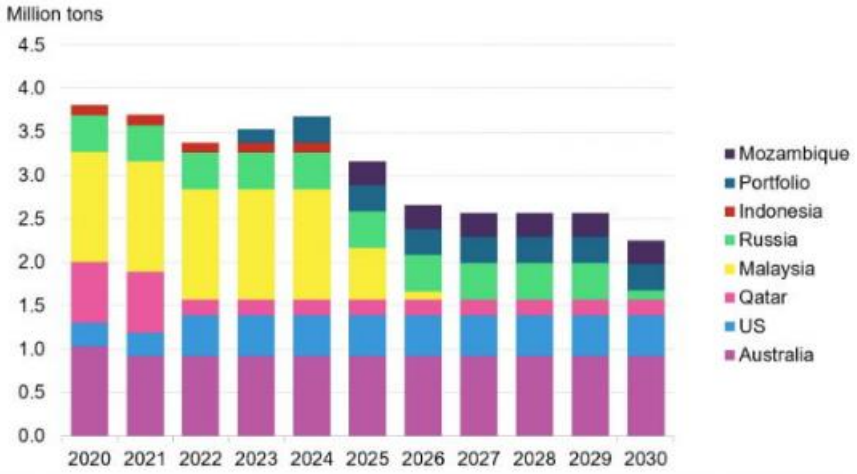
*thoughts on the Mozambique and a deferral with the project of that size on 13 and TPA being deferred by we see you have you noticed any impact to the market has is there any impact for stage 3 with that capacity? Thanks*." Mgmt replies "*No. Look, I only know about the Mozambique delay with what I read as well as what you read that from total and an Exxon. And it's a sad situation and I hope everybody is safe and healthy that were there to experience that unrest but no I don't think it's, again it's a different business paradigm than what we offer. So, we offer a full value product, the customer doesn't have to invest in equity, customer doesn't have to worry about the E&P side of the business because, we've been able to both the by at our peak almost 7 Dee's a day of US NAT gas from almost a 100 different producers on 26 different pipelines and deliver it to our to facilities. So we take care of a lot of what the customer needs".*

**Tohoku impacted by Mozambique**

### Natural Gas – Tohoku Electric LNG supply impacted by Total Mozambique delay

Our Cheniere tweet [LINK] also said "*Surely #TohokuElectric & other offtake buyers are reaching out to #Cheniere. MZ LNG delays is a game changer to LNG in 2020s, see SAF Group blog. Thx @olympe_mattei @TheTerminal #NatGas".* On Thursday, BloombergNEF reported on Tohoku Electric Power, who is one of the LNG offtake buyers for Total's Mozambique LNG. And in Tohoku's case, their LNG contracting strategy puts them at risk for post 2025 LNG supply. It wasn't a big number, but Bloomberg's report "*Tohoku's LNG Growth on Tenterhooks With Mozambique Delay: BNEF*" reported on how Tohoku was counting on Total as part of its needed post 2025 LNG supply. BloombergNEF wrote "*Tohoku Electric Power Co. will see growth in liquefied natural gas demand over coming years, but delay to a Mozambique production facility may push it to look for alternatives to meet its growing demand. Tohoku, Japan's northern region electric utility, will see half of its LNG contracts expire by 2026; these include deals with Malaysian and Indonesian LNG producers. Tohoku contracted 0.28 million tons a year of LNG from Total SE's under-construction Mozambique LNG. Recent troubles at the project could delay commissioning to late 2025 or beyond. Tohoku may need to secure some short-term volumes to cover delays at Mozambique or turn to the spot market when the time comes."* Our Supplemental Documents package includes the BloombergNEF report.

Figure 6: Tohoku Electric's Active LNG Contract Volume




Source: BloombergNEF

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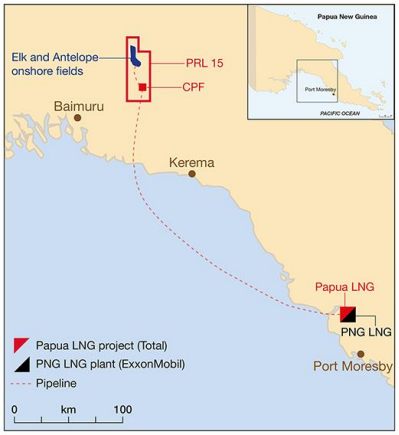
### Natural Gas – Total looking to FID Papua LNG in 2023

**Papua LNG project advancing**

Total announced on Wednesday that they are again beginning to advance development steps for their 2 train, 0.74 bcf/d LNG facility in Papua New Guinea [LINK]. Further steps on this project had been placed on hold during covid, but now are beginning to resume with Total expecting to launch the front-end engineering and design stage in early 2022 with FID expected in 2023. The facility will get its gas from the Elk and Antelope onshore fields with a 320 km pipeline to the site in Caution Bay, near Exxon's existing PNG LNG facility. Total si the operator of fields and has 31.1% interest with the remainder being made up of Exxon (28.7%), Oil Search (17.7%), and the state at 22.5%. Our Supplemental Documents package includes the Total announcement.

Figure 7: Total Papua LNG Project



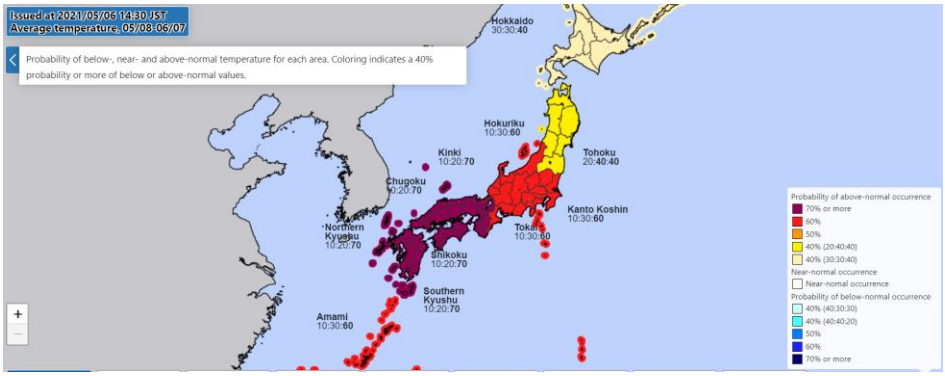

Source: Total

### Natural Gas – Japan seeing warm temps to start the summer

**Japan expecting a warm May**

The Japan Meteorological Agency posted their update one month out forecast on Thursday for the period of May 8-June 7 [LINK]. The forecast for the beginning of summer is turning warmer with above normal temperatures expected, especially in the southern portion of Japan. Initial looks for June and July are also signaling for above normal temperatures. Below is the current JMA forecast for May 8-June 7 temperatures.

Figure 8: May 8 – June 7 JMA Temperature Forecast




Source: Japan Meteorological Agency

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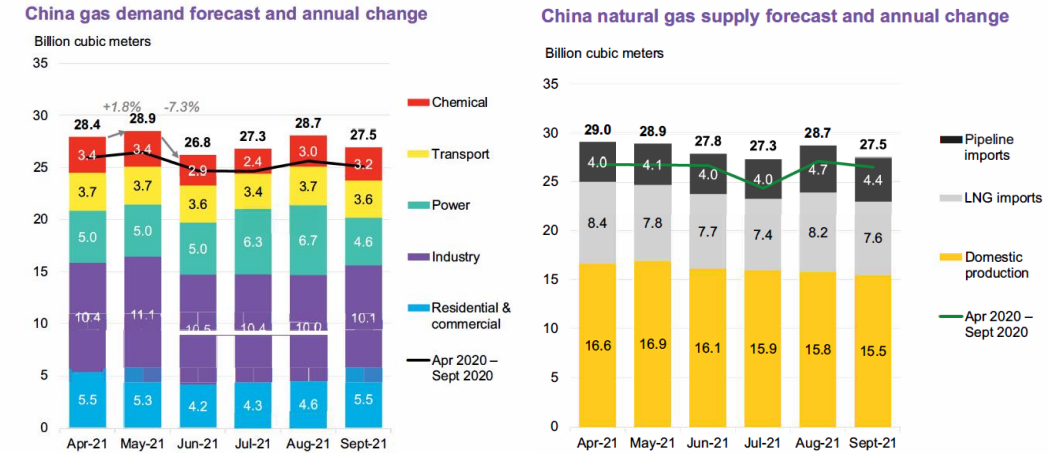
### Natural Gas – China pipeline imports to outperform LNG imports this summer

**China natural gas supply and demand**

Bloomberg reported on the preliminary release of China natural gas import data for April. As this is the preliminary release there is no split of LNG and piped gas imports. Total natural gas imports in April were 16.25 bcf/d, up 16.3% MoM from March of 13.53 bcf/d. YTD China's total natural gas import volumes have averaged 15.93 bcf/d, up 22.4% YoY. Bloomberg's China Gas Monthly posted on Friday estimates that LNG imports were likely strong in April, increasing 12.4% MoM and up 20.9% YoY mainly due to strong industrial consumption along with a refilling of inventories. However, they expect this MoM growth may stop in May due to an expectation of increasing domestic output and higher piped gas deliveries. We tweeted [LINK] on another element of the import data – natural gas MoM increases significantly outperformed coal and oil. We tweeted "M*ore support for stronger #LNG this summer - less cargoes being redirect to EU storage. China April resource imports. #CrudeOil +7.2% YoY, -20.5% MoM. Coal -28.8% YoY, -20.5% Mom. But #NatGas (LNG + pipeline imports) +22.4% YoY and +16.3% MoM. Thx @_AilingTan for data. #OOTT".* There are many other great insights/reminders from the China Gas Monthly such as how gas pipeline imports will outperform LNG imports this summer. The report also some great data such as the map of existing LNG terminals. Our Supplemental Documents package includes excerpts from the China Gas Monthly.

Figure 9: China Gas Demand




Source: BloombergNEF

### Natural Gas – China natural gas imports +16.3% MoM to 16.25 bcf/d

**China natural gas imports**

Bloomberg reported on the preliminary release of China natural gas import data for April. As this is the preliminary release there is no split of LNG and piped gas imports. Total natural gas imports in April were 16.25 bcf/d, up 16.3% MoM from March of 13.53 bcf/d. YTD China's total natural gas import volumes have averaged 15.93 bcf/d, up 22.4% YoY. Bloomberg's China Gas Monthly posted on Friday estimates that LNG imports were likely strong in April, increasing 12.4% MoM and up 20.9% YoY mainly due to strong industrial consumption along with a refilling of inventories. However, they expect this MoM growth may stop in May due to an expectation of increasing domestic output and higher piped gas deliveries. We tweeted [LINK] on another element of the import data – natural gas MoM increases significantly outperformed coal and oil. We tweeted "M*ore support for stronger #LNG this summer - less cargoes being redirect to EU storage. China April resource imports. #CrudeOil +7.2% YoY, -20.5% MoM. Coal -28.8% YoY, -20.5% Mom. But #NatGas (LNG + pipeline imports) +22.4% YoY and +16.3% MoM. Thx @_AilingTan for data. #OOTT".*

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### Natural Gas – LNG cargoes being diverted from India

**LNG cargoes diverted from India**

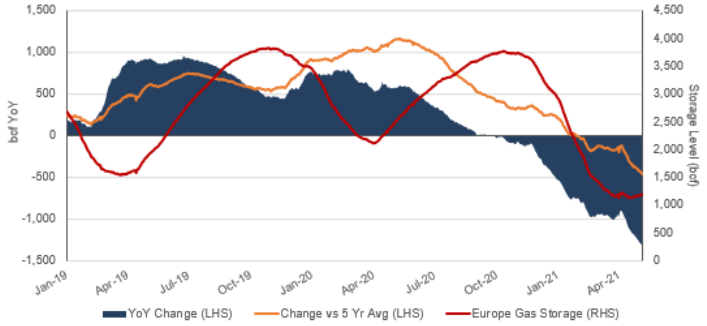
There were a number of positive support items for summer LNG from China this week, but one LNG and oil market negative is India. The massive wave of covid in India is now looking to be impacting oil/natural gas/LNG demand and imports. Reuters reported on Monday [LINK], that six LNG tankers had been diverted away from India since April 20. The tankers' destination was diverted to Northeast Asia, Europe and Kuwait instead. This comes amidst coronavirus cases surging in India, hitting 300,000 new cases for the 12th straight day on Monday, with total caseload just under 20mm. With lockdowns being imposed in several parts of the country, gas demand has taken a significant hit. Additional diversions of imports are expected, though the number is dependent on the severity of lockdowns. India's LNG imports were down 11-14% from March's imports but is still up significantly YoY (~33%) from last April's nationwide lockdown. Our Supplemental Documents package includes the Reuters report.

### Natural Gas – Europe storage 30.33% full vs 5 year average of 42.97%

**Europe gas storage 30.33% full**

We continue to see the set up for strong summer LNG price, which should support strong US LNG exports to Europe. It was cold through March and into April which had delayed the refill push in Europe and this is setting up support for summer prices. There was a big draw in Europe gas storage this winter so no surprise it was a good winter for LNG prices. Additionally, the significant YoY deficit in Europe gas storage at the end of winter indicates that there will be strong demand for European LNG imports during the refill push especially since Russia looks like it only plans to ship contract volumes via Ukraine 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 has further delayed the refill push as flows switch from injections between April 1-6, to draws once again. This has resulted in the longest withdrawals season in history, supporting Europe LNG cargo prices. We are now seeing storage starting to slightly build, with storage as of May 6 being up 1.43% since April 19, which looks to be the bottom. Storage as of May 6 is 30.33%, 34.4% less than last year of 64.73% and 12.64% below the 5 yr average of 42.97%. Europe storage levels this summer will be the key item to watch for indications on LNG markets going into the winter. Below is our graph of YoY change in net LNG flows to NW Europe.

Figure 10: Europe Gas Storage Level




Source: Bloomberg

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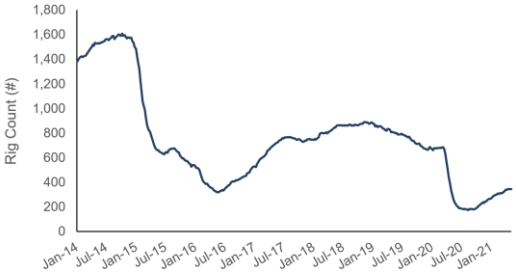
### Oil – US oil rigs up 2 to 344 oil rigs

**US oil rigs +2 this week**

Baker Hughes reported its weekly rig data on Friday. We have been expecting to see modest increases to US oil drilling with the strong oil prices. US oil rigs were up by 2 rigs to 344 oil rigs as of May 7. The Permian was up by 5 to 227 rigs and is showing signs of ramping back up. There were two decreases, Others was down by 1 and Eagle Ford was down by 2 rigs. Oil rigs have been on a strong recovery path and are +172 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 339 to 344 oil rigs (-49.6%). Below is our graph of Baker Hughes US oil rigs.

Figure 11: Baker Hughes Total US Oil Rigs



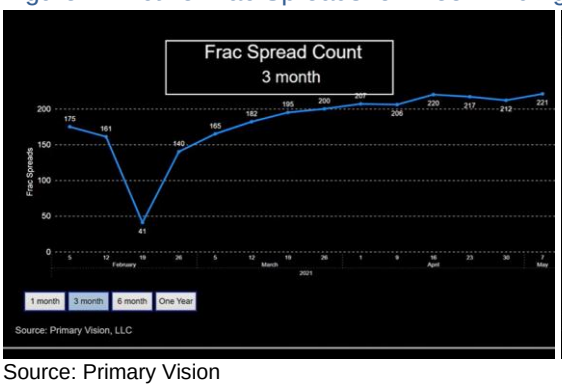

Source: Baker Hughes

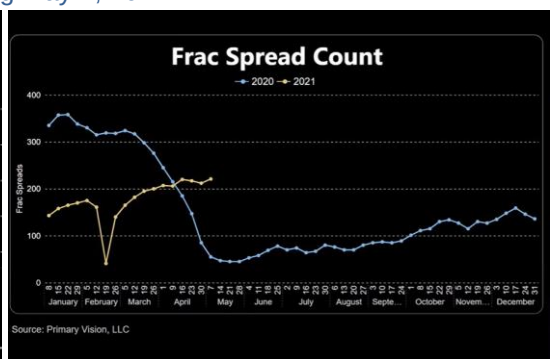
### Oil – Frac spreads +9 to 221 for week ending May 7

**Frac spreads +9 to 221**

Every week, Mark Rossano (C6 Capital Holdings) posts a YouTube recap of frac spreads for the week on the Primary Vision Network [LINKI]. US frac spreads were +9 to 221 for the week ending May 7. Permian frac spreads were up this week, but recall his comment from last week on how the Permian was down 3, but that was because they were moving to another site as opposed to being inactive. So no surprise Permian was up this week. The 221 frac spreads is in line with the top of the 220 range he has been expected for the first half of May. But then should see the season move up in June and July, and then July is when the seasonal peak is and frac spreads normally go sideways. Rossano noted that Permian rig count and frac spread should keep production flat, but need to see rig increases in other basins to add to the DUC inventory levels. Below are his two key frac spread graphs.

Figure 12 Active Frac Spreads for Week Ending May 7, 2021




Source: Primary Vision

### Oil – Total Cdn rigs up 4 to 55 total rigs and up 29 YoY

**Cdn rigs +4 this week**

Once again it looks like the first week of May was the trough for Cdn rigs during spring break up. Baker Hughes reported total Cdn rigs were up 4 this week to 55 total rigs. The increase

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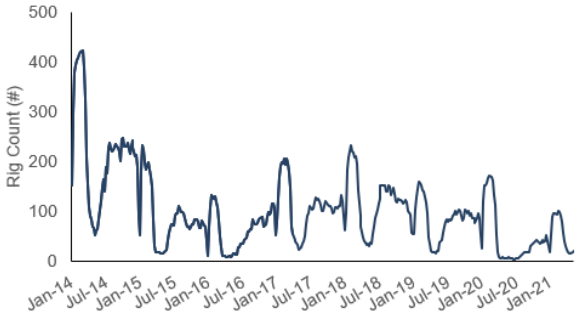
shows Canada coming out of the spring trough, and rig counts will continue to modestly increase for the next couple weeks and then should increase at a faster rate thereafter. Cdn oil rigs were up 2 at 22 rigs. Cdn gas rigs were up 2 to 33 gas rigs this week. Total rigs are now +42 since the June 26 all-time low. Cdn drilling has recovered YoY, a year ago Cdn oil rigs were 7 and Cdn gas rigs were 19 for a total Cdn rigs of 26, meaning total Cdn rigs are +29 YoY and total rigs are down 8 vs 2019. Below is our graph of Baker Hughes Cdn oil rigs.

Figure 13: Baker Hughes Total Canadian Oil Rigs




Source: Baker Hughes

### Oil – PSAC raises 2021 Cdn wells forecast for 2021 by 7.5% to 3,600

**+250 wells from Jan forecast**

Despite the much higher oil prices YoY, the expectation for capex budgets in 2021 remains relatively modest vs what the price levels may imply. We believe oil prices could justify a a sizeable increase in capex budgets. However, producers feel it is too early to do so given they just came out of a tough 2020 when they set up survival type plans to deal with the oil price crash. And its just too early to abandon those plans yet. However, the set up is different as we get to Q4 when they go to set 2022 capex budgets. If prices are holding where they are, then the 2022 capex budgets will see much larger increases. For now, the increase drilling activity is modest. PSAC released its second update to its Canadian Oilfield Services Activity Forecast for 2021, which is reflective of this modest increase [LINK]. PSAC increased its forecast for wells to 3,600, an increase of 250 or 7.5% vs their Jan forecast of 3,350. This is based on WTI of $58/b, AECO C$2.75/mmbtu, and a $0.80 dollar vs the Jan forecast of $50/b WTI, C$2.60/mmbtu AECO, and a $0.79 dollar. PSAC expects the drilling to be H2/21 weighted, with only 45% of wells expected to be drilled in H1/21. Wells in Alberta are expected to increase 482 YoY to 1,920, Saskatchewan +48 to 1,125, and BC +83 to 450. Our Supplemental Documents package includes the PSAC update.

### Oil – US weekly oil production flat at 10.9 mmb/d

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

US oil production was flat at 10.9 mmb/d for the Apr 30 week. Lower 48 down 0.1 mmb/d to 10.4 mmb/d. This puts US oil production down 1.0 mmb/d YoY, and is down 2.2 mmb/d since the 2020 peak of 13.1 mmb/d on March 13. The EIA April STEO revised down US oil production for the remainder of 2021 by 0.11 mmb/d to 11.04 mmb/d, down 1.74 from Q4/19 peak of 12.78 mmb/d. YoY growth returns in 2022 with average production of 11.86 mmb/d, +0.82 mmb/d YoY with Q4/22 production of 12.18, down 0.6 mmb/d vs Q4/19. This reduction was mainly due to lower than expected activity levels outside of the Permian. The EIA DPR has the expectation of slight MoM increases in April and May. The EIA forecasts May at 7.612 mmb/d which is +12,000 b/d MoM. The EIA Form 914 actuals for February came in 563,000 b/d lower than the EIA weekly estimates for February, which was due to the brutal cold and snow of February dropping production abruptly.

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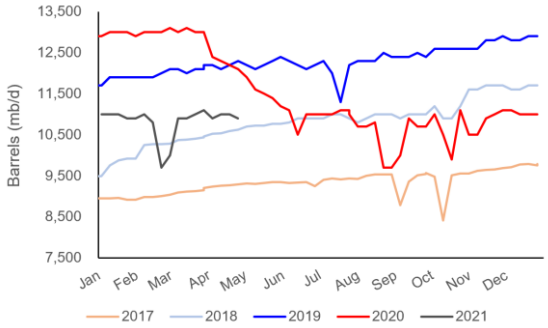
## Figure 14: EIA's Estimated Weekly US Oil Production

| | 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 |

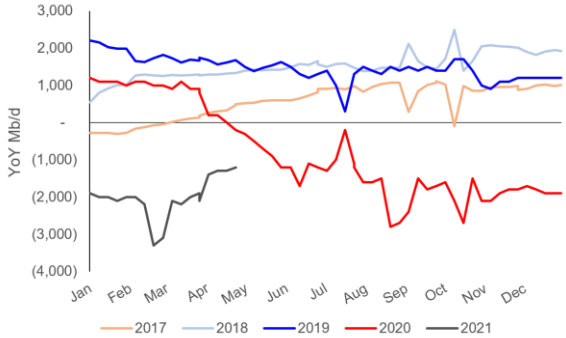
Source: EIA

## Figure 15: US Weekly Oil Production




Source: EIA, SAF

## Figure 16: YoY Change in US Weekly Oil Production




Source: EIA, SAF

### Oil –DAPL still waiting on judge's ruling

**Still waiting on judge's DAPL ruling**

We are still waiting to hear what the Judge decides on DAPL. On Thursday, Energy Transfer held its Q1 call. In their prepared remarks, mgmt said "*The Army Corps filed a status report*

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*informing the court that in is not changed its position related to the continued operations of the pipeline. The Army Corps also advise the court that expects the environmental impact statements to be completed by March of 2022. We continue to cooperate with the Army Corps related to their preparation of the EIS process Dakota Access is a world-class asset and we expect it to continue flowing or reliably safely and efficiently as it has done for the past 4 years. Dakota Access is critical to this country for job tax revenue and for energy security and independence."* Then in the Q&A, mgmt replied "*Yeah, this is Tom. Mason, we made a filing to kind of put us in line to go to Supreme Court, if we need to, we don't really anticipate that will need to go that route just [ph]Burg is going to rule on the motion for injunction sometime in the near future, we expect a favorable results from that. And if that happens, then we continued to end of environmental impact statement preparation process that the core is working through and we just kind of business as usual, we'll continued to operate the pipeline in continue to work through the EIS process. I don't. The Supreme Court route is probably not something that's top of our list."* DAPL has a 570,000 b/d capacity.

**Colonial 2.5 mmb/d pipeline shut down**

### Oil – No ETA for resumption of 2.5 mmb/d Colonial pipeline shut down Friday

As of our 7am MT, we have not seen any indication of when there will be a restart to the Colonial Pipeline system. Earlier this morning, we tweeted [LINK] that Colonial Pipeline's release on Saturday was not the normal "day after" release because there was no estimate or indication of a restart time. We suspect its because this is a new type of interruption. Its not like the normal pipeline break/explosion or even a hurricane, when the day after release will normally have some sort estimated restart date. Our second tweet [LINK] noted that the Colonial release reminded us more of the type of "day after" release we would see in an oil spill where every spill is different. In oil spills day after release, we don't normally see estimate for return to service, rather the focus for oil spills is on control, clean up and make sure that whatever caused the spill does not have any recurring risk for spills. This is not the normal event and maybe the fix will be quick, but we have to believe Colonial's priority is less to restart and more to make sure there isn't a restart and they didn't fix the problem. It doesn't mean this doesn't' restart in a day or two, it just means that they have to prioritize making sure they are protected against a second followup attack. We hope we are wrong and the people saying the interruption will only be a couple days are right. But its also why we call this a major supply interruption that happened on Friday that will be impacting markets on Monday morning. Colonial Pipeline stopped shipments on Friday of gasoline, distillates, jet fuel, etc on its 2.5 mmb/d pipelines from Houston to the NE US. Colonial transports 40% of the petroleum products shipped to the US NE. This is a major supply disruption, especially as the US is moving into the traditional peak driving season, the start of which is signified by Memorial Day weekend. And this is especially so as the US's rapid vaccination is allowing Americans to bust out of the Covid stay at home. The big news early Saturday morning with the reports that the reason for the Colonial Pipeline total network shut down on Friday was that it was due to a cyber attack. Yesterday, we tweeted [LINK] on Colonial's press release [LINK] that confirmed it was "*the victim of a cybersecurity attack. We have since determined that this incident involves ransomware. In response, we proactively took certain systems offline to contain the threat, which has temporarily halted all pipeline operations, and affected some of our IT systems."* There was no estimate of when Colonial would resume pipeline operations. As of our 7am MT news cut off, there is still no ETA for when Colonial system will be back and running. (i) This is a major gasoline/distillates/jet fuel, etc supply interruption. Its why early Saturday morning, we tweeted [LINK] "*Breaking: #Cyber shuts down critical #Gasoline #Distillates #JetFuel 2.5 mmbd #ColonialPipeline to East Coast, no ETA for restart. Line 1: 1.5 mmbd gasoline, Line 2: 1.0 mmbd products. Just in time for Memorial Day driving Thx @Reuters @EIAgov #OOTT ."* (ii) Colonial's network is two main pipelines from Houston to the New Jersey. Line 1 is 1.5 mmb/d and is for gasoline. Line 2 is 1.0 mmb/d

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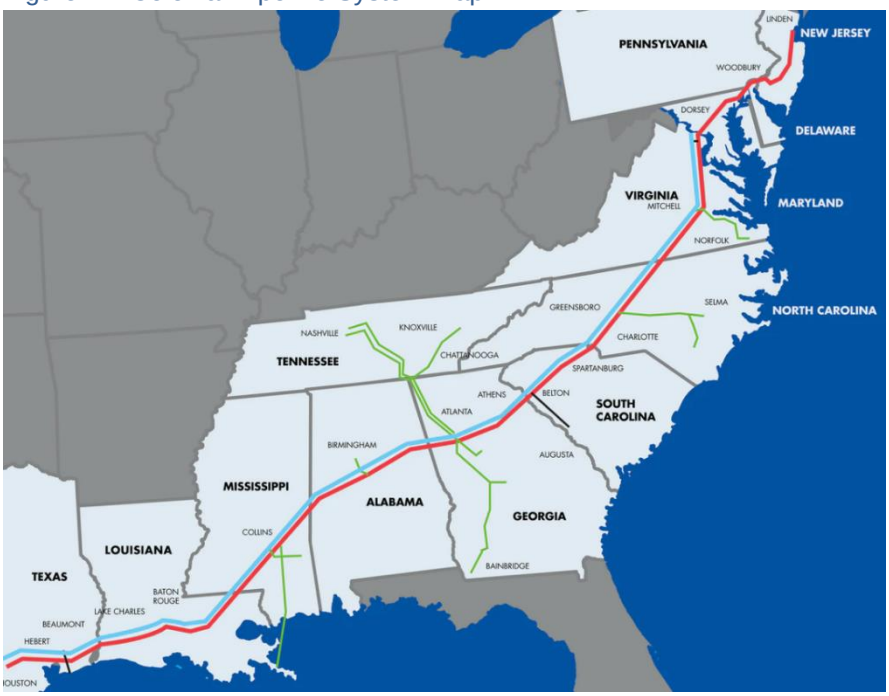
and is for distillates, jet fuel, diesel, etc. Colonials says "*Due to Colonial's large diameter pipe, we transport between 15%-20% of U.S. pipeline shipments. On the East Coast, that number is closer to 40%. This makes Colonial the largest-volume refined liquid petroleum products pipeline operating in the world."* (iii) The other major pipeline from Houston to the East Coast is Plantation pipeline with a capacity of 700,000 b/d, but it only goes as far as Washington DC. Our Supplemental Documents package includes the Colonial Sat press release, Reuters report [LINK] and the Colonial Pipeline 101 [LINK].

Figure 17: Colonial Pipeline System Map




Source: Colonial Pipeline

### Excellent EIA backgrounder on East Coast fuels infrastructure

Our tweet included maps from an excellent EIA report "*East Coast and Gulf Coast Transportation Fuels Markets*" from Feb 2016. [LINK]. There are some changes since then but they don't negate from the big value add to this report. The EIA recaps the fuels market in the East Coast, the demand, the supply infrastructure including pipelines, tankers, etc. Below is the table and maps we put in our tweet. Our Supplemental Documents package includes some excerpts from the EIA report.

Figure 18: Major Gulf Coast to East Coast pipeline systems

**Table 4. Major Gulf Coast to East Coast pipeline systems**

| Pipeline System | Origin Regions | Destination Regions | Capacity, b/d |
|---|---|---|---|
| Colonial Pipeline | Texas Gulf Coast<br>Louisiana Gulf Coast | North Louisiana-Arkansas<br>Southeast<br>Central Atlantic<br>Tennessee (in PADD 2) | 2,530,000 |
| Plantation Pipeline | Louisiana Gulf Coast | North Louisiana-Arkansas<br>Southeast<br>Tennessee (in PADD 2) | 700,000 |

Source: Colonial Pipeline, Plantation Pipeline

Source: EIA

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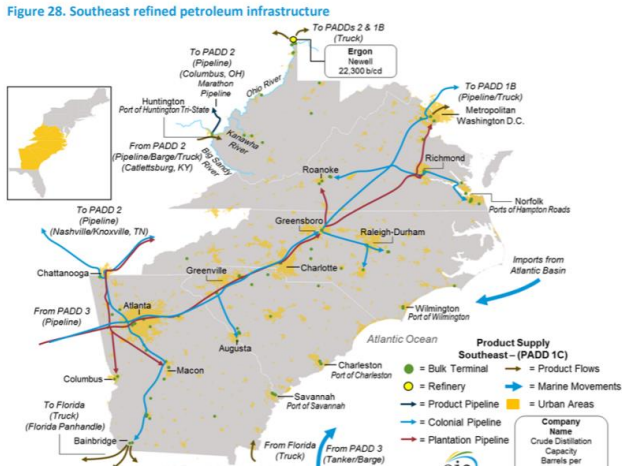
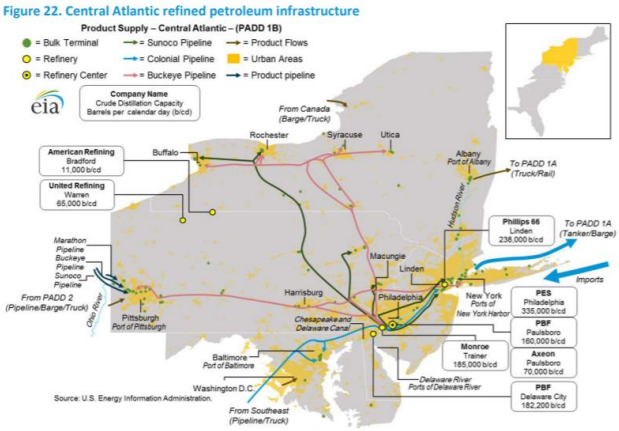
## Figure 19: Southeast refined petroleum infrastructure




Source: EIA

## Figure 20: Central Atlantic refined petroleum infrastructure




Source: EIA

### EIA reminds of Jones Act restrictions on tankers moving oil within US

The EIA report also reminded of one of the restrictions for shipping oil within the US – the Jones Act, which requires all tankers to be US flagged, owned and staffed by US citizens. However, the Biden administration could waive such requirements on a temporary basis. The Jones Act tankers cost more and are in limited supply. The EIA wrote "*Although markets in the Northeast can conceivably receive replacement volumes from the Gulf Coast via tanker and barge, waterborne movements between U.S. ports are limited by the availability of coastwise-complaint vessels capable of transporting petroleum products. The Merchant Marine Act of 1920, also known as the Jones Act, requires that all goods transported by water between U.S. ports be carried on U.S.-flag ships that were built in the United States, are owned by U.S. citizens, and are staffed by U.S. citizens. During previous supply shortages, the Department of Homeland Security has waived the Jones Act, allowing non-coastwise compliant vessels to move petroleum products from the Gulf Coast to the East Coast.*"

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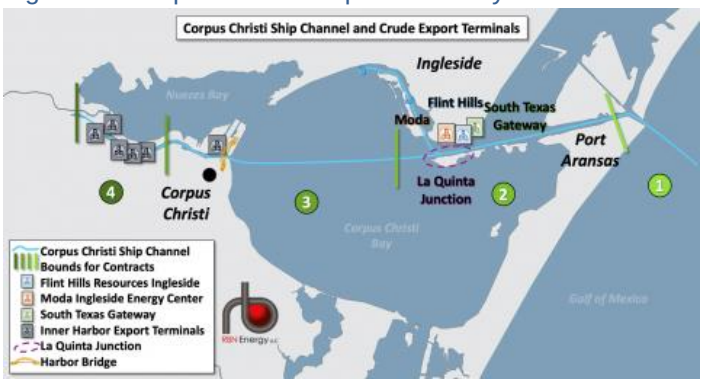
**Takes 18-21 days for gasoline to get from Houston to New Jersey**
One of the tidbits from the Colonial Pipeline 101 is "*When a gallon of gasoline is injected into Line 1 in Pasadena, it takes about 18 – 21 days traveling at a rate of four miles per hour to reach Linden, New Jersey*". Pasadena is right beside

### Oil – Corpus Christi ship channel dredging project to streamline crude exports

**Corpus Christi ship channel dredging project to streamline crude exports**

On Monday, RBN posted a good blog detailing the Corpus Christi ship channel dredging project that will help to increase to volume of exports from the already largest export terminal in the Gulf Coast at ~1.5 mmb/d [LINK]. The growth of exports from Corpus Christi has been partly driven by three new major pipelines connected to the ports in Corpus/Ingleside (Cactus II, Grey Oak, and EPIC Crude) along externsive storage and port infra in place. However continued growth has been hampered by the current depth of 47 feet along the ship channel. The shallow depth along with the narrowness of the inner harbor channel has limited the loading to 1 mmb Suezmaxes and smaller. While two of the three ports in Ingleside, Moda Ingleside and South Texas Gateway, can load VLCCs but only to 1.25 mmb, creating additional costs and delays as the rest of the ship is then filled in the deeper waters in the GoM. The dredging project will cost ~$600mm and is split into four contracts, with the first one being completed in Feb 2020 which increased the depth of this section to 54-56 ft. The second contract spans from Harbor Island to La Quinta Junction was expected to be completed in Dec 2021, but delays may prevent completion until Feb or Mar 2022. This section involves increasing the depth in addition to a widening of the channel. This will allow Moda and gateway to load VLCCs to 1.6 mmb rather than the 1.25 mmb previously. Once Contract 2 is completed, Corpus Christi's dimensions will be on par with the Houston Ship Channel. The remaining two contracts have yet to be awarded with full completion of the project expected for H2 2023. Our Supplemental Documents package includes the RBN blog.

Figure 21: Corpus Christi Ship Channel System Planned Projects




Source: RBN

### Oil – No change to official Dec 2022 TMX in-service but CNQ/SU think maybe little later

**CNQ/SU think TMX might be a little delayed**

For the past few months, we have noted our expectation that TMX will be delayed at least a few months from its targeted Dec 2022 completion date. Trans Mountain posted its 2020 annual report last Friday and did not indicate there was any change in the official target for in-service in Dec 2022. We checked the Trans Mountain website TMX project overview [LINK] and it still has Dec 2022. On Wed, Suncor held its Q1 call and in the Q&A, mgmt said they are "*expecting that on towards at the end of 2022 and maybe early 2023*". CNQ held its Q2 call on Thurs and in the Q&A, mgmt said "*TMX maybe a little late, but still moving forward*."

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**May 12 is fast approaching**

### Oil – Enbridge doesn't expect any imminent decision on Michigan Line 5 shut down

Its only 3 days until May 12, which is the shut down date for Line 5 that was ordered by Michigan. In the Q1 call on Friday, Enbridge said they do not see any imminent decision on Michigan's challenge ie. the pipeline should continue to be operating past May 12. The feedback that we hear from oil contacts is that are also assuming this (we assume from their Enbridge conversations) but most aren't clear how this ultimately gets resolved. It's a good thing no one seems to be expecting an immediate shut down, imagine the scramble to move oil and petroleum products if Line 5 were shut down at the same time as the Colonial pipeline shutdown. Enbridge held its Q1 call on Friday and mgmt had some simple direct comments that reiterated their position – they're in compliance with the easement, they are operating the pipeline within the law, the safety of the line has been validated. Enbridge said "*And just to reiterate, we intend to continue to operate the line and certainly we're in compliance with the easement and the law. Cinza has validated the safety of the line and both the court and the state have agreed with that as recently as last year. Courts are reviewing the state's challenge to the pipeline and that's going to take a while. So no decisions in our view are imminent."* Our Supplemental Documents package includes excerpts from the Enbridge Q1 call transcript.

#### Enbridge "*not have bad things happen ultimately to consumers …*"

In the Q&A of the Q1 call, mgmt tried to put it bluntly what happens if Line 5 is shut down. Mgmt went thru the math on how Line 5 "t*he fact is there is no alternative -- meaningful alternatives to Line 5. It provides roughly 50% of the crude oil and propane to the Great Lakes states as well as Central Canada. So a shutdown would be very impactful for the energy security of the region. We do have a little bit of capacity that we can provide through Line 78, but it's not going to be enough to meet the energy needs of the Great Lakes region."* And then CEO Monaco jumped in to add "*Yeah Rob, just to add on one quick point to that. That whole area in the corridor is pretty full up. If you look at capacity maximization on all the lines, I mean you just can't take 540,000 barrels a day out of the market and not have bad things happen ultimately to consumers and pet chems and refineries. It's just a very bad outcome. So likely said, maybe at the very small margin, there's a few things that you can reroute but it's not going to make a difference to shutdown."*

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

For the past 11 months, we have included the reminder on who gets hit by a Line 5 shut down. We first tweeted on June 19, 2020 [LINK] on the impact "*A weekend must read, Enbridge "impact of a Line 5 shutdown" is excellent recap of who, where, what gets hit by Line 5 shut down*." It includes tidbits such as "*Line 5 supplies 65% of propane demand in Michigan's Upper Peninsula, and 55% of Michigan's statewide propane needs*." There would also be a big impact on refineries to the east "*Refineries served by Enbridge in Michigan, Ohio, Pennsylvania, Ontario and Quebec would receive approximately 45% less crude from Enbridge than their current demand."* There was a good map that shows how Line 5 fits into other Enbridge pipelines delivering oil to places like Imperial's Sarnia and Nanticoke refineries in Ontario. Our Supplemental Doc1uments package includes the "impact of a line 5 shutdown" brief. [LINK]

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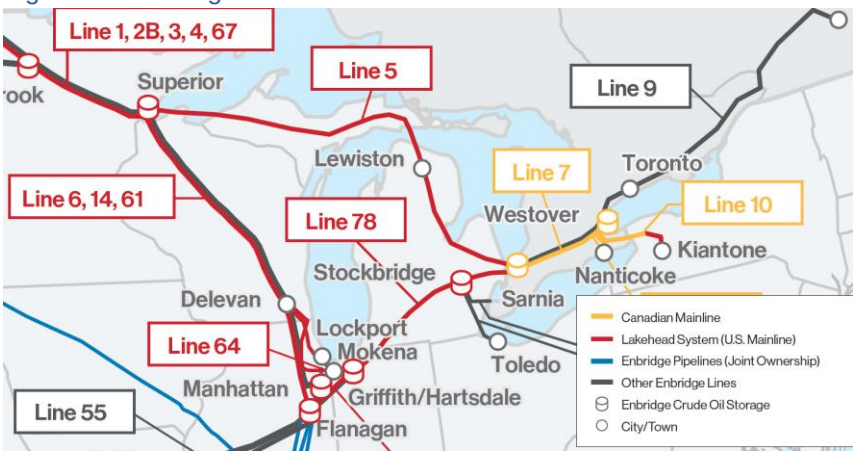
Figure 22: Enbridge Line 5




Source: Enbridge

### Oil – Covid outbreaks continue to hit more oil sands properties

**More oil sands Covid outbreaks**

As expected, Covid has led to a delay in oil sands turnaround and longer than originally planned turnaround periods. Unfortunately, the Fort McMurray area is one of the Covid hotspots in Alberta, which means it is one of the hotspots in Canada. The Regional Municipality of Wood Buffalo (including Fort McMurray) posts a Covid update twice a week. And the reports this week keep adding new outbreak areas within the oil sands. The latest May 6 RMWB update added MEG Energy. The May 3 RMWB update the Oilsands Industrial Lodge - Fort McKay. Below is the RMWB May 6 list of oil sands sites. [LINK]

Figure 23: Covid Outbreaks in Rocky Mountain Wood Buffalo

**Outbreaks in RMWB**

**Industrial:**

- MEG Energy
- CNRL Horizon
- CNRL Albian
- CNRL Jackfish
- Kearl Lake
- Civeo Lynx Lodge
- Cenovus Sunrise Lodge
- Suncor Baseplant
- Suncor Firebag
- Suncor Mackay River
- Syncrude Mildred Lake
- Syncrude Aurora
- Suncor Fort Hills
- CNOOC Long Lake Operations
- Oilsands Industrial Lodge - Fort McKay

Source: Regional Municipality of Wood Buffalo

### Oil – Refinery inputs +2.226 mmb/d YoY to 15.243 mmb/d

**Refinery crude oil input still below 5 yr avg**

Crude inputs to refineries were up this week and were +0.225 mmb/d to 15.243 mmb/d, and are +2.226 mmb/d YoY, but still below pre Covid levels. Refinery utilization was up 1.1% this week, being 86.5%, which is +16.0% YoY, and the highest since the start of the pandemic.

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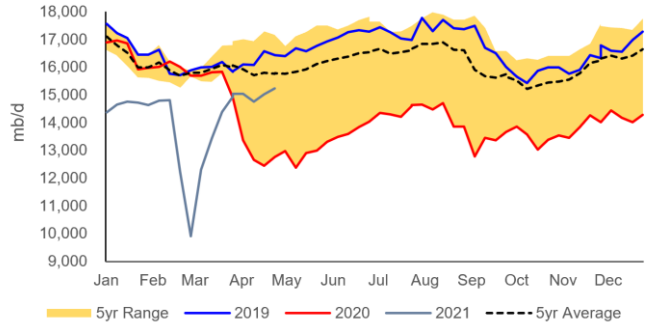
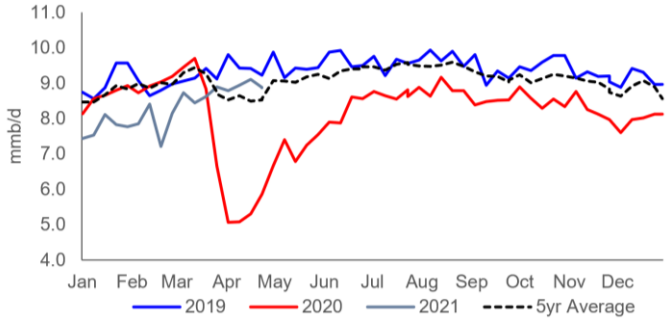
Refinery utilization is now right at the 5-yr seasonal average, which demonstrates that American fuel makers are running at essentially "back to normal" levels since the pandemic. Total products supplied (ie. demand) decreased this week, with a 0.704 mmb/d decrease to 19.691 mmb/d, and motor gasoline supplied was down slightly being -0.012 mmb/d to 8.864 mmb/d. Gasoline consumption in the US is expected to rise, with the EIA writing in their 2021 Summer Fuels Outlook [LINK] "*We forecast that gasoline consumption in 2021 will peak in August at 9.1 million b/d, which is up from 8.5 million b/d in August 2020 but down from the 9.8 million b/d in August 2019. We forecast that 2021 summertime gasoline consumption will average almost 8.8 million b/d, a 1.0 million b/d (13%) increase from 2020 but a 0.7 million b/d (7%) decrease from summer 2019*". Below is our graph of crude inputs to US refineries and our graph of US motor gasoline supplied.

Figure 24: US Refinery Crude Oil Inputs (thousands b/d)




Source: EIA, SAF

Figure 25: US Motor Gasoline Supplied (mmb/d)




Source: EIA, SAF

### Oil – Shell to cut Singapore Bukom refinery capacity by 300,000 b/d in July

**Shell to cut Singapore Bukom refinery capacity**

Argus Media reported on Wednesday [LINK] that Shell plans to reduce capacity at its 500,000 b/d refinery in Singapore to 200,000 b/d in July, as part of its efforts to reduce carbon emissions. Shell had previously made the announcement in Nov 2020 that it would cut its refining capacity at the Bukom refinery by half, however it hadn't specified a timeline for the cuts at the time. 90% of the oil products produced at the Bukom refinery are exported. Several other refinery closures have occurred recently in Asia, either due to the impact of COVID-19 on fuel demand or due to China's rising export capacity; many are being converted to import terminals. Shell has permanently closed its 110,000 b/d Tabangao refinery in the Philippines and is converting it to an import terminal. Refining NZ's 135,000 b/d Marsden Point Refinery is also considering following suit by next year. Both ExxonMobil

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and BP in Australia are closing their respective 90,000 b/d and 146,000 b/d refineries. Our Supplemental Documents package includes the Argus report.

**Shell to sell its Puget Sound refinery for $350mm**

### Oil – HollyFrontier to buy Shell's Puget Sound refinery, 43% of crude is Cdn medium

On Tuesday, HollyFrontier announced [LINK] it had entered into a definitive agreement to acquired the Puget Sound Refinery (Washington) "*the on-site cogeneration facility and related logistics assets, from Equilon Enterprises LLC d/b/a Shell Oil Products US ("Shell") for a purchase price of $350 million, plus hydrocarbon inventory to be valued at closing with an estimated current value in the range of $150-180 million*. *HollyFrontier expects to fund the acquisition with a one-year suspension of its regular quarterly dividend and cash on hand and expects the transaction to be immediately accretive to HollyFrontier's earnings per share and free cash flow.* This is Shell's latest major divestment as it reduces its global processing crude footprint and attempting to lower its carbon footprint. Shell is also turning its focus form standalone refineries to integrated refineries and chemical plants as it is expecting strong growth in petrochemicals for years to come. Holly Frontier highlighted the strategic rationale for its acquisition and reminded of the ability to source Cdn medium crude. Their slide deck showed that 43% of the crude slate for the past 5 years was Cdn medium cude. Our Supplemental Documents package includes excerpts from the HollyFrontier slide deck.

Figure 26: US Weekly Preliminary Oil Imports By Major Countries

Source: HollyFrontier

**US "net" oil imports -2.745 mmb/d WoW**

### Oil – US "net" oil imports down 2.745 mmb/d to 1.329 mmb/d

US "NET" imports were down 2.745 mmb/d to 1.329 mmb/d for the Apr 30 week. US imports were down 1.164 mmb/d to 5.451 mmb/d. US exports were up big, being +1.581 mmb/d to 4.122 mmb/d, which is the most they've been since March 2020. The WoW decrease in US oil imports was driven by decreases from Canada, Iraq and Saudi Arabia. Some items to note on the by country data. (i) Canada was down this week, and was -0.260 mmb/d to 3.232 mmb/d for the Apr 30 week, which is now ~0.500 mmb/d below the average levels in Jan/Feb of 2020. Also note that PADD 2 imports were also down, being -0.116 mmb/d and Canada is almost all of this market. (ii) Saudi Arabia was down 0.302 mmb/d to 0.178 mmb/d this week. (iii) Colombia up 13,000 b/d to 307,000 b/d this week. (iv) Ecuador was up 93,000 b/d to

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318,000 b/d. (v) Iraq was down 229,000 b/d to 41,000 b/d. (v) Venezuela remained at 0 due to US sanctions. (vi) Mexico decreased 141,000 b/d to 0.467 mmb/d.

Figure 27: US Weekly Preliminary Oil Imports By Major Countries

| | Mar 5/21 | Mar 12/21 | Mar 19/21 | Mar 26/21 | Apr 02/21 | Apr 09/21 | Apr 16/21 | Apr 23/21 | Apr 30/21 | WoW |
|---|---|---|---|---|---|---|---|---|---|---|
| Canada | 3,635 | 3,448 | 3,418 | 3,666 | 3,414 | 3,367 | 2,901 | 3,492 | 3,232 | -260 |
| Saudi Arabia | 251 | 308 | 280 | 345 | 258 | 181 | 358 | 480 | 178 | -302 |
| Venezuela | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mexico | 362 | 278 | 618 | 494 | 635 | 739 | 451 | 608 | 467 | -141 |
| Colombia | 286 | 0 | 92 | 122 | 258 | 209 | 111 | 294 | 307 | 13 |
| Iraq | 141 | 165 | 105 | 88 | 245 | 223 | 34 | 270 | 41 | -229 |
| Ecuador | 59 | 127 | 132 | 247 | 284 | 295 | 172 | 225 | 318 | 93 |
| Nigeria | 0 | 44 | 161 | 86 | 161 | 129 | 71 | 119 | 95 | -24 |
| Kuwait | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Angola | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Top 10 | 4,734 | 4,370 | 4,806 | 5,048 | 5,255 | 5,143 | 4,098 | 5,488 | 4,638 | -850 |
| Others | 921 | 953 | 816 | 1,097 | 1,009 | 709 | 1,307 | 1,128 | 813 | -315 |
| Total US | 5,655 | 5,323 | 5,622 | 6,145 | 6,264 | 5,852 | 5,405 | 6,616 | 5,451 | -1,165 |

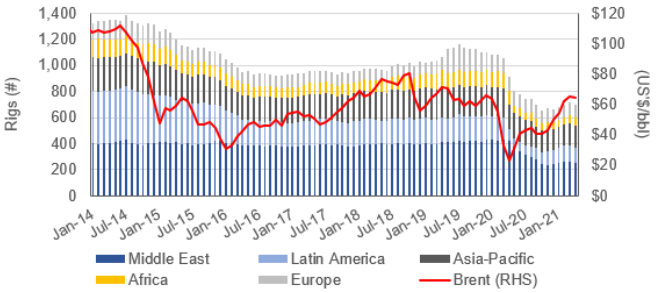
Source: EIA, SAF

### Oil – Baker Hughes International rigs -20 MoM to 695 rigs in April

**Middle East and Lat Am drove decline**

Baker Hughes released its updated international rig counts for April on Friday which showed a modest decline in activity levels for the first month since November. International activity had been increasing modestly but is still down 24% YoY and down 35% vs April 2019. Total international rigs decreased 20 MoM to 695 in April. The MoM decrease was mainly driven by a 9 rig decrease in the Middle East and a 7 rig decline in Latin America. Within the Middle East, Oman had the largest decline at 3 followed by Qatar and Kuwait at -2 MoM. Saudi Arabia remained flat at 60, losing 1 oil rig but gaining 1 gas rig. The largest decline in Latin America was Argentina which had fallen 6 rigs MoM to 33, followed by a decline of 3 in Mexico 41 active rigs. Africa was the only region up MoM being +2 to 61. Below is our graph of international rigs by region and avg monthly Brent price.

Figure 28: Baker Hughes International Rig Count and Brent Price




Source: Baker Hughes, Bloomberg

### Oil – Pemex March refinery throughput up 37.4% to 0.823 mmb/d, highest since Jun 2017

**Throughput +15.9% MoM**

As we have previously noted, Pemex's refinery throughput volumes will be an important item to keep an eye on due its effect on Mexico's heavy oil exports and in turn demand for Cdn heavy oil exports to the USGC. Last Friday, Pemex reported it's Q1 results which included data for refinery inputs which rose 15.9% MoM and 37.4% YoY to 0.823 mmb/d with utilization of 50.6%, the highest level since June 2017 to 0.820 mmb/d. The question here is if this is AMLO's key priority to increase refinery runs kicking in. Actual refining volumes in 2020 of 591,000 b/d was below the initial forecast/plan for 681,000 b/d and 2021 also looks too high with at 1.114 mmb/d. The rest of the forecast is 2022 at 1.200 mmb/d, 2023 at 1.520 mmb/d, 2024 at 1.565 mmb/d, and 1.658 for both 2025 and 2026. Though despite the seemingly too high forecasts for refinery throughput, any incremental volumes with

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production that has not been increasing should take away from exports. However volumes an utilization may drop in April given the fire taking the Minatitlan refinery offline since April 7 in addition to maintenance at the Salamanca refinery which began on April 29 and extends to May 12. But post the maintenance, we should start to see Mexico oil exports decline, which is a positive for Cdn heavy/medium crude.

Figure 29: Pemex Refinery Throughput

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

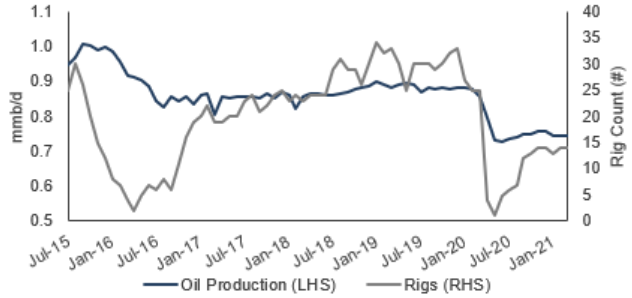
Source: Pemex

## Oil – Colombia oil production in Mar flat MoM at 0.745 mmb/d

**Colombia oil production 0.745 in Mar**

It looks like Colombia's oil production is going to stay stuck around current levels unless drilling starts to accelerate. The Colombia Ministry of Energy and Mines reported production data for Mar which showed Colombia oil production was 0.745 mmb/d. This is down 13.0% YoY from 0.857 mmb/d in Mar 2020, and flat MoM from 0.745 mmb/d in Feb. Colombia oil production had bottomed in June at 0.730 mmb/d, down from the 2020 peak of 0.884 mmb/d in January 2020. Production slowly increased thereafter, reaching 0.761 mmb/d in Nov 2020. During this period, Colombia rigs had fallen from 27 in Jan 2020, down to 1 in May, and built back up to 14 in December and stayed flat between 13/14 till March 2021. Rigs in April were up 2 MoM to 16, down 1 YoY. Below is our table of Colombia monthly oil production.

Figure 30: Colombia Oil Production and Rig Count




Source: Bloomberg, Baker Hughes

Figure 31: Colombia Oil Production

| million b/d | 2015 | 2016 | 2017 | 2018 | 2019 | 19/18 | 2020 | 20/19 | 2021 | 21/20 |
|---|---|---|---|---|---|---|---|---|---|---|
| Jan | 1.036 | 0.986 | 0.860 | 0.860 | 0.899 | 4.5% | 0.884 | -1.7% | 0.745 | -15.7% |
| Feb | 1.030 | 0.955 | 0.864 | 0.823 | 0.893 | 8.5% | 0.878 | -1.6% | 0.746 | -15.1% |
| Mar | 1.023 | 0.917 | 0.804 | 0.856 | 0.885 | 3.3% | 0.857 | -3.1% | 0.745 | -13.0% |
| Apr | 1.029 | 0.915 | 0.857 | 0.865 | 0.891 | 3.0% | 0.796 | -10.6% | | |
| May | 1.027 | 0.904 | 0.851 | 0.866 | 0.895 | 3.3% | 0.732 | -18.2% | | |
| June | 1.010 | 0.888 | 0.857 | 0.864 | 0.892 | 3.3% | 0.730 | -18.2% | | |
| July | 0.947 | 0.843 | 0.856 | 0.860 | 0.869 | 1.0% | 0.735 | -15.4% | | |
| Aug | 0.968 | 0.827 | 0.858 | 0.866 | 0.883 | 1.9% | 0.742 | -15.9% | | |
| Sept | 1.009 | 0.859 | 0.851 | 0.869 | 0.879 | 1.2% | 0.749 | -14.8% | | |
| Oct | 1.005 | 0.846 | 0.864 | 0.879 | 0.883 | 0.4% | 0.751 | -14.9% | | |
| Nov | 0.990 | 0.855 | 0.851 | 0.883 | 0.880 | -0.3% | 0.761 | -13.5% | | |
| Dec | 0.999 | 0.837 | 0.870 | 0.889 | 0.882 | -0.8% | 0.759 | -14.0% | | |

Source: Bloomberg

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### Oil – Norway union announces deal

**Norway union announces deal**

After 2 days of negotiations, Norway oil companies and labour unions have come to an agreement, preventing a potential strike among workers later this year [LINK]. The three unions, Lederne, Safe, and Industri Energi, covered 7,000 workers in total at 14 companies, including Equinor, Lundin and ConocoPhillips. The deal resulted in increased annual wages by NOK 20,100, which equates to about U$2,409. Other aspects of the deal include an increased wage supplement to night shifts, and an increase wage allowance on holidays. This will help to avoid another shutdown like the one in Oct 2020 with Lederne which had shut in ~8% of Norweigian production for 10 days. Our Supplemental Documents package includes the translated SAFE release.

### Oil – Russia crude production ~180,000 b/d above their April quota

**Russia production increases**

Russian oil output increased in April due to a larger OPEC+ quota. Last Sunday, Bloomberg reported Russian crude and condensate production in April rose to 10.460 mmb/d along with it's quota increase. The official Russian data doesn't split out crude vs condensate, but if Russia's condensate production is in line with Feb, crude output would be 9.56 mmb/d, ~180,000 b/d above their 9.379 quota. Russia has been allowed to add back a small amount of production each month since Jan, rising 130,000 b/d from March to April. Russia's quota will increase by 116,000 b/d by July reaching 9.495 mmb/d. Our Supplemental Documents package includes the Bloomberg report.

### Oil – Bloomberg OPEC survey data, OPEC April down 50,000 b/d to 25.270 mmb/d

**Bloomberg OPEC survey for Apr**

The Bloomberg survey of OPEC April oil production was released this week, which showed a MoM decrease in production, mainly due to the Libya force majeure. There were no major surprises in the production levels. Total production decreased 60,000 b/d MoM in April to 25.270 mmb/d. As expected, the drop came from Libya's Force Majeure on its Marsa el-Hariga port which was in effect from April 19-26. Libya produced 1.140 mmb/d, a 0.110 mmb/d MoM decrease. Iran was up 90,000 b/d in Apr, and for the first time since April 2019, they have reached over 2.4 mmb/d at 2.410 mmb/d in April. Venezuela was flat MoM at 490,000 b/d but would have been up 50,000 b/d MoM if not for the +50,000 b/d upward revision to Mar production. Venezuela is up 150,000 b/d since their June 2020 low. Below is our table of the Bloomberg survey data.

Figure 32: Bloomberg Survey Of OPEC Production

| thousand b/d | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | **Apr** | MoM | YoY | Apr Quota |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Algeria | 1,020 | 820 | 810 | 810 | 870 | 870 | 870 | 860 | 860 | 880 | 880 | 880 | **880** | 0 | -140 | 876 |
| Angola | 1,360 | 1,270 | 1,240 | 1,180 | 1,250 | 1,270 | 1,230 | 1,180 | 1,180 | 1,180 | 1,100 | 1,200 | **1,180** | -20 | -180 | 1,267 |
| Congo | 320 | 290 | 300 | 280 | 290 | 310 | 260 | 290 | 270 | 270 | 260 | 290 | **270** | -20 | -50 | 269 |
| Equatorial G. | 140 | 100 | 130 | 120 | 120 | 100 | 110 | 110 | 130 | 130 | 100 | 120 | **120** | 0 | -20 | 105 |
| Gabon | 210 | 190 | 220 | 160 | 160 | 180 | 200 | 190 | 190 | 170 | 190 | 180 | **190** | 10 | -20 | 155 |
| Iran | 1,960 | 1,950 | 1,940 | 1,960 | 1,920 | 1,950 | 1,930 | 1,970 | 2,020 | 2,140 | 2,180 | 2,350 | **2,410** | 60 | 450 | |
| Iraq | 4,600 | 4,210 | 3,910 | 3,790 | 3,690 | 3,710 | 3,870 | 3,810 | 3,880 | 3,870 | 3,910 | 3,940 | **3,950** | 10 | -650 | 3,857 |
| Kuwait | 2,900 | 2,290 | 2,150 | 2,220 | 2,270 | 2,310 | 2,300 | 2,240 | 2,270 | 2,330 | 2,350 | 2,320 | **2,320** | 0 | -580 | 2,329 |
| Libya | 90 | 90 | 110 | 100 | 80 | 150 | 450 | 1,090 | 1,210 | 1,160 | 1,150 | 1,220 | **1,140** | -80 | 1,050 | |
| Nigeria | 1,910 | 1,630 | 1,510 | 1,510 | 1,520 | 1,490 | 1,610 | 1,540 | 1,520 | 1,470 | 1,600 | 1,550 | **1,590** | 40 | -320 | 1,516 |
| Saudi Arabia | 11,590 | 8,660 | 7,530 | 8,450 | 8,920 | 8,940 | 8,990 | 8,990 | 9,000 | 9,120 | 8,210 | 8,150 | **8,110** | -40 | -3,480 | 8,119 |
| UAE | 3,680 | 2,500 | 2,430 | 2,450 | 2,990 | 2,680 | 2,490 | 2,560 | 2,540 | 2,610 | 2,630 | 2,630 | **2,620** | -10 | -1,060 | 2,626 |
| Venezuela | 660 | 550 | 340 | 360 | 310 | 310 | 340 | 430 | 410 | 460 | 470 | 490 | **490** | 0 | -170 | |
| Total OPEC | 30,440 | 24,550 | 22,620 | 23,390 | 24,390 | 24,270 | 24,650 | 25,260 | 25,480 | 25,790 | 25,030 | 25,320 | 25,270 | -50 | -5,170 | 21,119 |

Source: Bloomberg

### Oil – Real time Kpler tanker supply data been key tool for Saudi to manage oil markets

**Real time Kpler tanker data**

One of our favorite early morning oil market checks is to put on the Gulf Intelligence New Silk Road Podcast. They have a wide range of speakers and, inevitably, we come away with one thing to consider. Their May 5 podcast [LINK] led to our tweet [LINK] that the more you think about it, the more you have to give Abdulaziz credit for what he set up – monthly meetings,

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agree to pay back over produced barrels. Good reminder why OPEC+ can manage oil prices assuming they still want to keep working together in particular on the agreement to pay back over produced barrels. There is now real time data on demand and on supply. Saudi Arabia can see who is cheating from Kpler data. This Kpler data is the big difference from a decade ago, it gives real time data on loadings, destinations, changes in destinations, etc. And this real time supply data is the missing link for Abdulaziz. And monthly meetings, he can rail in someone quickly. They also get real time data on demand from many sources ie. air flights, traffic, etc. And more importantly, they have eliminated the supply side variables they don't control. US oil production is under control and they can see weekly data. Other non-OPEC+ producers like Brazil, Canada, China, etc all can give regular indicators for OPEC. The key is that Abdulaziz has pretty good real time data and his monthly meeting set up and getting cheaters to commit to pay back over produced barrels allows him to effectively manage markets. Its why we tweeted "*Kudos @MoEnergy_Saudi #Abdulaziz for set up #OPEC+ monthly meet & pay back overproduced bbl. Real time supply data let them adjust monthly & its working. Thx @gulf_intel @MatrixGlobalNRG CEO reminder on @Kpler tanker is key data. @ericnuttall been hammering Kpler value add #OOTT".* Our tweet noted Eric Nuttall because he has been hammering home the big value add he gets from the paid Kpler real time data. Our Supplemental Documents package includes the transcript we made of the Matrix Global CEO comments on the podcast.

### Oil – JCPOA, will Biden do a deal in May or go away?

**Potential JCPOA deal in May?**

There continue to be reminders/warnings that there are still major issues to resolve, but the trend continues to be towards the likelihood of a return to the JCPOA in May. The Joint Commission of the JCPOA opened the new round of talks on Friday. Our thought on seeing Russia's Ulyanov tweet that "*the delegations seem to be ready to stay in Vienna as long as necessary to achieve the goal*" was that it would seem to fit what we have been calling May as a make it or break it month. Or as we have been sayings will Biden do a deal in May or go away". We tweeted [LINK] "*Reinforces both US and Iran want to return to #JCPOA. and May is make or break month. Indications still point to a "make it" month for one of #Biden's moon shots for 2021. #OOTT"* There is no question JCPOA is one of Biden's moon shots for 2021. Plus Biden seems to like to announce accomplishments before a meeting/event, just like he did for his climate summit. One way or another, we believe the key timeline for JCPOA and also Nord Stream 2 will be in the run up to Biden's upcoming June 11-13 G7 summit in the UK, June 14 NATO summit in Brussels, and then we suspect likely Putin summit thereafter. And of course the Iran June 18 presidential election.

### Oil – India's threat to cut Saudi oil imports didn't last too long

**India to load normal volumes for June**

Not surprisingly, the spat between India and Saudi Arabia over Saudi's oil output policy creating too high prices has not lasted long. India had asked its refiners to diversify oil exports away from Saudi Arabia to find cheaper crude, a task that would prove to be difficult given the relatively low all in costs when shipping is considered, in addition to the fact that India's refineries are generally calibrated for the specifications of Saudi crude. Our Apr 11, 2021 Energy Tidbits noted an Argus report [LINK] that India had cut its May loadings of Saudi crude by just 5% vs pre-covid levels. And it looks like their attempted shot at Saudi Arabia lasted just 2 months with Reuters reporting on Thursday [LINK] that Indian state refiners placed orders for their regular monthly supplies of Saudi crude for June due to lower Aramco prices. Saudi had set the OSP for Arab light crude at +$1.70/b above Oman/Dubai average for June, down 10 cents from May and its first price cut since December 2020. Our Supplemental Documents package includes the Reuters report.

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### Oil – China's oil imports -16% MoM in April to 9.86 mmb/d

**China oil imports**

Bloomberg reported that China customs data showed April imports were 9.86 mmb/d, down 16% MoM from 11.74 mmb/d in March. April imports are down 0.2% YoY as refiner throughputs slowed due to decreasing margins partly due to the rise in oil price and relatively high stockpiles, along with seasonal maintenance for refiners. Argus had reported ion this on Friday and wrote [LINK] *"China shut 1.6mn b/d of crude processing capacity for maintenance in April, Argus surveys show, weighing on imports last month. This is likely to send crude runs lower to 13.5mn b/d, a drop of around 600,000 b/d from March".* Despite the low imports for April, YTD crude import volumes remain up 7.2% YoY.

### Oil – Vortexa floating storage +2.6% WoW, down 52% from June 2020 peak

**Vortexa and Braemar floating storage**

As we noted in our May 2, 2021 Energy Tidbits, the covid situation in India will be having a tangible effect on physical crude flows/storage with oil imports expected to decline and floating storage to increase as India has little room to store additional shipments. So we were not surprised when Bloomberg reported on Vortexa floating oil data that showed a WoW increase of 2.65 mmb or +2.6% WoW to 103.30 mmb on April 30 from 105.95 mmb on April 23. There was a 5.85 mmd upwards revision to the previous weeks data meaning the WoW increase vs the original would be 8.5 mmb. Floating storage is down 52.26% since the June 19, 2020 peak of 216.38 mmb. APAC, the region with the highest floating storage was up 2.6% WoW to 72.01 mmb and West Africa was also up 98% WoW to 5.49 mmb. Bloomberg did not report on the Braemar data this week. Our Supplemental Documents package include the Bloomberg Vortexa report.

Figure 33: Vortexa Global Floating Storage Level (5yr)

Source: Bloomberg, Vortexa

### Oil – Are Gildan's sales a leading indicator for people about to get in their cars

**Gildan socks & underwear sales +21.4% YoY**

On Thursday, we tweeted [LINK] after hearing BNN report on the Gildan results. Our tweet was partially in jest, but we also believe that it was accurate in that Gildan socks and underwear sales are reflective of people getting ready to get out and go somewhere. Its kind of like what parents do for their kids when the normal school year is going to start in September, they buy new clothes. In this case, its people just getting ready to put on normal clothes. Markets look at mobility trends like traffic as a leading indicator for oil consumption. Well we thought people buying socks and underwear is a leading indicator for people about to get in their cars and go somewhere. Its why we tweeted "*How about a leading indicator to a leading indicator Apple mobility trends that #Oil consumption is going up? Cdns are back to buying socks & underwear getting ready to go somewhere. @AndrewBellBNN recapped Gildan Q1. Socks & underwear +21.4% YoY vs Covid 2020 yr -14.1% YoY #OOTT".* Our

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Supplemental Documents package includes the Gildan's sales disclosure in the Q1/21 and 2020 results.

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

**Q1 oil cash flows are up**

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

### Oil and Natural Gas – sector/play/market insights from Q1 calls

**Sector insights from Q1 calls**

I am just not getting to writing out enough of the Q1 calls on weekends. It seems like every weekend there are new items that end up taking 4 or 5 hours that could have been used to write up Q1 calls on Friday night or Saturday. This is our favorite time each time of each quarter as it is quarterly reporting and this is when we get the best insights into a range of oil and gas themes/trends, sectors and plays. As a reminder, our Energy Tidbits memo does not get into the quarterly results, forecasts or valuation. Rather the purpose of highlighting a company is to note themes/trends and plays that will help shape a reader's investment thesis to the energy sector. In the conference calls, we also tend to find the best insights from the Q&A portion as opposed to the prepared remarks. Plus we tend to get the best E&P sector insights from services, pipelines, refineries and utilities and that was the case again this week.

#### Cheniere – Expect LNG trade to double, adding 46 bcf/d

Cheniere held its Q1 call on Wed.(i) Earlier we noted Cheniere's comments or non-comments on Mozambique and its view on long term LNG supply/demand. (ii) New LNG phases on track with accelerated timelines. Train 3 Corpus Christi achieved substantial completion in Q1/21. Trains 6, timeline accelerated again, now project substantial completion in H1/22. (ii) Mgmt. highlighted the role of Europe gas storage *"In addition, South America is entering its winter demand month and is contributing to the tightness in the global LNG market. But natural gas storage below normal levels in Europe and precious little new supply entering the market this year. We also have So have a constructive backdrop in the LNG market for the balance of this year and into next year".* (iii) Reminded that strength of LNG in Q1 was helped by supply issues *"In the first quarter, global LNG supply showed positive year-on-year growth for the first time since the first quarter of 2020. But net growth was modest as a healthy 17% growth in US exports was largely offset by declines at several LNG facilities around the globe".* (iv) Noted the big run up in LNG supply from 2017-2020 of 4 bcf/d, with little expected thru mid-2020s. (v) Reminded that they supplied first carbon neutral LNG cargo to Shell, which was done via offsets. (vi) Noted that

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debottlenecking and maintenance optimization added ~0.9 bcf/d to their supply. (vii) Highlighted more demand growth in non-China Asia. Mgmt. said *"The significant portion of that some will be in China, but almost half of it as expected to satisfy growth in South and Southeast Asian countries such as India, Indonesia, Bangladesh, Vietnam and the Philippines"*.

### Conoco – Likely no major capex increase till 2022

Conoco held its Q1 call on Monday. (i) Conoco did not answer questions on capex changes with higher oil prices, rather deferred them to their June 30 investor day. Reading their comments, it feels like they will fit into the category that most will – only modest E&P capex changes in 2021 as all thru last year they were messaging they would not accelerate capex. Likely will look to increase 2022 budgets, with Conoco expecting to get better visibility on market balance thru 2021. (ii) Still see volatility in oil until it becomes less of a supply side correction ie. demand gets back to normal. In the Q&A, mgmt said still see 5-6 mmb/d of spare supply. (iii) Only drilling and fracking in Texas. 11 rigs and 7 frac spreads in Permian vs 405,000 boe/d, 4 rigs and 2 frac spreads in Eagle Ford vs 187,000 boe/d. Zero rigs and zero frac spreads in Bakken vs 86,000 boe/d. Bakken numbers has to point to declines. (iv) Planning to divest its ~10% ownership in Cenovus in Q2 to Q4 2021. (v) Mgmt. emphasized the liquids percentage of the Montney *"This part of our business doesn't get a lot of external attention yet but it's worth noting that's currently producing approximately 30,000 barrels a day of which 50% is liquids. We continue to be excited about our future in this premier 300,000 acre unconventional position".* (vi) Interestingly they are moving away from the matra of all US shale over the past several years of the focus on oil. In the Q&A mgmt. said *"We're pretty agnostic to gas oil short long, which is why we're interested in the North Field Expansion in Qatar and continue to have interest in that".* Mgmt. also believes their long term relationship with Qatar gives an advantage to being part of Qatar LNG expansions. (vii) CCS and carbon offsets are their key focus right now. In the Q&A, mgmt. replied *"Their primary focus is on those opportunities most relevant to our core business to support this. And also to our core competencies, so areas of focus include renewable power sources to further reduce the emissions intensity of our operations as our scope one and two. Carbon capture use and storage and also carbon offsets or areas of initial focus".* (xi) Sounds like Willow, Alaska will go FID but not as long as lawsuits are outstanding. Our Supplemental Documents package includes the Conoco Q1 Call Transcript.

### Sempra – Expect LNG demand to grow from 24 bcf/d to 72 bcf/d in 2030

Sempra held its Q1 Call on Wed. (i) Later in the memo, we note Sempra's view that transmission is very expensive and takes very long to build. (ii) Sempra sees LNG demand growing by 24 bcf/d to 2030 to reach 72 bcf/d. In the Q&A, mgmt said *"the consultants we work with, think that by 2030. You could see the market climbed to about 550 million tons per annum. And today, it's right around 365".* (iii) US LNG advantaged to green up the value chain. In the Q&A, they were asked about the Cheniere/Shell carbon offset LNG cargo. Mgmt noted their view that US LNG is advantaged on its ability to green up the value chain. They noted items like electric drives as well as ways to collect methane. (iv) Sempra will not FID Port Arthur LNG unless it is fully contracted. In the Q&A, mgmt said *"I don't see any scenario that we were probably take FID without having it fully contracted. I would mention one of the things that was attractive Michael about the Sempra Infrastructure Partners portfolio is you're hard pressed to find someone that owns a business like that, it has average*

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*contract tenor across LNG in our contracts and Mexico at 21 years".* (v) California Utilities committed to 20% renewable natural gas by 2030 vs about 5% now. (vi) Also remind that there needs to be a focus on methane. In the Q&A, mgmt. said *"There's going to be, need to be a regulatory construct in the and to drive kind of emitters of this of methane to capture that and use it earn it or put it back into the ground. So we're going to see more of that".* (vii) Sempra is evaluation hydrogen and CCS use at its facilities. In the Q&A mgmt. said *"Yeah, I think we are looking at hydrogen opportunities at all of our LNG facilities, particularly those in the Gulf Coast". "We're also looking at carbon sequestration. So, how can we not only take the carbon from our own liquefaction facilities, but is there a way to develop a facility that can take carbon from some of the adjacent industries in that area whether they be LNG or other things to help reduce CO2 there".* Our Supplemental Documents package includes the Sempra Q1 Call transcript and Q1 call slides.

### Suncor – Don't think Michigan does not have the authority to end Line 5

Suncor held their Q1 call on Tuesday. (i) Suncor gave additional details on the turnarounds. The upgrader delays were because of Covid causing labor shortage so makes sense to wait until Syncrude gets down to minimize labor overlap. They could have just said, there aren't enough skilled trades people to do more than one big turnaround. Suncor said "*we've delayed the start of our U2 turnaround at Base Plant until at least June. We will see when this gets finalized. This decision supports the completion of Syncrude turnaround and minimizes the overlap between the two assets.*" Then in the Q&A, said something similar "*Specifically to your question about the turnaround, part of the issue is, there is a number of turnarounds going on within the industry right now, Syncrude's into their big turnaround. Our view was that the labor situation was already stressed the last thing we wanted to do is over stress that*". (ii) Suncor expects TMX to be completed end of 2022 or early 2023 and does not anticipate any delays. (iii) They expect Line 3 to come on by the end of the year. (iv) Suncor does not think that the Michigan government has the authority to shut down Line 5. (v) Autonomous haul trucks have been working to help reduce labor costs. (vi) Gasoline demand being hit by increased lockdowns in Canada so looking to export more to US markets. In the Q&A, mgmt replied "*And in Canada our demand is off, I don't know, on gasoline it is probably of something like 6% in Western Canada and 17% in Eastern Canada right now. But it's actually going the other way, right. We're going into some of the most extreme lockdowns that we've had during the entire COVID. So you are starting to get this to some degree a bifurcated market associated with it. What we've been doing is leveraging our logistics to be able to export product into the marketplace. I think that will even be a bigger advantage if as the US is moving forward and strengthening further and so we'll continue to leverage that capability*." Our Supplemental Documents package includes the Suncor Q1 Call Transcript.

### Electricity – ERCOT sees 15.7% reserve margin despite record summer demand

**Expecting sufficient reserve margin of 15.7%**

We have to believe there will be others in the "Show Me" state with respect to ERCOT's forecast that, despite expecting record electricity demand in Texas this summer, but it looks to be safe from any major blackouts. ERCOT released its final Seasonal Assessment of Resource Adequacy (SARA) for the summer season (June-September) on Thursday [LINK]. ERCOT wrote *"ERCOT anticipates there will be enough generation to meet the summer 2021 peak demand of 77,144 MW. Based on this forecast, the ERCOT region will have a 15.7% reserve margin this summer season. The current system-wide peak demand record for ERCOT is 74,820 MW set on Aug. 12, 2019. One MW typically powers about 200 homes on*

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*a hot summer day".* While record demand is anticipated, the reserve margin is higher than summer 2020 of 12.6% [LINK]. As the shift to increased reliance of the grid on wind and solar power continues ERCOT is now beginning to monitor more closely for tight conditions during low expected wind conditions as well as evenings as solar generation drops, likely motivated by what they had seen in California in summer 2020. Additionally new this year ERCOT will be visiting select generation plants to review summer weatherization plans. ERCOT also included in the release their preliminary fall SARA. ERCOT wrote *"ERCOT anticipates there will be sufficient generation to meet system-wide demand under normal system conditions and many of the scenarios examined. Based on expected fall peak weather conditions, the preliminary fall SARA anticipates a seasonal peak demand of 62,662 MW".* However, ERCOT warned on tight conditions on days with significant maintenance outages, extreme weather, and/or renewable generation shortage. Our Supplemental Documents package includes the ERCOT release.

**Energy Transition – ADB realizes natural gas needed as the transition fuel**

**ADB to keep financing natural gas for power**

Its only a draft energy policy, but it looks like the Asian Development Bank recognize the reality that natural gas is needed as the transition fuel in Asia. Its why yesterday morning we tweeted [LINK] "*Note below excerpt @ADB_HQ draft energy policy, won't finance #Oil #NatGas E&P, but will finance NatGas to replace coal generation, diesel power, modern means such as stove etc. #NatGas can continue to be a transition fuel in Asia #EnergyTransition".* We weren't going to tweet on it but we were concerned that the reporting on the draft energy policy focused on the E&P aspect (ie. ADB wouldn't finance natural gas drilling) and didn't focus on the ADB's continuing support for natural gas as the transition fuel. It means natural gas consumption is still positioned grow in Asia. This is only a draft policy that will be under review that the ADB plans to finalize in Oct in time for COP-26 Glasgow in Nov. The reporting highlighted no more financing for coal, but also for oil and gas exploration and development. But didn't really highlight that the ADB understands the reality on how natural gas is needed to be the transition fuel. The ADB looks to be taking a realistic case to the use of natural gas as well as recognizing the need to be practical on the cost of energy on its countries. Don't forget this is the ADB that there are a lot of member countries in the ADB in Asia ranging from the island countries like Marshall Island thru SE Asia and into the stan's from the former USSR. Point #86 noted ADB will only finance a coal plant for investments to modernize ie. " *to re-engineer such plant for use of cleaner fuels, such as natural gas or renewable energy sources*." Point #87 then covers the broad range of natural gas of financing natural gas trans, mission, pipelines, LNG terminals, storage, gas-fired power plants, natural gas for heating/cooking, etc. The caveats wouldn't stop any such projet unless it was to do something like replace renewable power. To be fair to the reporting, this is not an easy to read 37-pg draft. There is no summary, its just a listing of points in a single spaced document. [LINK]. Our Supplemental Documents package includes excerpts from the ADB draft energy policy.

**Energy Transition – Berkshire reminds battery storage has short send out duration**

**Berkshire on battery storage**

Berkshire Hathaway held their long AGM and Q&A last Saturday, but we didn't see a transcript until Sunday so didn't include any insights in last week's memo. There is a lot in the 100+ pg transcript [LINK]. The big headline out of the Q&A was the supposed slip by Charlie Munger suggesting Edmonton native Greg Abel would be the successor to Warren Buffet. It forced Buffet to say on Monday "*The directors are in agreement that if something were to happen to me tonight, it would be Greg who'd take over tomorrow morning*". From th energy side, there were a few points to note. No surprise, Abel took many of the questions. (i) Energy transition focus for their retiring coal plants is not on natural gas but renewables using transmission. Abel didn't slam natural gas, rather said "*and the ones we've highlighted*

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*on the slide, is to transition from our existing fleet to renewables using transmission. We have not become overly dependent on transitioning to gas, that's been a clear strategy. So over a period of time, our coal units will retire. I'm pleased to report to our shareholders that, through 2020, we've closed 16 units to date. If you look at from 2021 through 2030, there'll be an incremental 16 units closed, and then if you go through to the end of 2049, our remaining 14 units will be closed. And at that point in time, all our coal units are closed. That slide is just an aggregation of all the activities each of our business units have been taking to help facilitate that transition, and really transitioning to decarbonizing those units."* (ii) Reminds transmission is the problem ie. need to get power from where the wind blows and the sun shines to where electricity its needed. Buffet said "*Transmission is really the problem, a big problem, because you've got to get from where the sun is shining and where the wind is blowing, essentially, to concentrations of population, and whether… You cross state lines and you'll go through people's backyards. Whether the federal government has a better luck in just saying, "" his is the way it's going to be done," and ramming it down the throats of where they go and getting it done. They may have that power and they'll be able to do it faster than we are. On the other hand, we'd love to do it. We'll spend 100 billion, but the speed at which we can do it… We bought Pacific Corp in 2006 and we had a bunch of customers out in the far West and they had coal plants serving them. And to change that you've got to be able to go to where the wind blows and deliver it."* (iii) Battery storage's short send out capacity is a negative. For years, we have highlighted, battery storage with long duration send out capacity will be the game changer for the world of energy. Abel noted that the lack of long duration send out capacity is the reason why battery storage isn't Berkshire's focus ie. why Berkshire focuses on renewable plus transmission. Abel said "*The big difference between a battery proposal and our proposal is that we will have power that can be generated continuously for seven consistent days. Where if you went to a battery solution, you may release that power that's been stored for four hours, but we're talking four days of a problem, not four hours. It's just a completely different cost equation and solutions."* The challenge with these sessions is that its not analysts asking followup questions so no one asked what if long duration send out capacity with storage becomes visible. Our Supplemental Documents package includes energy excerpts from the transcript.

### Energy Transition – Sempra, can take a decade to build new transmission

**Transmission costs big $ and takes time**

When we keep warning that the energy transition will take longer than expected and cost more, we shake our head as we don't understand why governments don't see to listen to warnings from industry on the reality check on how fast things can be done. On Wednesday, we tweeted [LINK] "*Demise of #NatGas will take longer. Q&A from $SRE Q1 call. expansion of transmission are long lead projects, can take up to a decade to complete. Last large scale transmission cost $1.9b to build 90 mile. Reinforces #EnergyTransition will take longer and cost more. #OOTT"* Sempra had some blunt warnings in its Q1 call on the timing and cost of transmission. Earlier we noted Berkshire Hathaway's view on transmission. That is not a unique view, rather we have been highlighting that two of the biggest requirements for the energy transition are a massive upgrade of the grid and a massive expansion of transmission. There were two key warnings from Sempra in the Q&A. (i) Looks like no way for Biden to get rid of natural gas for power generation by 2035. And new transmission will inevitably have to follow existing rights of way to have any chance of being done in whatever timeline. If Biden wants to eliminate natural gas for power, they need transmission. If they can't get the renewable to the demand centers, they can't replace natural gas for power. We have trouble believing that the Sempra view on how long it takes to build transmission isn't much different in other parts of the country. Maybe it will be quicker in other regions but we find it hard to believe its much quicker. In the Q&A, Sempra said it can take a decade to build an expansion of transmission. Mgmt said "*an expansion of the transmission system. So*

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*these are very, very hard to sight and build of these are long lead time projects, it can take up to a decade to complete and it's one of the reasons I think that we feel so constructive about the transmission and distribution positions we have, in Texas, in California, because we think the lion's share of these upgrades that will be extended will come from the existing owners of the existing rights away an existing land positions in infrastructure*." We also expect NIMBY considerations to be a factor and a wildcard for transmission. (ii) The Energy Transition will be very expensive. We don't know how many miles will be required of new transmission, but we doubt anyone has costed out how much transmission will cost. In the Q&A, Sempra said "*You may remember, the largest, the last large scale transmission line we've built here was the Sunrise power line and it took up almost $1.9 billion to build 90mi. Right. So it is a very costly challenging permitting project, particularly in California, and that's one of the reasons, Ryan, that we have a thesis that when you talk about transmission and distribution and the importance of grids toward accepting more renewables. It will fall largely to upgrading existing facilities and making sure that More renewable clusters can access existing infrastructure."*

**Biomass seems to get a pass**

### Energy Transition – Why isn't biomass on the hit list for reducing emissions?

We had to be the broken record but we do believe the Energy Transition is happening and will happen, it just will take longer, be a bumpy road and cost more than the aspirations. One of our concerns is that it seems that once some energy transition theme becomes accepted, there is no retreat from there. And vice versa, once something is put in the bad side, no one pays attention to see if it can help meet the goal of dramatic cuts in emissions. From the emissions side, we have never understood why biomass burning for electricity became a must have. On Friday, we tweeted [LINK] on a Harvard T.H. Chan School of Public Health paper "*A decade of the U.S. energy mix transitioning away from coal: historical reconstruction of the reductions in the public health burden of energy".* [LINK]. The paper notes that there are more negative health effects from burning wood, biomass and natural gas than from burning coal in certain cases. The Biden administration has put natural gas in its target and makes sure it is clearly a fossil fuel ie. its kind of hard for it to be a transition fuel when it carefully put into the fossil fuel bucket a la coal. But the Harvard paper was a good reminder that, for some reason, burning biomass seems to have a pass from the climate change side. Its why we tweeted "*Why do #NetZero #EnergyTransition plans give a pass to #Biomass burning for electricity in fight to reduce emissions? #NatGas is on the hit list to go, but would reduce emissions relative to biomass. Thx @HarvardChanSPH Jonathan Buonocore Sc.D."* Harvard wrote "*In 2008, the health impacts of air pollution from stationary sources was largely driven by coal combustion. By 2017, the contribution of coal has dropped precipitously, and the health burden of stationary air pollution sources is shared among a mixture of source types and fuels—largely gas and biomass in buildings and industry, and the remaining coal-fired electricity generation. Nationwide, in 2017, health impacts of biomass and wood combustion are higher than combustion of coal and gas individually. Industrial boilers had the highest emissions and health impacts, followed by residential buildings, electricity, and then commercial buildings. All three RCMs indicate that biomass and wood are the leading sources of stationary source air pollution health impacts in 24 states, and that the total health impacts of gas surpass that of coal in 19 states and the District of Columbia."* Our Supplemental Documents package includes excerpts from the paper.

**Sumitomo targeting carbon neutrality by 2050**

### Energy Transition – Sumitomo planning to exit coal business by H2 2040

One of the concerns we have on how big companies reduce emissions is that they simply pass on the emissions to someone down the food chain size by selling the asset. We highlighted this in our recent April 22 tweet [LINK] "*#NetZero. Reality check on how one company makes near term sizeable cuts in emissions - pass emissions to others. #BigOil sells #Oil production. Unless $ALK scraps a young fleet, replacing older planes w/ fuel*

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*efficient planes will mean a sale #OOTT."* Its not just airplanes. What happens when someone trades in an ICE vehicle for an EV? Or in this week's case, what happens if Sumitomo sells its thermal coal plants or won't finance thermal coal plants? Argus reported on Friday [LINK] that Sumitomo is targeting an exit from its coal business by H2 2040, in an effort to achieve its 2050 carbon-neutrality goal. The firm plans to stop investing in coal-fired power generation projects (with the only possible exception being an expansion of Bangladesh's Matabari plant) and is targeting to abandon its thermal coal mine assets by 2030, while completing all on-going projects by H2 2040. Sumitomo supplied 4.4mn t of thermal coal during the April 2020-March 2021 fiscal year. Sumitomo's tougher stance on environmental issues appears to be positive step, however, it does not make much of a difference unless the plants are retired, and not just sold to a new owner or financer. Our Supplemental Documents package includes the Argus report.

### Energy Transition – IEA warns critical minerals risk for energy transition

**Critical minerals risk**

We have been warning that the big IEA theme will be that the world is behind in where it needs to be to meet its Net Zero and Energy Transition aspirations. This is not a new IEA theme, rather they have been hammering this home for a year. Its one of the reasons why we continue to say the Energy Transition is happening, it will just take longer, be a bumpy road and cost more than the aspirations. On Wednesday, the IEA released a major report "*The Role of Critical World Energy Outlook Special Report Minerals in Clean Energy Transitions*" [LINK] that reinforced these concerns. The IEA release starts off "*Supplies of critical minerals essential for key clean energy technologies like electric vehicles and wind turbines need to pick up sharply over the coming decades to meet the world's climate goals, creating potential energy security hazards that governments must act now to address, according to a new report by the International Energy Agency."* The messaging isn't in any doubt here and why we tweeted [LINK] "*Path to #EnergyTransition is clear, but demise of #Oil #NatGas won't be as quick as aspirations. Another @fbirol warning not on track to meet #NetZero aspirations. this time critical minerals raising risk of delayed or more expensive #EnergyTransition. Great report @IEA . #OOTT".* This is a good report to read and for reference libraries. There are a huge amount of good insights and perspective report. One perspective example is that coal revenues will still be almost double energy transition minerals revenues in 2030. Its not just a potential shortage of critical minerals, it's the concentration of minerals sources that will cause increased security risks ie. China in the below chart. Its why the IEA recommendations include "*as well as voluntary strategic stockpiles in some instances*". Our Supplemental Documents package includes excerpts from the IEA Executive Summary from the report.

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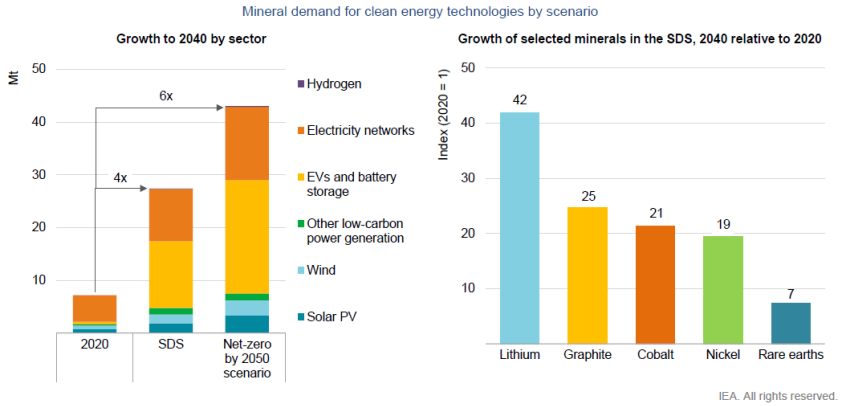
## Figure 34: Critical Minerals demand

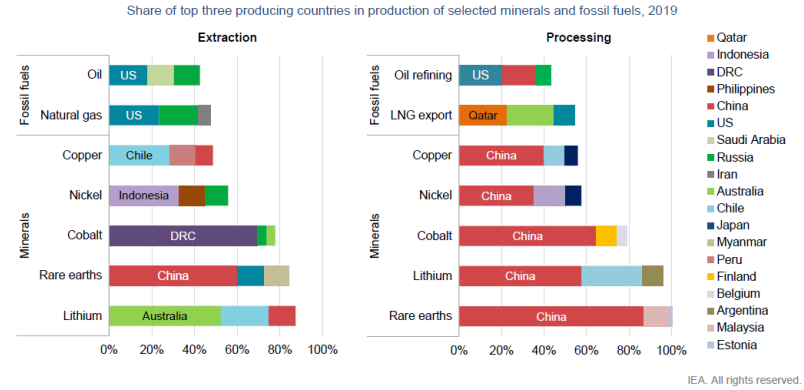
**Mineral demand for clean energy technologies would rise by at least four times by 2040 to meet climate goals, with particularly high growth for EV-related minerals**




Source: IEA

## Figure 35: Extraction and Processing of Fossil Fuels and Critical Minerals

**Production of many energy transition minerals today is more geographically concentrated than that of oil or natural gas**




Source: IEA

### IEA was formed to make sure countries had strategic reserves of oil

The IEA's report also brings a reminder as to why it was formed. The IEA warns on the risk of security of supply. The critical minerals report has 6 recommendations and one includes "*4. Enhance supply chain resilience and market transparency. Policy makers need to explore a range of measures to improve the resilience of supply chains for different minerals, develop response capabilities to potential supply disruptions and enhance market transparency. Measures can include regular market assessments and stress-tests, as well as strategic stockpiles in some instances*." Strategic stockpiles caught our attention. Its why we tweeted [LINK] "*Hmm! @IEA 's recommendations incl "as well as voluntary strategic stockpiles in some instances". IEA was formed from #ArabOilEmbargo 73/74, members committed to 90 day strategic oil reserves. IEA doesn't see same no gas for cars, but more expensive, delayed #EnergyTransition #OOTT"* As we have noted before, the IEA was created following the Arab Oil Embargo after the Arab producers shut out the west. And one of the key requirements for membership was that memos committed to have 90 day strategic oil reserves. Its also why the US created the Strategic Oil

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Reserves. Every year we remind on the Arab Oil Embargo and include the below picture that reminds of the block long line ups to get gasoline when the embargo hit. It was the game changer for energy for decades to come.

Figure 36: Gas station line up during Arab Oil Embargo 1973-74

Source: Time

**Climate Change – Ruminants (cows, etc) almost 2x methane emissions vs oil & gas**

**Ruminants methane emissions**

This week, the UN Environment Programme published their major report – "*Global Methane Assessment: Benefits and Costs of Mitigating Methane Emissons"* [LINK] . The US starts right at the start and reminds that methane is way worse the CO2 "*Methane, a short-lived climate pollutant (SLCP) with an atmospheric lifetime of roughly a decade, is a potent greenhouse gas tens of times more powerful than carbon dioxide at warming the atmosphere".* We have been highlighting for years how the Cdn oil and gas sector has been reducing methane emissions going back to when one of our friends was in the Encana group doing so. The reality is that fossil fuels are the easy target for governments even if they were already reducing methane emissions. And the first set of measures recommended by the UN are against fossil fuels "*Oil, gas and coal: the fossil fuel sector has the greatest potential for targeted mitigation by 2030. Readily available targeted measures could reduce emissions from the oil and gas sector by 29–57 Mt/yr and from the coal sector by 12–25 Mt/yr. Up to 80 per cent of oil and gas measures and up to 98 per cent of coal measures could be implemented at negative or low cost. (Section 4.2)".* We understand why fossil fuels are the easiest to go after, but the UN report also reminds of the leading cause of methane emissions. For example, ruminants (ie. cattle, etc) cause 73% more methane emissions than oil and gas. Its why we tweeted [LINK] "*Interesting data from @UNEP global #Methane emissions report. worst are Freshwaters 159 mt/yr, Wetlands 145, Ruminants (cattle etc) 115, #Oil & #NatGas 84. Termites 9 are ~= to all offshore oil & gas. Fortunately, oil & gas will keep doing more. #OOTT"* Below is the table we created to rank the US methane sources table.

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Figure 37: Sources of Methane 2017

| Sources of Methane Ranked (2017) | |
|---|---|
| **Source** | **Magnitude (MT/yr)** |
| Freshwaters | 159 |
| Wetlands | 145 |
| Ruminants (Cattle, goats, etc.) | 115 |
| Oil and gas industry | 84 |
| Landfill and waste | 68 |
| Geological | 45 |
| Coal mining | 44 |
| Rice cultivation | 30 |
| Biomass burning | 16 |
| Biofuels | 13 |
| Termites | 9 |
| Oceans | 6 |
| Transport | 4 |
| Industry | 3 |
| Wild animals | 2 |
| Permafrost soils | 1 |

| NATURAL SOURCES | MAGNITUDE (MT/YR) | ANTHROPOGENIC SOURCES | MAGNITUDE (MT/YR) | SINKS | MAGNITUDE (MT/YR) |
|---|---|---|---|---|---|
| Wetlands | 145 [100–183] | Coal mining | 44 [31–63] | Soils | 40 [37–47] |
| Termites | 9 [3–15] | Oil and gas industry | 84 [72–97] | Total chemical loss | 531 [502–540] |
| Oceans | 6 [4–10] | Landfill and waste | 68 [64–71] | Total loss | 571 [540–585] |
| Geological | 45 [18–65] | Ruminants | 115 [110–121] | | |
| Wild animals | 2 [1–3] | Rice cultivation | 30 [24–40] | | |
| Freshwaters | 159 [117–212] | Biomass burning | 16 [11–24] | | |
| Permafrost soils | 1 [0–1] | Industry | 3 [0–8] | | |
| | | Biofuels | 13 [10–14] | | |
| | | Transport | 4 [1–13] | | |
| Total natural | 367 [243-489] | Total anthropogenic | 380 [359–407] | | |
| Total natural (top-down) | 232 [194-267] | Total anthropogenic (top-down) | 364 [340-381] | | |

Source: UN Environment Programme

### Climate Change – Argentina encourages to not eat meat on Mondays

**Argentina's "Green Monday"**

Last week's (May 2, 2021) Energy Tidbits noted how UK doesn't want to go anywhere near telling UK citizens to stop eating beef to help with methane emissions. Argentina is also a big beef eating country and the government is trying to deal with beef in its emissions reduction plans. They aren't telling people to do it directly, but have their new initiative "Green Mondays" that was brought forward by Argentina's Ministry of Environment and Sustainable Development [LINK]. The Ministry wrote "*[Green Mondays] are an opportunity to reflect on our habits and promote environmentally friendly practices*". The campaign calls on citizens to eat plant-based on Mondays in an effort to curb emissions. Argentina is known for its carnivorous nature, consuming more than 100 pounds of beef per capita in 2020 (surprisingly a historic low) [LINK]. Cattle ranches in the country contribute to 22% of all emissions in Argentina, making them the largest contributor to emissions in the nation [LINK]. If successful, this initiative could make a significant difference in GHG emissions in the country. Our Supplemental Documents includes the translated Green Monday.

### Capital Markets – Good recap of almost every single commodity is up strong

**Good commodity price recap**

The big story in 2021 is that commodity prices have been on a tear over the last few months as demand is becoming more and more robust while supply chain issues stemming from covid continue to hamper supply. The World Bank posted their "Pink Sheet" for May which is a good quick recap of global commodity prices [LINK]. Q1 2021 commodity prices are up YoY for almost every commodity, with the exception of Japanese LNG, Cocoa, Mombasa Tea, Beef, Chicken, Shrimp and Potassium Chloride fertilizer. Metals & Precious Metals have rallied this year, with Iron ore up 84.14% YoY in Q1, as well as Copper (+50.46%), Silver (+55.62%), and Tin (+54.29%). In the energy sector, we are also seeing an increase in prices. WTI was up 25.65% YoY in Q1 2021, Natural Gas in Europe is +79.58%, and US Natural gas was up 79.58%. Our Supplemental Documents package includes the World Bank Commodity Pink Sheet for April.

### Capital Markets – "*can't sacrifice returns*" for "*environmental names* or *ESG* names"

**Japan's pension fund focus less on ESG**

Our initial thought was that there is senior director in trouble at Japan's $1.6 trillion Government Pension Investment Fund after saying *"can't sacrifice returns for the sake of*

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*buying environmental names or ESG names".* But its Japan and we wonder if the leak was deliberate. Regardless, the Bloomberg report this week is an excellent reminder that pension funds first priority is to invest to be able to fund the pension obligations of the members. And that means that pension funds just can't invest in ESG priority investments if the returns aren't sufficient for the pension obligations ie. ESG is not the priority, rather it's a nice to have but only assuming the pension returns are sufficient. And in the case of Japan's $1.6 trillion Government Pension Investment Fund, ESG looks to becoming more of a nice to have than have to have. Bloomberg's story "*The Top Pension Fund Has Cooled on ESG. Should You?: Shuli Ren*" wrote "*If a pioneer investor in ESG is getting cold feet, should you? In July 2017, Japan's $1.6 trillion Government Pension Investment Fund — the world's largest — blazed a trail by putting 1 trillion yen ($9.1 billion) into three indices that track Japanese stocks that put emphasis on environmental, social and corporate governance issues. GPIF then plowed 1.2 trillion yen into two carbon-efficient indices in 2018, and another 1.3 trillion yen into two ESG foreign equity indices last December. But top officials of the pension fund have been talking up fiduciary duty lately. GPIF "can't sacrifice returns for the sake of buying environmental names or ESG names," a senior director at the fund's investment strategy department told Bloomberg News in April*." We couldn't find their portfolio, but couldn't help tweet [LINK] "'*can't sacrifice returns for the sake of buying environmental names or #ESG names" says senior director of investment strategy dept Japan's $1.6T Government Pension Investment Fund. They should have bought Cdn #Oil stocks in 2021. Thx @shuli_ren*". Our Supplemental Documents package include the Bloomberg terminal report and our SAF Group daily stock up table showing the performance of Cdn oil stocks in 2021.

### Capital Markets – FAO Food Price Index +30.8% YoY, continues to reach new heights

**FAO Food Price Index continues to reach new heights**

One of the other major capital markets focus/concern is inflation, which is why we put this item in the capital markets section. The United Nations' Food and Agriculture Organization released their monthly Food Price Index results on Thursday [LINK]. The FAO Food Price Index (FFPI) averaged 120.9 points in April, which was 2.0 points (+1.7%) higher than March and up 28.4 points (+30.8%) YoY. This month was the eleventh consecutive rise in the FFPI's value, and April saw it hit its highest level since May 2014. This month's increase was led by price increases in sugar, oils, meat, dairy and cereals. While this is not a direct indicator to oil, markets are certainly turning to inflation risk. Our Supplemental Documents package includes the UN release.

Figure 38: FAO Food Price Index

Source: UN Food & Agriculture Organization

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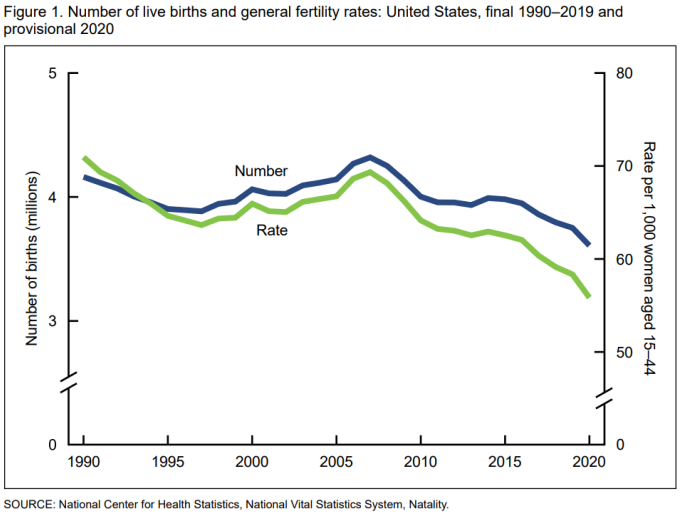
### Demographics – Lowest US total fertility rate on record in 2020

**US fertility rate at record low**

There was a fairly common expectation that the stay at home from Covid might lead to increased birth rates, but that was not the case. On Wed, the US National Center for Health Statistics • National Vital Statistics System released its "*Births: Provisional Data for 2020*" [LINK], which is the US recap of US births in 2020 by age and race of mother and other data. The NVSS summary is "Results—*The provisional number of births for the United States in 2020 was 3,605,201, down 4% from 2019. The general fertility rate was 55.8 births per 1,000 women aged 15–44, down 4% from 2019 to reach another record low for the United States. The total fertility rate was 1,637.5 births per 1,000 women in 2020, down 4% from 2019 to also reach another record low for the nation*." The total fertility rate of 1.6375 is the lowest on record, and total births were the lowest since 1979. It will be interesting to watch the births trends post Covid. Births have more or less been on a decline since the 2008/09 economic crash. Back to the expectation for more births, the comment I have heard from a couple of former coworkers in their early 40's with a 2 or 3 kids in the 8 to 15 age is that no one should be surprised by lower birth rates when you have kids 24/7 stuck at home and are old enough that they don't go to sleep at 7pm every night

Figure 30: US live births and fertility rate




Source: NVSS

### 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

### Will the Tokyo Olympics be like ports in banning crew changes?

Its 74 days until the planned start of the Tokyo Olympics on July 23. And the question of whether they will proceed or not was in the news this week with the extension of the Tokyo state of emergency for Covid until the end of May. Japan extended the state of emergency in both Tokyo and Osaka regions until May 31. It seems like Japan is determined to have the Olympics proceed. This week, one of the major shipping stories made us wonder what will the Olympics do with outbreaks, not in Japan but other countries. Will they do like is being done in ports like Singapore and Hong Kong and not allowing any crew changes for ships have recently come from India. We wonder what the Olympics have done with India athletes if this same outbreak were to happen a couple weeks before the athletes leave India for Tokyo?

### Acushnet estimates 0.5 mm new golfers in the US in 2020

One of the themes I heard from my friends in Calgary last summer was how busy the golf courses were during Covid, at least once they could open. It was the combination of people not being in offices so maybe easier to sneak off to play golf and that people wanted to be outside. But I was surprised to hear Acushnet Holdings (maker of Titleist golf balls and clubs) mgmt's comments to end Q1 call on Thursday on how many new golfers took up or returned to the game in 2020 under Covid. Mgmt said "*Well, George, and -- we've talked about this a little bit on the last call and your question is, is it something we think about often? As we look at what's played out in the last year, right, with a quarter of, call it shut down and then really strong recovery, I made the point we think there are about 0.5 million new players that entered the game in 2020. That's a U.S. number. Maybe half of that around the world. So, the game is going to come out of COVID stronger than it was when it went into COVID. And we say that carefully because it's built around obvious very difficult moment and events. But the net of it is the game comes out of this period stronger.*"

### New hi-tech floor design for the Colosseum in Rome

It looks like the on-again off-again plan to have a floor on the Colosseum is back on and now looks to be completed by 2023. The project concept is unchanged – build some sort of floor that allows for the ruins to be seen/protected while allowing people to walk into the middle of the Colosseum. Anyone who has been to Rome has likely taken in the Colosseum and it is magnificent. If by any chance someone is against this, we suspect they have never had the chance to walk out onto the field of a major stadium like the old Fenway Park. We can just imagine what it would be like to stand in the middle of the Colosseum and think of the history. Reuters reporting on the new floor is at [LINK].

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Figure 40: Italy unveils new hi-tech floor design for Colosseum

Source: Reuters

### Recall of Peloton Treadmills after one child death and 70 incidents

In our April 18th Tidbits, we noted an incident where a little boy was sucked under the back of the tread of a Peloton Tread+ Treadmill. Thankfully, the little boy escaped unharmed, but it spurred the US Consumer Product Safety Commission to release a statement warning consumers to stop using the treadmill due to the "*serious risks it poses to children"* [LINK]. On Wednesday, the CPSC and Peloton have announced a recall for all Tread+ Treadmills that included the apology from the CEO [LINK]. Peloton will immediately stop selling and distribution the Tread and Tread+ products in the United States and refund the full price to consumers. It was interesting to that the Peleton recall and apology posted on the website still includes pictures of the treadmills that give the feel of a sales advertisement and not a recall.

### 19th anniversary of Allen Iverson's practice rant

We were reminded on the US sports shows that Friday was the 19th anniversary of the May 7, 2002 Allen Iverson famous "practice" rant from his interview 4 days after his Philadelphia 76ers lost in the first round of the NBA playoffs to the Boston Celtics. There is a YouTube clip at [LINK]. But Iverson was questioned by the media on his dedication to practice. In his rant, he said the word "practice" over 20 times. His rant included ""*We sitting in here—I'm supposed to be the franchise player, and we in here talking about practice" "I mean, listen: We talking about practice. Not a game. Not a game. Not a game. We talking about practice. Not a game. Not the game that I go out there and die for and play every game like it's my last. Not the game. We talking about practice, man*." This is a good example that the words alone don't do justice to the delivery of the words.

### 2nd no-hitter against the Cleveland Indians in last month

One of the advantages of weekend working on the Energy Tidbits memo is it's a chance to catch up on sports news without markets being open. Its still early in the MLB season with just over 30 games gone and its not like the Cleveland Indians are a bad team, they have the 4th highest win percentage in the AL East at 17-14. It was 111 years ago that the first no-hitter was thrown against the Indians on May 12, 1910. In this 111 years, there have only been 13 no-hitters thrown against the Indians, but 2 have been in the last month. That's pretty amazing. On Friday, Cincinnati Reds' Wade Miley threw a no hitter and Chicago White Sox Carlos Rodon threw on April 14.

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